BACnet® TESTING LABORATORIES

TEST PLAN

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1 Test Plan Overview

This document describes each functional item that the BTL will test and identifies the tests that will be used to test the item. Each test plan item in this document corresponds to a line item in the ***BTL Checklist*** document. It provides a more detailed description of the functional item, and the tests that the BTL will use to ensure the proper implementation of the functional item.

Each test that is to be applied for a specific functional item is described in a table entry. A sample entry is shown below.

The top line (test reference) of the table entry refers to the test. The first part of the reference specifies the test definition document that defines the test. This can be either ***ANSI/ASHRAE 135.1-2019***, or the ***BTL Specified Tests*** document.

The Test Conditionality section specifies whether the test shall be executed or whether it shall be skipped. This item will either detail the conditions under which the test shall be skipped or it will refer the reader to the actual test definition. If the IUT meets the conditions laid out, then the test will not be applied.

The Testing Hints section provides useful information for the Test Planner to consider when choosing parameters for the test, or useful information for the Tester when applying the test.

The Test Directives section contains the test instructions for Verify Checklist tests or may contain the number of variants or parameters the test can run. A pretester shall always test all possible variants.

The document that contains the test definition.

The test number in the test definition document.

The test name in the test definition document.

This line identifies the test to apply (the test reference).

135.1-2019 - 7.3.2.23.4 - Weekly_Schedule and Exception_Schedule Interaction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

Table 1: *A sample test plan entry.*

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1.1 External Document References

This version of the BTL Test Plan contains references to the following external documents.

Document name	Description
135.1-2019	SSPC Test Standard. This document is the same as 135.1-2013 with the addenda o, p, q and r.
135-2020	BACnet standard revision number 22. This document is the same as 135-2016 with the addenda *bd, be, bi, bj, bk, bl, bm, bn, bp, bq, br, bs, bt, bu, bw, by, and bz.*
135-2020*cd*	TLS v1.3 Cipher suite Application Profile for BACnet/SC. Approved August 31, 2021.

BTL Specified Tests are assumed to be referenced to the "BTL Specified Tests" document which filename contains the same version number as the BTL Test Plan document.

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1.2 Testing Virtual Network Gateways

This test plan was developed to test a single BACnet device but BACnet virtual gateways are different from other BACnet devices in that they represent 2 or more devices: the virtual router and one or more virtual devices. The functionality of the virtual router device might be very different than the functionality of the virtual devices and thus warrants separate testing.

The Test Plan shall be applied to the virtual router based on its BTL Checklist and on a virtual device based on its BTL Checklist.

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2 Basic BACnet Functionality

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2.1 Basic Functionality (Applies To All BACnet Devices)

2.1.1 Base Requirements

All BACnet devices must meet these base requirements.

BTL - 10.1.1 - Processing Application Layer Messages Originating from Remote Networks		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.6.1 - Ignore Remote Packets		
	Test Conditionality	Must be executed unless the IUT's routing functionality cannot be disabled.
	Test Directives	The IUT's routing functionality must be disabled. Ensure that the packet actually reaches the IUT. Test using an address which resembles the actual address of IUT. Also test using a DNET of 0 and with a packet still containing aDNET of the actual network of IUT when it reaches the IUT.
	Testing Hints	Note that a routed packet, which contained the DNET of the actual network of IUT before the router strips that off in transmitting it locally to the IUT, is not expected to be ignored.
135.1-2019 - 10.6.2 - Ignore Who-Is-Router-To-Network		
	Test Conditionality	Must be executed unless the IUT's routing functionality cannot be disabled.
	Test Directives	The IUT's routing functionality must be disabled.
	Testing Hints	
BTL - 10.6.3 - Ignore Router Commands		
	Test Conditionality	Must be executed unless the IUT's routing functionality cannot be disabled.
	Test Directives	The IUT's routing functionality must be disabled.
	Testing Hints	
135.1-2019 - 13.4.3 - Invalid Tag		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	In VTS, the needed invalid packets can be created through the dedicated menu item devoted to test 13.4.3.
135.1-2019 - 13.4.4 - Missing Required Parameter		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
135.1-2019 - 13.4.5 - Too Many Arguments		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
135.1-2019 - 9.39.1 - Unsupported Confirmed Services Test		
	Test Conditionality	Must be executed.
	Test Directives	Don't forget Confirmed Private Transfer; if the IUT supports Confirmed Private Transfer, send one with a different vendor Id. Also try services that have not yet been defined (reserved enumeration range), sending them in a BACnet-Confirmed-Request-PDU with DER bit set.
	Testing Hints	
135.1-2019 - 9.39.2 - Unsupported Unconfirmed Services Test		
	Test Conditionality	Must be executed.

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	Test Directives	Don't forget Unconfirmed Private Transfer; if the IUT supports Unconfirmed Private Transfer, send one with a different vendor Id. Also try services that have not yet been defined (reserved enumeration range), sending them in a BACnet-Unconfirmed-Request-PDU with DER bit clear and with no InvokeID.
	Testing Hints	
BTL - 13.1.12.1 - IUT Does Not Support Segmented Response		
	Test Conditionality	Must be executed if the device does not support the transmission of segmented responses, otherwise the test is omitted.
	Test Directives	
	Testing Hints	The test assumes that the device supports DS-RPM-B. If the device does not support DS-RPM-B, substitute a ReadProperty request of the Priority Array property or another very large property. A test variation would be to change the value of the Max-APDU-Length-Accepted parameter in the request.
BTL - 13.9.X1 - Ignore Confirmed Broadcast Requests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.1.2 EPICS Consistency Tests

BTL - 5 - EPICS Consistency Tests		
	Test Conditionality	Must be executed.
	Test Directives	The EPICS and the IUT Configuration must match exactly. The EPICS must note the existence of every object and property, resolution, and range restrictions if any for writable values. All writable standard properties must be claimed.
	Testing Hints	
BTL - 7.2.3 - Read-only Property Test		
	Test Conditionality	If the IUT does not support the WriteProperty service, then this test shall be skipped.
	Test Directives	This test ensures accuracy of the EPICS, if the EPICS is changed this test shall be run again.
	Testing Hints	
BTL - 7.1.2 - Non-documented Property Test		
	Test Conditionality	Must be executed.
	Test Directives	This test ensures accuracy of the EPICS, if the EPICS is changed this test shall be run again.
	Testing Hints	

2.1.3 Supports DS-RP-B

The IUT supports DS-RP-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-B.
	Testing Hints	

2.1.4 Uses Who-Is and I-Am Services for Router Address Discovery

The IUT can generate a broadcast Who-Is message. The IUT examines the I-Am response message(s) to determine the MAC address of a router that can forward messages to a particular network.

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BTL - 10.7.2 - Router Binding via Application Layer Services		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.1.5 Uses Who-Is-Router-To-Network (any Network) for Router Address Discovery

The IUT can generate a Who-Is-Router-To-Network message with no network number specified. The IUT examines the I-Am-Router-To-Network message(s) sent in response to determine the MAC address of a router that can forward messages to a particular network.

135.1-2019 - 10.7.3 - Router Binding via Who-Is-Router-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.5.1.1 - Who-Is-Router-To-Network - General Query		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.1.6 Uses Who-Is-Router-To-Network (Specific Network) for Router Address Discovery

The IUT can generate a Who-Is-Router-To-Network message, with a specific network specified. The IUT examines the I-Am-Router-To-Network message sent in response to determine the MAC address of a router that can forward messages to the specific network.

135.1-2019 - 10.7.3 - Router Binding via Who-Is-Router-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.5.1.2 - Who-Is-Router-To-Network - Specific Network Number		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.1.7 Uses MAC Broadcasts for Router Discovery

The IUT sends a request to a device connected to a different network using a MAC broadcast on the IUT's local network. The IUT determines the MAC address of the router to the other network by examining the message sent by the device in response to the request.

135.1-2019 - 10.7.4 - Router Binding via Broadcast		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.1.8 Uses Static Router Address Configuration

The IUT can be statically configured with the MAC address of a router to a particular network, permitting the IUT to send requests to devices connected to that network.

135.1-2019 - 10.7.1 - Static Router Binding		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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2.1.9 Supports DM-DDB-B

The IUT supports DM-DDB-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-DDB-B.
	Testing Hints	

2.1.10 Supports DM-DOB-B

The IUT supports DM-DOB-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-DOB-B.
	Testing Hints	

2.1.11 Initiates Confirmed Requests

The IUT initiates any BACnet confirmed requests.

135.1-2019 - 13.9.1 - APDU Retry and Timeout		
	Test Conditionality	If the IUT cannot be configured with Number_Of_APDU_Retries greater than zero then this test shall be skipped.
	Test Directives	
	Testing Hints	

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2.2 Segmentation Support

2.2.1 Base Requirements

All BACnet devices must meet these base requirements.

BTL - 7.3.2.10.X2 - Max_Segments_Accepted at least the minimum		
	Test Conditionality	If the Segmentation_Supported property of Device object cannot be made to hold a value other than NO-SEGMENTATION, then this test shall be skipped.
	Test Directives	
	Testing Hints	

2.2.2 Issues Segmented Responses

BACnet devices which are capable of issuing segmented responses shall meet these requirements.

BTL - 9.18.1.X3 - Respects max-segments-accepted bit pattern		
	Test Conditionality	Must be executed, if there is any response generated by IUT which is large enough to require segmentation.
	Test Directives	Test with a ‘max-segments-accepted’ bit pattern value that is less than TD’s Max_Segments_Accepted property value, to ascertain that the ‘max-segments-accepted’ bit pattern value is what governs.
	Testing Hints	

2.2.3 Accepts Segmented Responses without Specifying the Maximum

The IUT supports receiving segmented responses and is able to generate requests with the max-segments-accepted set to B'000'.

BTL - 13.1.12.X1 - Reading with maximum-segments-accepted bit pattern B'000'		
	Test Conditionality	If the IUT cannot be configured to issue any BACnet-Confirmed-Request-PDU with 'segmented-response-accepted' = TRUE and the 'max-segments-accepted' parameter equal to B'000', then this test shall be skipped.
	Test Directives	
	Testing Hints	

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2.3 Private Transfer Services

2.3.1 Base Requirements

Base requirements must be met by any IUT that initiates or executes private transfer services.

2.3.2 Initiates ConfirmedPrivateTransfer

The IUT initiates ConfirmedPrivateTransfer service requests.

135.1-2019 - 8.25 - ConfirmedPrivateTransfer Service Initiation Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.3.3 Initiates UnconfirmedPrivateTransfer

The IUT initiates UnconfirmedPrivateTransfer service requests.

135.1-2019 - 8.26 - UnconfirmedPrivateTransfer Service Initiation Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.3.4 Executes ConfirmedPrivateTransfer

The IUT initiates ConfirmedPrivateTransfer service requests.

BTL - 9.25.1.1 - Correctly Executes a Supported ConfirmedPrivateTransfer Service		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.25.2.1 - Correctly Executes a Non-Supported ConfirmedPrivateTransfer Service		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

2.3.5 Executes UnconfirmedPrivateTransfer

The IUT executes UnconfirmedPrivateTransfer service requests.

There are no tests for this functionality.

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3 Objects

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3.1 Analog Input Object

3.1.1 Base Requirements

Base requirements must be met by any IUT that can contain Analog Input objects.

3.1.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Analog Input objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.2 Analog Output Object

3.2.1 Base Requirements

Base requirements must be met by any IUT that can contain Analog Output objects. There are no base requirements for this object.

3.2.2 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.2.3 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Analog Output objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.2.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in analog output objects.

BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.3 Analog Value Object

3.3.1 Base Requirements

Base requirements must be met by any IUT that can contain Analog Value objects. There are no base requirements for this object.

3.3.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Analog Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.3.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.3.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in analog value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.4 Averaging Object

3.4.1 Base Requirements

Base requirements must be met by any IUT that can contain Averaging objects.

BTL - 7.3.2.4.1 - Reinitializing the Samples		
	Test Conditionality	Must be executed
	Test Directives	Repeat for each datatype that the IUT supports in an Averaging object.
	Testing Hints	
BTL - 7.3.2.4.2 - Managing the Sample Window		
	Test Conditionality	Must be executed
	Test Directives	Repeat for each datatype that the IUT supports in an Averaging object.
	Testing Hints	

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3.5 Binary Input Object

3.5.1 Base Requirements

Base requirements must be met by any IUT that can contain Binary Input objects. There are no base requirements for this object.

3.5.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Binary Input objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.5.3 Supports Writable Polarity Property

The IUT supports a writable Polarity property in the Binary Input objects.

135.1-2019 - 7.3.2.5.3 - Polarity Property Tests		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

3.5.4 Supports Change Of State Tracking

The IUT contains or can be made to contain an object with the Change_Of_State_Time, Change_Of_State_Count and Time_Of_State_Count_Reset properties.

BTL - 7.3.1.8 - Change of State Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X18 - Non-zero Writable State Count Test		
	Test Conditionality	If no Binary Input object contains a writable Change_Of_State_Count that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Input object.
	Testing Hints	

3.5.5 Supports Elapsed Active Time Tracking

The IUT contains or can be made to contain an object with the Elapsed_Active_Time and Time_Of_Active_Time_Reset properties.

BTL - 7.3.1.9 - Elapsed Active Time Test		
	Test Conditionality	If no Binary Input object contains a writable Elapsed_Active_Time then this test shall be skipped.
	Test Directives	This stell shall be performed using a Binary Input object.
	Testing Hints	
BTL - 7.3.1.X19 - Non-zero Writable Elapsed Active Time Test		
	Test Conditionality	If no Binary Input object contains a writable Elapsed_Active_Time that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.

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	Test Directives	This test shall be performed using a Binary Input object.
	Testing Hints	

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3.6 Binary Output Object

3.6.1 Base Requirements

Base requirements must be met by any IUT that can contain Binary Output objects. There are no base requirements for this object.

3.6.2 Supports Command Prioritization

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.6.3 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Binary Output objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.6.4 Supports Writable Polarity Property

The IUT supports a writable Polarity property in the Binary Output object.

135.1-2019 - 7.3.2.6.3 - Polarity Property Tests		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

3.6.5 Supports Change Of State Tracking

The IUT contains or can be made to contain and object with the Change_Of_State_Time, Change_Of_State_Count and Time_Of_State_Count_Reset properties.

BTL - 7.3.1.8 - Change of State Test		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be performed using a Binary Output Object.
	Testing Hints	
BTL - 7.3.1.X18 - Non-zero Writable State Count Test		
	Test Conditionality	If no Binary Output object contains a writable Change_Of_State_Count that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Output object.
	Testing Hints	

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3.6.6 Supports Elapsed Active Time Tracking

The IUT contains or can be made to contain an object with the Elapsed_Active_Time and Time_Of_Active_Time_Reset properties.

BTL - 7.3.1.9 - Elapsed Active Time Test		
	Test Conditionality	If no Binary Output object contains a writable Elapsed_Active_Time then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Output object.
	Testing Hints	
BTL - 7.3.1.X19 - Non-zero Writable Elapsed Active Time Test		
	Test Conditionality	If no Binary Output object contains a writable Elapsed_Active_Time that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped
	Test Directives	This test shall be performed using a Binary Output object.
	Testing Hints	

3.6.7 Supports Minimum_Off_Time

The object contains Minimum_Off_Time property.

135.1-2019 - 7.3.1.4 - Minimum_Off_Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.1 - Override of Minimum Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.2 - Minimum Off Time - Writing at priorities numerically greater than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.4 - Minimum Off Time - Writing at priorities numerically lesser than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.6 - Minimum_Off_Time - Clock is not affected by additional write operations		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.8 - Ensuring Minimum_Off_Time starts at transition to INACTIVE		
	Test Conditionality	If Minimum_On_Time and Minimum_Off_Time properties are present, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.10 - Ensuring Minimum Times Are Not Affected By Time Changes		
	Test Conditionality	If the property is present and the device can execute TimeSynchronization or UTCTimeSynchronization requests, this test must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.11 - Minimum_Off_Time - Value Source Mechanism		
	Test Conditionality	Must be executed if the IUT claims Value source mechanism.
	Test Directives	
	Testing Hints	

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3.6.8 Supports Minimum_On_Time

The object contains Minimum_On_Time property.

135.1-2019 - 7.3.1.5 - Minimum_On_Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.1 - Override of Minimum Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.3 - Minimum On Time - Writing at priorities numerically greater than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.5 - Minimum On Time - Writing at priorities numerically lesser than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.7 - Minimum_On_Time - Clock is not affected by additional write operations		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.9 - Ensuring Minimum_On_Time starts at transition to ACTIVE		
	Test Conditionality	If Minimum_On_Time and Minimum_Off_Time properties are present, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.10 - Ensuring Minimum Times Are Not Affected By Time Changes		
	Test Conditionality	If the property is present and the device can execute TimeSynchronization or UTCTimeSynchronization requests, this test must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.12 - Minimum_On_Time - Value Source Mechanism		
	Test Conditionality	Must be executed if the IUT claims Value source mechanism.
	Test Directives	
	Testing Hints	

3.6.9 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in Binary Output objects.

BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	

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	Testing Hints	

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3.7 Binary Value Object

3.7.1 Base Requirements

Base requirements must be met by any IUT that can contain Binary Value objects. There are no Base Requirements tests for this object.

3.7.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Binary Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.7.3 Supports Change Of State Tracking

The IUT contains or can be made to contain an object with the Change_Of_State_Time, Change_Of_State_Count and Time_Of_State_Count_Reset properties.

BTL - 7.3.1.8 - Change of State Test		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be performed using a Binary Value object.
	Testing Hints	
BTL - 7.3.1.X18 - Non-zero Writable State Count Test		
	Test Conditionality	If no Binary Value object contains a writable Change_Of_State_Count that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Value object.
	Testing Hints	

3.7.4 Supports Elapsed Active Time Tracking

The IUT contains or can be made to contain an object with the Elapsed_Active_Time and Time_Of_Active_Time_Reset properties.

BTL - 7.3.1.9 - Elapsed Active Time Test		
	Test Conditionality	If no Binary Value object contains a writable Elapsed_Active_Time then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Value object.
	Testing Hints	
BTL - 7.3.1.X19 - Non-zero Writable Elapsed Active Time Test		
	Test Conditionality	If no Binary Value object contains a writable Elapsed_Active_Time that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Value object.
	Testing Hints	

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3.7.5 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.7.6 Supports Minimum_Off_Time

The object contains Minimum_Off_Time property.

135.1-2019 - 7.3.1.4 - Minimum_Off_Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.1 - Override of Minimum Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.2 - Minimum Off Time - Writing at priorities numerically greater than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.4 - Minimum Off Time - Writing at priorities numerically lesser than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.6 - Minimum_Off_Time - Clock is not affected by additional write operations		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.8 - Ensuring Minimum_Off_Time starts at transition to INACTIVE		
	Test Conditionality	If Minimum_On_Time and Minimum_Off_Time properties are present, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.10 - Ensuring Minimum Times Are Not Affected By Time Changes		
	Test Conditionality	If the property is present and the device can execute TimeSynchronization or UTCTimeSynchronization requests, this test must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.11 - Minimum_Off_Time - Value Source Mechanism		
	Test Conditionality	Must be executed if the IUT claims Value source mechanism.
	Test Directives	
	Testing Hints	

3.7.7 Supports Minimum_On_Time

The object contains Minimum_On_Time property.

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135.1-2019 - 7.3.1.5 - Minimum_On_Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.1 - Override of Minimum Time		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.3 - Minimum On Time - Writing at priorities numerically greater than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.5 - Minimum On Time - Writing at priorities numerically lesser than 6		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.7 - Minimum_On_Time - Clock is not affected by additional write operations		
	Test Conditionality	If the property is present, it must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.9 - Ensuring Minimum_On_Time starts at transition to ACTIVE		
	Test Conditionality	If Minimum_On_Time and Minimum_Off_Time properties are present, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.10 - Ensuring Minimum Times Are Not Affected By Time Changes		
	Test Conditionality	If the property is present and the device can execute TimeSynchronization or UTCTimeSynchronization requests, this test must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.6.12 - Minimum_On_Time - Value Source Mechanism		
	Test Conditionality	Must be executed if the IUT claims Value source mechanism.
	Test Directives	
	Testing Hints	

3.7.8 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in binary value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.8 Calendar Object

3.8.1 Base Requirements

Base requirements must be met by any IUT that can contain Calendar Objects

BTL - 7.3.2.8.1 - Single Date Rollover Test		
	Test Conditionality	If the IUT does not contain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.8.2 - Date Range Test		
	Test Conditionality	If the IUT does not contain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.8.3 - WeekNDay Test		
	Test Conditionality	If the IUT does not contain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.2.X1 - Date Pattern Properties Test		
	Test Conditionality	If the IUT does not conatain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	Apply to the Date_List property.
	Testing Hints	
BTL - 7.2.X7 - BACnetDateRange Non-Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher. If the IUT does not contain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	Apply to Date_List property.
	Testing Hints	
BTL - 7.2.X8 - BACnetDateRange Open-Ended Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher. If the IUT does not contain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	Apply to Date_List property.
	Testing Hints	
BTL - 9.23.2.X12 - BACnetDateRange Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple. If the IUT does not contain any calendars with a writable Date_List, this test shall be skipped.
	Test Directives	Apply to the Date_List property.
	Testing Hints	

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3.9 Command Object

3.9.1 Base Requirements

Base requirements must be met by any IUT that can contain Command objects.

BTL - 7.3.2.9.2 - Quit on Failure Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.9.4 - Empty Action List Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.9.5 - Action 0 Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.9.7 - Write While In_Process is TRUE Test.		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

3.9.2 Supports Action_Text

The size of the Action array corresponds to the size of the Action_Text array.

135.1-2019 - 7.3.2.9.6 - Action_Text Test		
	Test Conditionality	If the property is supported, the test must be executed.
	Test Directives	
	Testing Hints	

3.9.3 Supports Post_Delay

The properties of binary objects that collectively track state changes function as required.

135.1-2019 - 7.3.2.9.1 - All Writes Successful with Post Delay Test		
	Test Conditionality	If the prescribed test can be configured, it must be executed.
	Test Directives	
	Testing Hints	

3.9.4 Supports External Writes

A Command object can write to external objects.

BTL - 7.3.2.9.3 - External Writes Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.9.5 Supports Resizable Action and Action_Text Properties

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, Action and Action_Text properties that are resizable by writing to the array.

135.1-2019 - 7.3.2.9.8 - Action Size Changes Action_Text Size Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater and supports a resizable Action property.

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	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.9.9 - Action_Text Size Changes Action Size Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater and supports a resizable Action property.
	Test Directives	
	Testing Hints	

3.9.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in command objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.10 Device Object

3.10.1 Base Requirements

Base requirements must be met by any IUT that can contain Device objects. There are no base requirements for this object.

3.10.2 Supports Configurable Device Name and Instance

Ensures that the Object_name and Object_Identifier properties are configurable.

BTL - 7.3.2.10.X3 - Ensure Device Object_Name is Configurable		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.10.X4 - Ensure Device Object_Identifier is Configurable		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

3.10.3 Supports Database_Revision Property

Ensures that the Database_Revision property increments correctly.

135.1-2019 - 7.3.2.10.3 - Successful Increment of the Database_Revision Property after Creating an Object		
	Test Conditionality	If the device implements protocol revision 2 or higher, this test must be executed. If the IUT does not support object creation through any means, not just through BACnet services, this test may be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.10.4 - Successful Increment of the Database_Revision Property after Deleting an Object		
	Test Conditionality	If the device implements protocol revision 2 or higher, this test must be executed. If the IUT does not support object deletion through any means, not just through BACnet services, this test may be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.10.5 - Successful Increment of the Database_Revision Property after Changing the Object_Name Property of an Object		
	Test Conditionality	If the device implements protocol revision 2 or higher, this test must be executed. Where the only changeable Object_Name property in the device is the Device object's name, and the only method for changing the name is to replace the complete configuration and wipe all runtime data in the device, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.10.6 - Successful Increment of the Database_Revision Property after Changing the Object_Identifier Property of an Object		
	Test Conditionality	If the device implements protocol revision 2 or higher, this test must be executed. Where the only changeable Object_Identifier property in the device is the Device object's identifier, this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.10.4 Supports Time_Synchronization_Recipients

The Time_Synchronization_Recipients property is present in the Device Object.

135.1-2019 - 13.2.1 - TimeSynchronization Recipients Test, Protocol_Revision < 7		
	Test Conditionality	Must be executed if Protocol_Revision < 7.
	Test Directives	
	Testing Hints	

3.10.5 Supports UTC_Time_Synchronization_Recipients

The UTC_Time_Synchronization_Recipients property is present in the Device Object.

Verify Checklist		
	Test Conditionality	Must be executed if Protocol_Revision ≥ 7.
	Test Directives	Verify that the IUT claims support for DM-ATS-A in the checklist.
	Testing Hints	

3.10.6 Contains a Writable Local_Date Property

The IUT contains, or can be made to contain, a Device object that contains a writable Local_Date property.

BTL - 7.2.X4 - Date Non-Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Local_Date property.
	Testing Hints	
BTL - 9.23.2.X9 - Date Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Local_Date property.
	Testing Hints	

3.10.7 Contains a Writable Local_Time Property

The IUT contains, or can be made to contain, a Device object that contains a writable Local_Time property.

BTL - 7.2.X5 - Time Non-Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Local_Time property.
	Testing Hints	
BTL - 9.23.2.X10 - Time Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Local_Time property in Device object
	Testing Hints	

3.10.8 Supports UTC_Offset Property

Ensures UTC_Offset property is configurable.

BTL - 7.3.2.10.X - Ensure UTC_Offset is Configurable		
	Test Conditionality	If the device supports Protocol_Revision < 18, this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.11 Event Enrollment Object

3.11.1 Base Requirements

Base requirements must be met by any IUT that can contain Event Enrollment Objects. There are no base requirements for this object.

3.11.2 Supports AE-N-I-B

The IUT supports AE-N-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-I-B.
	Testing Hints	

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3.12 Group Object

3.12.1 Base Requirements

Base requirements must be met by any IUT that can contain Group objects.

135.1-2019 - 7.3.2.14 - Group Object Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

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3.13 Loop Object

3.13.1 Base Requirements

Base requirements must be met by any IUT that can contain Loop objects.

135.1-2019 - 7.3.2.17.1 - Manipulated_Variable_Reference Tracking		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.17.2 - Controlled_Variable_Reference Tracking		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.13.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Loop objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	If the IUT implements Protocol_Revision 13 or higher, this test must be executed. If the IUT implements a Protocol_Revision less than 13 and does not support writable Present_Value and Reliability properties when Out_Of_Service is TRUE, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.13.3 Contains a Non-Empty Setpoint_Reference List

Controlled_Variable_Value tracks the property referenced by Controlled_Variable_Reference.

135.1-2019 - 7.3.2.17.3 - Setpoint_Reference Tracking		
	Test Conditionality	If the prescribed control loop can be configured, it must be executed.
	Test Directives	
	Testing Hints	

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3.14 Multi-state Input Object

3.14.1 Base Requirements

Base requirements must be met by any IUT that can contain Multi-state Input objects.

BTL - 7.3.1.15 - Number_Of_States Range Test		
	Test Conditionality	If the IUT does not contain an object with a writable, or conditionally writable Present_Value, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.14.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in multi-state objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.14.3 Supports State_Text

The size of the State_Text array corresponds to the Number_Of_States.

135.1-2019 - 7.3.2.18.2 - Number_Of_States and State_Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.14.4 Supports Resizable State_Text Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, a Multi-state Input object with a State_Text property that is resizable by writing to the array.

BTL - 7.3.1.X110.1 - Resizable State_Text Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater.
	Test Directives	This test shall be performed using a Multi-state Input object.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B option 'Contains resizable array properties'
	Testing Hints	

3.14.5 Supports Writable Number_Of_States Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, a Multi-state Input object with a writable Number_Of_States property.

BTL - 7.3.1.X73.1 - Writable Number_Of_States Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater.
	Test Directives	This test shall be performed using a Multi-state Input object.
	Testing Hints	

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3.15 Multi-state Output Object

3.15.1 Base Requirements

Base requirements must be met by any IUT that can contain Multi-state Output objects.

BTL - 7.3.1.15 - Number_Of_States Range Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.15.2 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.15.3 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in multi-state objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.15.4 Supports State_Text

The size of the State_Text array corresponds to the Number_Of_States.

135.1-2019 - 7.3.2.19.2 - Number_Of_States and State_Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.15.5 Supports Resizable State_Text Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, a Multi-state Output object with a State_Text property that is resizable by writing to the array.

BTL - 7.3.1.X110.1 - Resizable State_Text Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater.
	Test Directives	This test shall be performed using a Multi-state Output object.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B option ‘Contains resizable array properties’
	Testing Hints	

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3.15.6 Supports Writable Number_Of_States Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, a Multi-state Output object with a writable Number_Of_States property.

BTL - 7.3.1.X73.1 - Writable Number_Of_States Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater.
	Test Directives	This test shall be performed using a Multi-state Output object.
	Testing Hints	

3.15.7 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in multi-state output objects.

BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.16 Multi-state Value Object

3.16.1 Base Requirements

Base requirements must be met by any IUT that can contain Multi-state Value objects.

BTL - 7.3.1.15 - Number_Of_States Range Test		
	Test Conditionality	If the IUT does not contain an object with a writable, or conditionally writable Present_Value, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.16.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in multi-state objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.16.3 Supports State_Text

The size of the State_Text array corresponds to the Number_Of_States.

135.1-2019 - 7.3.2.20.2 - Number_Of_States and State_Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.16.4 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.16.5 Supports Resizable State_Text Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, a Multi-state Value object with a State_Text property that is resizable by writing to the array.

BTL - 7.3.1.X110.1 - Resizable State_Text Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater.

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	Test Directives	This test shall be performed using a Multi-state Value object.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B option 'Contains resizable array properties'
	Testing Hints	

3.16.6 Supports Writable Number_Of_States Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, a Multi-state Value object with a writable Number_Of_States property.

BTL - 7.3.1.X73.1 - Writable Number_Of_States Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater.
	Test Directives	This test shall be performed using a Multi-state Value object.
	Testing Hints	

3.16.7Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in multi-state value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.17 Notification Class Object

3.17.1 Base Requirements

Base requirements must be met by any IUT that can contain Notification Class objects.

135.1-2019 - 7.3.2.21.3.1 - ValidDays Test		
	Test Conditionality	Must be executed if the IUT keeps time.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.21.3.2 - FromTime and ToTime Test		
	Test Conditionality	Must be executed if the IUT keeps time.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.21.3.4 - Transitions Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.21.3.7 - Recipient_List non-volatility Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 13 or greater.
	Test Directives	Repeat the test, via ReinitializeDevice command if supported, and with a power interruption.
	Testing Hints	

3.17.2 Supports DM-DDB-A

The IUT supports DM-DDB-A. The IUT must be able to use the DM-DDB-A functionality to locate alarm recipients.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-DDB-A in the Checklist.
	Testing Hints	

3.17.3 Supports Writable Recipient_List Property

The IUT supports Recipient_List properties that are modifiable via write services. All required values must be accepted in write requests.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B and 'Contains writable list properties' in the Checklist.
	Testing Hints	
BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	Must be executed.
	Test Directives	Verify that all required values of BACnetDestination can be written (into a list element).
	Testing Hints	
135.1-2019 - 7.3.2.21.3.5 - Recipient_List Property Supports Device Identifier Recipients Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.21.3.6 - Recipient_List Property Supports Network Address Recipients		
	Test Conditionality	Must be executed.

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	Test Directives	Execute test multiple times using unicast, local broadcast, remote broadcast and global broadcast addresses. Use unicast MAC addresses of 1-6 octets.
	Testing Hints	
BTL - 7.2.X5 - Time Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the fromTime and again to the toTime element in a Recipient_List property in a Notification Class.
	Testing Hints	
BTL - 9.23.2.X10 - Time Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the fromTime and again to the toTime element in a Recipient_List property in a Notification Class.
	Testing Hints	

3.17.4 Supports Read-only Recipient_List Property

The IUT supports read-only Recipient_List properties.

135.1-2019 - 7.3.2.21.3.9 Read-only Recipient_List for external Notification Forwarder Objects		
	Test Conditionality	Must be executed if the IUT does not claim support for Notification Forwarder objects.
	Test Directives	
	Testing Hints	

3.17.5 Supports AE-CRL-B

The IUT supports AE-CRL-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-CRL-B.
	Testing Hints	

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3.18 Proprietary Objects

3.18.1 Base Requirements

Base requirements must be met by any IUT that can contain Proprietary objects. There are no base requirements for this object.

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3.19 Schedule Object

3.19.1 Base Requirements

Base requirements must be met by any IUT that can contain Schedule objects. There are no base requirement tests for this section.

3.19.2 Supports SCHED-I-B

The IUT supports SCHED-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for SCHED-I-B.
	Testing Hints	

3.19.3 Supports SCHED-WS-I-B

The IUT supports SCHED-WS-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for SCHED-WS-I-B.
	Testing Hints	

3.19.4 Supports SCHED-R-B

The IUT supports SCHED-R-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for SCHED-R-B.
	Testing Hints	

3.19.5 Supports Resizable Exception_Schedule Property

The IUT is protocol revision 4 or higher and the IUT contains, or can be made to contain, an Exception_Schedule property that is resizable by writing to the array.

135.1-2019 - 7.3.2.23.9 - Exception_Schedule Size Change Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 4 or greater and supports a resizable Exception_Schedule property.
	Test Directives	
	Testing Hints	

3.19.6 Protocol_Revision 24 or Higher is Claimed

The IUT supports a Schedule object and claims support for Protocol_Revision 24 or higher.

Contact BTL for interim tests for this functionality.

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3.20 Trend Log Object

3.20.1 Base Requirements

Base requirements must be met by any IUT that can contain Trend Log objects. There are no base requirements for this object.

3.20.2 Supports T-VMT-I-B

The IUT supports T-VMT-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-VMT-I-B.
	Testing Hints	

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3.21 Structured View Object

3.21.1 Base Requirements

Base requirements must be met by any IUT that can contain Structured View objects. There are no base requirements tests for this section.

3.21.2 Supports Writable And Resizable Subordinate_List And Contains A Subordinate_Annotations Property

The IUT contains, or can be made to contain, a Subordinate_Annotations property that is resizable.

135.1-2019 - 7.3.2.29.1 - Subordinate_List Size Changes Subordinate_Annotations		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.29.2 - Subordinate_Annotations Size Changes Subordinate_List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.22 Event Log Object

3.22.1 Base Requirements

Base requirements must be met by any IUT that can contain Event Log objects. There are no base requirements for this object.

3.22.2 Supports AE-EL-I-B

The IUT supports AE-EL-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-EL-I-B.
	Testing Hints	

3.22.3 Supports AE-EL-E-B

The IUT supports AE-EL-E-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-EL-E-B.
	Testing Hints	

3.22.4 Supports BUFFER_READY Notification

The IUT supports the BUFFER_READY notification from the Event Log object.

135.1-2019 - 8.4.7 - BUFFER_READY Tests (ConfirmedEventNotification)		
	Test Conditionality	If BUFFER_READY Notification is tested through **135.1-2019 - 8.5.7,** then this test can be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or an Event Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	
135.1-2019 - 8.5.7 - BUFFER_READY Tests (UnconfirmedEventNotification)		
	Test Conditionality	If BUFFER_READY Notification is tested through **135.1-2019 - 8.4.7,** then this test can be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or an Event Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	
135.1-2019 - 7.3.1.10.2 - Event_Enable Tests for TO_NORMAL only Algorithms		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or an Event Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	
135.1-2019 - 7.3.1.12 - Notify_Type Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or an Event Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	

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135.1-2019 - 7.3.2.24.10 - Notification_Threshold Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or an Event Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	
135.1-2019 - 7.3.2.24.17 - Last_Notify_Record Test		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or anEvent Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	
135.1-2019 - 7.3.2.24.18 - Records_Since_Notification Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	The 'Event Object Identifier' in this test must be either an Event Log object contained in the IUT or an Event Enrollment object in the IUT monitoring the Event Log Object contained in the IUT.
	Testing Hints	

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3.23 Trend Log Multiple Object

3.23.1 Base Requirements

Base requirements must be met by any IUT that can contain Trend Log Multiple objects. There are no base requirements for this object.

3.23.2 Supports T-VMMV-I-B

The IUT supports T-VMMV-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-VMMV-I-B.
	Testing Hints	

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3.24 Bitstring Value Object

3.24.1 Base Requirements

Base requirements must be met by any IUT that can contain Bitstring Value objects. There are no base requirements for this object.

3.24.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Bitstring Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.24.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.24.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in bitstring value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.25 CharacterString Value Object

3.25.1 Base Requirements

Base requirements must be met by any IUT that can contain CharacterString Value objects. There are no base requirements for this object.

3.25.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in CharacterString Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.25.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.25.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in characterstring value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.26 Date Pattern Value Object

3.26.1 Base Requirements

Base requirements must be met by any IUT that can contain Date Pattern Value objects. There are no base requirements for this object.

3.26.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Date Pattern Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.26.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.26.4 Contains a Writable Present_Value Property, or Can Be Placed Out_Of_Service

The IUT contains, or can be made to contain, a Date Pattern Value Object that contains a writable Present_Value property, or can have its Out_Of_Service property set to TRUE.

BTL - 7.2.X1 - Date Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Present_Value property.
	Testing Hints	

3.26.5 Contains a Writable Relinquish_Default Property

The IUT contains, or can be made to contain, a Date Pattern Value Object that contains a writable Relinquish_Default property.

BTL - 7.2.X1 - Date Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Relinquish_Default property.
	Testing Hints	

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3.26.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in date pattern value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.27 Date Value Object

3.27.1 Base Requirements

Base requirements must be met by any IUT that can contain Date Value objects. There are no base requirements for this object.

3.27.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Date Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.27.3 Supports Command Prioritization

The object contains a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.27.4 Contains a Writable Present_Value Property, or Can Be Placed Out_Of_Service

The IUT contains, or can be made to contain, a Date Value object that contains a writable Present_Value property.

BTL - 7.2.X4 - Date Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Present_Value property in a Date Value object.
	Testing Hints	
BTL - 9.23.2.X9 - Date Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Present_Value property in a Date Value object.
	Testing Hints	

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3.27.5 Contains a Writable Relinquish_Default Property

The IUT contains, or can be made to contain, a Date Value object that contains a writable Relinquish_Default property.

BTL - 7.2.X4 - Date Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Relinquish_Default property in a Date Value object.
	Testing Hints	
BTL - 9.23.2.X9 - Date Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Relinquish_Default property in a Date Value object.
	Testing Hints	

3.27.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in date value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.28 DateTime Pattern Value Object

3.28.1 Base Requirements

Base requirements must be met by any IUT that can contain DateTime Pattern Value objects. There are no base requirements for this object.

3.28.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in DateTime Pattern Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.28.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.28.4 Contains a Writable Present_Value Property, or Can Be Placed Out_Of_Service

The IUT contains, or can be made to contain, a DateTime Pattern Value Object that contains a writable Present_Value property, or can have its Out_Of_Service property set to TRUE.

BTL - 7.2.X3 - DateTime Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Present_Value property.
	Testing Hints	

3.28.5 Contains a Writable Relinquish_Default Property

The IUT contains, or can be made to contain, a DateTime Pattern Value Object that contains a writable Relinquish_Default property.

BTL - 7.2.X3 - DateTime Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Relinquish_Default property.
	Testing Hints	

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3.28.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in datetime pattern value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.29 DateTime Value Object

3.29.1 Base Requirements

Base requirements must be met by any IUT that can contain DateTime Value objects. There are no base requirements for this object.

3.29.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in DateTime Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.29.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.29.4 Contains a Writable Present_Value Property, or Can be Placed Out_Of_Service

The IUT contains, or can be made to contain, a DateTime Value object that contains a writable Present_Value property.

BTL - 7.2.X6 - DateTime Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Present_Value property in a DateTime Value object.
	Testing Hints	
BTL - 9.23.2.X11 - DateTime Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Present_Value property in a DateTime Value object.
	Testing Hints	

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3.29.5 Contains a Writable Relinquish_Default Property

The IUT contains, or can be made to contain, a DateTime Value object that contains a writable Relinquish_Default property.

BTL - 7.2.X6 - DateTime Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Relinquish_Default property in a DateTime Value object.
	Testing Hints	
BTL - 9.23.2.X11 - DateTime Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Relinquish_Default property in a DateTime Value object.
	Testing Hints	

3.29.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in datetime value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.30 Integer Value Object

3.30.1 Base Requirements

Base requirements must be met by any IUT that can contain Integer Value objects. There are no base requirements for this object.

3.30.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Integer Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.30.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.30.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in integer value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.31 Large Analog Value Object

3.31.1 Base Requirements

Base requirements must be met by any IUT that can contain Large Analog Value objects. There are no base requirements for this object.

3.31.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Large Analog Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.31.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.31.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in large analog value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.32 OctetString Value Object

3.32.1 Base Requirements

Base requirements must be met by any IUT that can contain OctetString Value objects. There are no base requirements for this object.

3.32.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in OctetString Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.32.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.32.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in octetstring value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.33 Positive Integer Value Object

3.33.1 Base Requirements

Base requirements must be met by any IUT that can contain Positive Integer Value objects. There are no base requirements for this object.

3.33.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Positive Integer Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.33.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.33.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in positive integer value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.34 Time Pattern Value Object

3.34.1 Base Requirements

Base requirements must be met by any IUT that can contain Time Pattern Value objects. There are no base requirements for this object.

3.34.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Time Pattern Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.34.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.34.4 Contains a Writable Present_Value Property, or Can be Placed Out_Of_Service

The IUT contains, or can be made to contain, a Time Pattern Value Object that contains a writable Present_Value property, or can have its Out_Of_Service property set to TRUE.

BTL - 7.2.X2 - Time Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Present_Value property.
	Testing Hints	

3.34.5 Contains a Writable Relinquish_Default Property

The IUT contains, or can be made to contain, a Time Pattern Value Object that contains a writable Relinquish_Default property.

BTL - 7.2.X2 - Time Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the Relinquish_Default property.
	Testing Hints	

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3.34.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in time pattern value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.35 Time Value Object

3.35.1 Base Requirements

Base requirements must be met by any IUT that can contain Time Value objects. There are no base requirements for this object.

3.35.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Time Value objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.1.X2 - Out_Of_Service for Commandable Value Objects Test		
	Test Conditionality	This test shall be skipped if the device does not contain a commandable instance of this object type which supports modification of Present_Value via software local to the device.
	Test Directives	
	Testing Hints	

3.35.3 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.35.4 Contains a Writable Present_Value Property

The IUT contains, or can be made to contain, a Time Value object that contains a writable Present_Value property.

BTL - 7.2.X5 - Time Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Present_Value property in a Time Value object.
	Testing Hints	
BTL - 9.23.2.X10 - Time Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Present_Value property in a Time Value object.
	Testing Hints	

3.35.5 Contains a Writable Relinquish_Default Property

The IUT contains, or can be made to contain, a Time Value object that contains a writable Relinquish_Default property.

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BTL - 7.2.X5 - Time Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claim Protocol_Revision 11 or greater.
	Test Directives	Apply to the Relinquish_Default property in a Time Value object.
	Testing Hints	
BTL - 9.23.2.X10 - Time Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Relinquish_Default property in a Time Value object.
	Testing Hints	

3.35.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in time value objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in a instance where Present_Value is not commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed if the Value Source Mechanism is supported in an instance where Present_Value is commandable
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.36 Global Group Object

3.36.1 Base Requirements

Base requirements must be met by any IUT that can contain Global Group objects.

BTL - 7.2.3 - Read-only Property Test		
	Test Conditionality	Must be executed.
	Test Directives	Test the Present_Value property of each Global Group object.
	Testing Hints	
BTL - 7.3.2.13.X2 - Reliability MEMBER_FAULT Test		
	Test Conditionality	If no object pointed to by the Group_Members property can be made to contain Status_Flags FAULT flag equal to TRUE, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.13.X3 - Reliability COMMUNICATION_FAILURE Test		
	Test Conditionality	If the Groups_Members property is not writable and cannot be made to contain references to external objects, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.13.X4 - Present_Value Tracking and Reliability Test		
	Test Conditionality	If the Reliability property is not present or cannot be made to not equal NO_FAULT_DETECTED, this test shall be skipped.
	Test Directives	The test shall be executed using a Global Group object.
	Testing Hints	
BTL - 7.3.2.13.X7 - First Stage Faults Take Precedence Over Second Stage Faults When Presenting Reliability		
	Test Conditionality	If no object pointed to by the Group_Members property can be made to contain Status_Flags FAULT flag equal to TRUE, or if the Group_Members property is not writable and can not be made to contain references to external objects, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.36.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in the Global Group object contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.2.13.X1 - Global Group Present_Value, Out_Of_Service and Status_Flags Test		
	Test Conditionality	If Out_Of_Service can be made TRUE, this test must be executed.
	Test Directives	
	Testing Hints	

3.36.3 Supports Writable Group_Members Properties

The property in the Global Group object contained in the IUT is writable.

135.1-2019 - 7.3.2.13.1 - Resizing Group_Member_Names by Writing Group_Members Property Test		
	Test Conditionality	If this property is writable, this test must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.13.2 - Resizing Group_Members by Writing Group_Member_Names Property Test		

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	Test Conditionality	If this property is writable, this test must be executed.
	Test Directives	
	Testing Hints	

3.36.4 Supports DS-RP-A for Retrieving Member Values

The IUT supports DS-RP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

3.36.5 Is Able to Read REAL Values

The IUT supports a Global Group object that is able to read REAL values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a REAL value.
	Testing Hints	

3.36.6 Is Able to Read Unsigned Values

The IUT supports a Global Group object that is able to read Unsigned values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read an UNSIGNED value.
	Testing Hints	

3.36.7 Is Able to Read INTEGER (Signed) Values

The IUT supports a Global Group object that is able to read INTEGER values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read an INTEGER (Signed) value.
	Testing Hints	

3.36.8 Is Able to Read BOOLEAN Values

The IUT supports a Global Group object that is able to read BOOLEAN values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a BOOLEAN value.
	Testing Hints	

3.36.9 Is Able to Read Bit String Values

The IUT supports a Global Group object that is able to read Bit String values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test

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	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a Bit String value.
	Testing Hints	

3.36.10 Is Able to Read Enumerated Values

The IUT supports a Global Group object that is able to read Enumerated values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read an Enumerated value.
	Testing Hints	

3.36.11 Is Able to Read NULL Values

The IUT supports a Global Group object that is able to read NULL values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a NULL value.
	Testing Hints	

3.36.12 Is Able to Read Double Values

The IUT supports a Global Group object that is able to read Double values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a Double value.
	Testing Hints	

3.36.13 Is Able to Read Character String Values

The IUT supports a Global Group object that is able to read Character String values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a Character String value.
	Testing Hints	

3.36.14 Is Able to Read Octet String Values

The IUT supports a Global Group object that is able to read Octet String values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read an Octet String value.
	Testing Hints	

3.36.15 Is Able to Read Date Values

The IUT supports a Global Group object that is able to read Date values.

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BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a Date value.
	Testing Hints	

3.36.16 Is Able to Read Time Values

The IUT supports a Global Group object that is able to read Time values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a Time value.
	Testing Hints	

3.36.17 Is Able to Read BACnetObjectIdentifier Values

The IUT supports a Global Group object that is able to read BACnetObjectIdentifier values.

BTL - 7.3.2.13.X5 - Present_Value Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	Set the Group_Members property to make the Present_Value read a BACnetObjectIdentifier value.
	Testing Hints	

3.36.18 Supports COV to Retrieve Remote Property Values

The IUT can be made to use COV to retrieve values for the Global Group object.
Requires that COV_Resubscription_Interval be present.

BTL - 7.3.1.7.X1 - COV_Resubscription_Interval Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.36.19 Supports COVU_Period and COVU_Recipients Properties

The IUT contains, or can be made to contain, a Global Group object that can generate UnconfirmedCOVNotifications using the COVU_Period and COVU_Recipients properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-COVU-B in the Checklist.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-DDB-A in the Checklist.
	Testing Hints	
BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	Must be executed.
	Test Directives	The property that is written for this instance of this test shall be the COVU_Recipients property.
	Testing Hints	Verify that any legal value of BACnetRecipient (as a list element) can be written.
BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		

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	Test Conditionality	Must be executed.
	Test Directives	The property that is written for this instance of this test shall be the COVU_Period property.
	Testing Hints	
BTL - 7.3.2.13.X6 - COVU_Period and COVU_Recipients Zero Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.3.X1 - COVU_Recipients Notifications		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.36.20 Supports Event Reporting

The IUT supports or can be configured to support, event reporting in the Global Group Object.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-I-B or AE-N-E-B in the Checklist with option "Implements the CHANGE_OF_RELIABILITY - FAULT_STATUS_FLAGS Algorithm".
	Testing Hints	
BTL - 8.5.17.X9.11 - CHANGE_OF_RELIABILITY with First Stage Object Fault (UnconfirmedEventNotifications)		
	Test Conditionality	This test shall be executed if the object's Reliability property can be made to equal COMMUNICATION_FAILURE otherwise this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.37 Accumulator Object

3.37.1 Base Requirements

Base requirements must be met by any IUT that can contain Accumulator objects.

BTL - 7.3.2.X37.1 - Present_Value Remains In-Range Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.37.2 Supports Prescale Property

The Prescale property in at least one Accumulator object is present.

BTL - 7.3.2.X37.2 - Prescale in Accumulator Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.37.3 Supports Logging_Record Property

The Logging_Record property in at least one Accumulator object is present.

BTL - 7.3.2.X37.3 - Logging_Record in Accumulator Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X37.4 - Logging_Record in Accumulator RECOVERED Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X37.5 - Logging_Record in Accumulator STARTING Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.37.4 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Accumulator objects are either writable or can be modified by any other means.

BTL - 7.3.2.X37.6 - Out_Of_Service Accumulator Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.37.5 Supports Writable Value_Set Property

The Value_Set property in Accumulator objects is writable.

BTL - 7.3.2.X37.7 - Value_Set Writing Test		
	Test Conditionality	Must be executed.
	Test Directives	Verify in each object where this test could be executed, that Value_Before_Change in that object is read-only.
	Testing Hints	

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3.37.6 Supports Writable Value_Before_Change Property

The Value_Before_Change property in Accumulator objects is writable.

BTL - 7.3.2.X37.8 - Value_Before_Change Writing Test		
	Test Conditionality	Must be executed.
	Test Directives	Verify in each object where this test could be executed, that Value_Set in that object is read-only.
	Testing Hints	

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3.38 Program Object

3.38.1 Base Requirements

All BACnet devices must meet these base requirements.

BTL - 7.3.2.22.1 - Program_Change property test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Test only Program_Change values RUN and HALT.

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3.39 Life Safety Point Object

3.39.1 Base Requirements

Base requirements must be met by any IUT that can contain Life Safety Point objects

BTL - 7.3.2.15.X6 - Supports Writable Mode Property		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using a Life Safety Point object.
	Testing Hints	
BTL - 7.3.2.15.X5 - Writable Tracking_Value		
	Test Conditionality	If Out_Of_Service can be made TRUE, this test must be executed.
	Test Directives	The test shall be executed using a Life Safety Point object.
	Testing Hints	
BTL - 7.3.2.15.X9 - Silenced Property Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using a Life Safety Point object.
	Testing Hints	
BTL - 7.3.2.15.X7 - Support Operation_Expected Property		
	Test Conditionality	Must be executed if the IUT supports a life safety object capable of generating CHANGE_OF_LIFE_SAFETY event notifications.
	Test Directives	The test shall be executed using a Life Safety Point object.
	Testing Hints	

3.39.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Life Safety objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	If Out_Of_Service can be made TRUE, this test must be executed.
	Test Directives	The test shall be executed using a Life Safety Point object.
	Testing Hints	

3.39.3 Supports Writable Member_Of Property

BTL - 7.3.2.15.X8 - Writable Member_Of Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.39.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in life safety point objects.

BTL - 7.3.1.X42.Y5 - Life Safety Value_Source Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.40 Life Safety Zone Object

3.40.1 Base Requirements

Base requirements must be met by any IUT that can contain Life Safety Zone objects

BTL - 7.3.2.15.X6 - Supports Writable Mode Property		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using a Life Safety Zone object.
	Testing Hints	
BTL - 7.3.2.15.X5 - Writable Tracking_Value		
	Test Conditionality	If Out_Of_Service can be made TRUE, this test must be executed.
	Test Directives	The test shall be executed using a Life Safety Zone object.
	Testing Hints	
BTL - 7.3.2.15.X9 - Silenced Property Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using a Life Safety Zone object.
	Testing Hints	
BTL - 7.3.2.15.X7 - Support Operation_Expected Property		
	Test Conditionality	Must be executed if the IUT supports a life safety object capable of generating CHANGE_OF_LIFE_SAFETY event notifications.
	Test Directives	The test shall be executed using a Life Safety Zone object.
	Testing Hints	

3.40.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Life Safety objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	If Out_Of_Service can be made TRUE, this test must be executed.
	Test Directives	The test shall be executed using a Life Safety Zone object.
	Testing Hints	

3.40.3 Supports Writable Member_Of Property

BTL - 7.3.2.15.X8 - Writable Member_Of Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.40.4 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in life safety zone objects.

BTL - 7.3.1.X42.Y5 - Life Safety Value_Source Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.41 Pulse Converter Object

3.41.1 Base Requirements

Base requirements must be met by any IUT that can contain Pulse Converter objects.

BTL - 7.3.2.X38.1 - Adjust_Value Write Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X38.2 - Scale_Factor Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X38.5 - Update_Time Reflects Change to the Count and is Updated Atomically Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X38.6 - Adjust_Value Out-of-Range WriteProperty Test		
	Test Conditionality	Must be executed.
	Test Directives	Verify in the EPICS that Value_Before_Change in the object is read-only.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify in the EPICS that Update_Time and Count_Change_Time are read-only in all Pulse Converter objects.
	Testing Hints	

3.41.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Pulse Converter objects are either writable or can be modified by any other means.

BTL - 7.3.2.X38.3 - Out_Of_Service Pulse Converter Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.42 Access Door Object

3.42.1 Base Requirements

Base requirements must be met by any IUT that supports Access Door objects

BTL - 7.3.2.X55.1.X1 - Commandable Present_Value Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.42.2 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.42.3 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Access Door objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X55.1.X2 - Door_Status, Lock_Status and Door_Alarm_State Tests		
	Test Conditionality	If neither Door_Status, Lock_Status nor Door_Alarm_State is supported, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.42.4 Supports Door_Status Property

The IUT contains or can be made to contain Door_Status property which is writable when Out_Of_Service is True.

BTL - 7.3.2.X55.1.X3 - Door_Status with Physical Door Status Tests		
	Test Conditionality	If the Door_Status property is permanently configured to have the value UNUSED then this test shall be skipped.
	Test Directives	
	Testing Hints	

3.42.5 Supports Lock_Status Property

The IUT contains or can be made to contain Lock_Status property which is writable when Out_Of_Service is True.

BTL - 7.3.2.X55.1.X4 - Lock_Status Tests

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	Test Conditionality	If the physical lock cannot be manipulated without writing to Present_Value of the associated Access Door objet then this test shall be skipped.
	Test Directives	
	Testing Hints	

3.42.6 Supports Secured_Status Property

The IUT contains or can be made to contain Secured_Status property.

BTL - 7.3.2.X55.1.X5 - Secured_Status Tests		
	Test Conditionality	If the Secured_Status property is permanently configured to have the value UNKNOWN then this test shall be omitted.
	Test Directives	
	Testing Hints	

3.42.7 Supports Door_Unlock_Delay_Time Property

The IUT contains or can be made to contain a writable or read-only Door_Unlock_Delay_Time property

BTL - 7.3.2.X55.1.X6 - Door_Unlock_Delay_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.42.8 Supports Masked_Alarm_Values Property

The IUT contains or can be made to contain Masked_Alarm_Value property.

BTL - 7.3.2.X55.1.X7 - Masked_Alarm_Values Test		
	Test Conditionality	If Out_Of_Service is not writeable and cannot be set to TRUE by any other means, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.42.9 Supports Intrinsic Reporting

The IUT supports intrinsic reporting.

BTL - 7.3.2.X55.1.X8 - Door_Open_Too_Long Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.42.10 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in access door objects.

BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		

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	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.43 Load Control Object

3.43.1 Base Requirements

Base requirements must be met by any IUT that can contain Load Control objects.

BTL - 7.3.2.X53.2 - Shed_Levels property test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.43.2 Supports Writable Requested_Shed_Level to LEVEL Choice

The Requested_Shed_Level property in Load Control objects is writable to LEVEL choice.

BTL - 7.3.2.X53.1 - Requested_Shed_Level property test with LEVEL choice		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.43.3 Supports Writable Reliability Property

The Reliability property in Load Control objects is writable.

BTL - 7.3.2.X53.3 - Load Control Status_Flags and Reliability Test		
	Test Conditionality	If Reliability is writable, this test must be executed.
	Test Directives	
	Testing Hints	

3.43.4 Supports Writable Requested_Shed_Level to PERCENT Choice

The Requested_Shed_Level property in Load Control objects is writable to PERCENT choice.

BTL - 7.3.2.X53.4 - Requested_Shed_Level property test with PERCENT choice		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.43.5 Supports Writable Requested_Shed_Level to AMOUNT Choice

The Requested_Shed_Level property in Load Control objects is writable to AMOUNT choice.

BTL - 7.3.2.X53.5 - Requested_Shed_Level property test with AMOUNT choice		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.43.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in load control objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.44 Access Point Object

3.44.1 Base Requirements

Base requirements must be met by any IUT that can contain Access Point objects

BTL - 7.3.2.X56.1 - Authentication_Status and Access_Event Test		
	Test Conditionality	This test shall be skipped if Out_Of_Service is not writable and cannot otherwise be made TRUE.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X56.2 - Allowed Access Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X56.3 - Denied Access Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X56.4 - Authorization Mode Test		
	Test Conditionality	If the IUT only supports the authorization mode AUTHORIZE, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X56.5 - Access Rights Exemptions Test		
	Test Conditionality	If the Authorization_Exemption property is not supported or the ACCESS_RIGHTS exemption is not supported this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X56.10 - Denied Access Disabled Credential Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.44.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Access Point objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X3 - Out_Of_Service, Status_Flags, and Reliability Test for Objects without Present_Value		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using an Access Point object
	Testing Hints	
BTL - 7.3.1.1.X4 - Out_Of_Service, Access_Event for Access Point Objects Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using an Access Point object
	Testing Hints	

3.44.3 Supports Writable Active_Authentication_Policy Property

IUT supports Access Point objects with writable Active_Authentication_Policy property.

BTL - 7.3.2.X56.6 - Change Authentication Policy Test		
	Test Conditionality	Must be executed.

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	Test Directives	
	Testing Hints	

3.44.4 Supports Writable Lockout Property

IUT supports Access Point objects with writable Lockout Property.

BTL - 7.3.2.X56.7 - Lockout State Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.44.5 Supports Writable Threat_Level Property

IUT supports Access Point objects with writable Threat_Level property.

BTL - 7.3.2.X56.8 - Threat Level Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.44.6 Supports Occupancy_Upper_Limit_Enforced and Occupancy_Count_Adjust Properties

IUT supports Access Point objects with modifiable Occupancy_Upper_Limit_Enforced and Occupancy_Count_Adjust properties.

BTL - 7.3.2.X56.9 - Denied Access Occupancy Upper Limit Test		
	Test Conditionality	If the IUT does not support the Access Zone object type, this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.45 Access Zone Object

3.45.1 Base Requirements

There are no base requirements tests for this section.

3.45.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Access Zone objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X3 - Out_Of_Service, Status_Flags, and Reliability Test for Objects without Present_Value		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using an Access Zone object
	Testing Hints	

3.45.3 Supports Occupancy_Count Property

The IUT supports Occupancy_Count property

BTL - 7.3.2.X57.1 - Occupancy State Test		
	Test Conditionality	If the Occupancy_Lower_Limit is not supported then the steps of the test which test this functionality shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X57.2 - Occupancy Counting Test		
	Test Conditionality	If the Occupancy_Lower_Limit is not supported then the steps of the test which test this functionality shall be skipped.
	Test Directives	
	Testing Hints	

3.45.4 Supports Credentials_In_Zone Property

The IUT supports Credentials_In_Zone property.

BTL - 7.3.2.X57.3 - Keeping Track of Credentials Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.45.5 Supports Passback_Mode Property

The IUT supports Passback_Mode property.

BTL - 7.3.2.X57.4 - Passback Mode Test		
	Test Conditionality	If the IUT does not support soft passback or hard passback mode then those tests shall be skipped. If Passback_Timeout is not supported then those steps shall be skipped. If the passback exemption of the Access Credential object type is not supported then those steps shall be skipped.
	Test Directives	
	Testing Hints	

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3.46 Access User Object

3.46.1 Base Requirements

There are no base requirements tests for this section.

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3.47 Access Rights Object

3.47.1 Base Requirements

Base requirements must be met by any IUT that can contain Access Rights objects

BTL - 7.3.2.X59.1 - Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X59.2 - Negative Rules Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X59.3 - Positive Access Rules Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X59.4 - Accompaniment Test		
	Test Conditionality	If the IUT does not support the Accompaniment_Time in Access Point Object Type, this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.48 Access Credential Object

3.48.1 Base Requirements

Base requirements must be met by any IUT that can contain Access Credential objects

BTL - 7.3.2.X60.1 - Credential Status, Credential Disable and Reason for Disable Test		
	Test Conditionality	If the IUT does not support any of DISABLED_MANUAL, DISABLED_NOT_YET_ACTIVE, DISABLED_EXPIRED, then this test shall be skipped.
	Test Directives	Skip any sections of the test which correspond to Reason_For_Disable values not supported by the device.
	Testing Hints	
BTL - 7.3.2.X60.2 - Activation Time and Expiration Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X60.3 - Disabled Access Rights Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.48.2 Supports Days_Remaining Property

The IUT supports the Access Credential Objects with Days_Remaining property

BTL - 7.3.2.X60.4 - Days Remaining and Uses Remaining Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.48.3 Supports Absentee_Limit Property

The IUT supports the Access Credential Objects with Absentee_Limit property

BTL - 7.3.2.X60.5 - Absentee Limit Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X60.8 - Absentee Limit Property Test with Zero and 65535 Value		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 20 and above.
	Test Directives	
	Testing Hints	

3.48.4 Supports Last_Access_Point, Last_Use_Time and Last_Access_Event Properties

The IUT supports the Access Credential Objects with Last_Access_Point, Last_Use_Time and Last_Access_Event properties

BTL - 7.3.2.X60.6 - Last Access Point, Last Use Time and Last Access Event Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.48.5 Supports Writable Extended_Time_Enable Property

The IUT supports the Access Credential Objects with writable Extended_Time_Enable property

BTL - 7.3.2.X60.7 - Extended Time Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.49 Credential Data Input Object

3.49.1 Base Requirements

Base requirements must be met by any IUT that can contain Credential Data Input objects

BTL - 7.3.2.X61.1 - Return From Out Of Service Undefined Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X61.2 - Read Valid Authentication Factor Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.49.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Credential Data Input objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using a Credential Data Input object
	Testing Hints	

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3.50 Network Security Object

3.50.1 Base Requirements

Contact BTL for interim tests for this object

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3.51 Notification Forwarder Object

3.51.1 Base Requirements

Base requirements must be met by any IUT that can contain Notification Forwarder objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims Protocol_Revision 13 or higher.
	Testing Hints	
BTL - 7.2.X5 - Time Non-Pattern Properties Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to the fromTime and again to the toTime element in a Recipient_List property and to the Subscribed_Recipients property in a Notification Forwarder object.
	Testing Hints	
135.1-2019 - 7.3.2.30.8.1 - Time Count Down Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.8.2 - Expiration Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.8.3 - Time Renewal Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.8.4 - Resubscription Update Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.8.5 - Delete Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.8.6 - Subscription Of Similar Entries Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.13.1 - Recipient_List Persistence Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.21.3.7 - Recipient_List non-volatility Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.13.2 - Subscribed_Recipients Persistence Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.14.1 - Time Remaining Range Test		
	Test Conditionality	Must be executed.

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	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.14.2 - Recipient Capacity Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X10 - Time Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the fromTime and again to the toTime element in a Recipient_List property in a Notification Forwarder Object.
	Testing Hints	

3.51.2 Supports DM-LM-B

The IUT must support DM-LM-B if it supports Notification Forwarder objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB DM-LM-B.
	Testing Hints	

3.51.3 Supports AE-NF-B

The IUT must support either AE-NF-B or AE-NF-I-B if it claims support for Notification Forwarder objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB AE-NF-B.
	Testing Hints	

3.51.4 Supports AE-NF-I-B

The IUT must support either AE-NF-B or AE-NF-I-B if it claims support for Notification Forwarder objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB AE-NF-I-B.
	Testing Hints	

3.51.5 Supports Port_Filter Property

The IUT contains the Port_Filter property. This is a required capability for Notification Forwarder objects if the IUT is a router.

135.1-2019 - 7.3.2.30.10 - Port_Filter Test		
	Test Conditionality	Must be executed.
	Test Directives	Test each port value, if the IUT is a router.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that every Notification Forwarder object contains a Port_Filter property if the IUT is a router. Verify that every Port_Filter property is marked as writable though neither the size of the array nor the Port_ID portion of the BACnetPortPermission entries shall be modifiable via writes to this property.

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		Verify that the number of entries in the array shall match the number of BACnet ports currently defined in the device.
	Testing Hints	

3.51.6 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Notification Forwarder objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.2.30.6 - Out_Of_Service Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.52 Alert Enrollment Object

3.52.1 Base Requirements

Base requirements must be met by any IUT that can contain Alert Enrollment Objects.

135.1-2019 - 7.3.2.31.1 - Alert Enrollment Reports The Source Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.31.2 - Alert Enrollment Does Not Generate Acknowledgeable Transitions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.52.2 Supports AE-N-I-B

The IUT claims support for AE-N-I-B

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-I-B in the Checklist.
	Testing Hints	

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3.53 Channel Object

3.53.1 Base Requirements

Base requirements must be met by any IUT that can contain Channel objects.

BTL - 7.3.2.X40.2 - Last_Priority Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X40.3 - WriteGroup Service Support Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X40.4 - Propagation Entirety Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X40.5 - Write_Status Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by sending a write group request to both BROADCAST and to the IUT.
	Testing Hints	
BTL - 7.3.2.X40.12 - Write Priority Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by writing to the Present_Value of the Channel object using WritePropertyMultiple and WriteGroup service if supported by the IUT.
	Testing Hints	
BTL - 7.3.2.X40.13 - Writing with a NULL Value Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.53.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Channel objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.53.3 Supports Allow_Group_Delay_Inhibit

The object contains Allow_Group_Delay_Inhibit property.

BTL - 7.3.2.X40.6 - Allow_Group_Delay_Inhibit Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.53.4 Is Able to Correctly Handle Targets of BOOLEAN Data Type

The channel object on the IUT is able to correctly handle targets of BOOLEAN data type.

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BTL - 7.3.2.X40.7 - Numeric to BOOLEAN Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable BOOLEAN properties, skip the test with local target.
	Test Directives	Repeat the test by writing all numeric data type (Unsigned, INTEGER, REAL, Double and ENUMERATED) to a Present_Value of a Channel object containing a BOOLEAN target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (OCTET STRING, CharacterString, BIT STRING,Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing a BOOLEAN target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL, BOOLEAN) to a Present_Value of a Channel object containing a BOOLEAN target object property reference.
	Testing Hints	

3.53.5Is Able to Correctly Handle Targets of Unsigned Data Type

The channel object on the IUT is able to correctly handle targets of Unsigned data type.

BTL - 7.3.2.X40.8 - BOOLEAN to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target.
	Test Directives	Test with Unsigned target object reference.
	Testing Hints	
BTL - 7.3.2.X40.9 - Unsigned/INTEGER/REAL/Double to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all numeric data type (Unsigned, INTEGER, REAL, Double and ENUMERATED) to a Present_Value of a Channel object containing an Unsigned target object property reference. When writing either unsigned or INTEGER data type, use a value less than 2147483647 as par Coercion Rule 3-6 defined in ASHRAE 135. When writing either REAL or Double data type, use a value less than 2147483000 as par Coercion Rule 3-6 defined in ASHRAE 135.
	Testing Hints	
BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		

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	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target
	Test Directives	Repeat the test by writing all invalid data type (OCTET STRING, CharacterString, BIT STRING,Date, Time and BACnetLightingCommand) to a Present_Value of a Channel object containing an Unsigned target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL,Unsigned, ENUMERATED, and BACnetObjectIdentifier) to a Present_Value of a Channel object containing an Unsigned target object property reference.
	Testing Hints	

3.53.6Is Able to Correctly Handle Targets of INTEGER Data Type

The channel object on the IUT is able to correctly handle targets of INTEGER data type.

BTL - 7.3.2.X40.8 - BOOLEAN to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable INTEGER properties, skip the test with local target.
	Test Directives	Test with INTEGER target object reference.
	Testing Hints	
BTL - 7.3.2.X40.9 - Unsigned/INTEGER/REAL/Double to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all numeric data type (Unsigned, INTEGER, REAL, Double and ENUMERATED) to a Present_Value of a Channel object containing an INTEGER target object property reference. When writing either REAL or DOUBLE data type, use a value more than -2147483000 and less than 214783000 as par Coercion Rule 3-6 defined in ASHRAE 135.
	Testing Hints	
BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (OCTET STRING, CharacterString, BIT STRING,Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing an INTEGER target object property reference.
	Testing Hints	

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BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and INTEGER) to a Present_Value of a Channel object containing an INTEGER target object property reference.
	Testing Hints	

3.53.7 Is Able to Correctly Handle Targets of REAL Data Type

The channel object on the IUT is able to correctly handle targets of REAL data type.

BTL - 7.3.2.X40.8 - BOOLEAN to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable BOOLEAN properties, skip the test with local target.
	Test Directives	Test with REAL target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.9 - Unsigned/INTEGER/REAL/Double to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all numeric datatype (Unsigned, INTEGER, REAL, Double and ENUMERATED) to a Present_Value of a Channel object containing a REAL target object property reference. When writing either Unsigned or INTEGER data type, use a value in precision up to seven significant digits as par Coercion Rules defined in ASHRAE 135. When writing DOUBLE data type, use a value less than 3.4*10+38 and more than 3.4*10-38 as par Coercion Rules defined in ASHRAE 135.
	Testing Hints	
BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (OCTET STRING, CharacterString, BIT STRING,Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing an REAL target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.

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	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and REAL) to a Present_Value of a Channel object containing a REAL target object property reference.
	Testing Hints	

3.53.8 Is Able to Correctly Handle Targets of Double Data Type

The channel object on the IUT is able to correctly handle targets of DOUBLE data type.

BTL - 7.3.2.X40.8 - BOOLEAN to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable BOOLEAN properties, skip the test with local target.
	Test Directives	Test with Double target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.9 - Unsigned/INTEGER/REAL/Double to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all numeric datatype (Unsigned, INTEGER, REAL, Double and ENUMERATED) to a Present_Value of a Channel object containing a Double target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (OCTET STRING, CharacterString, BIT STRING,Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing a Double target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and Double) to a Present_Value of a Channel object containing a Double target object property reference.
	Testing Hints	

3.53.9 Is Able to Correctly Handle Targets of ENUMERATED Data Type

The channel object on the IUT is able to correctly handle targets of Enumerated data type.

BTL - 7.3.2.X40.8 - BOOLEAN to Numeric Coercion Rule Test

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	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Test with Enumerated target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.9 - Unsigned/INTEGER/REAL/Double to Numeric Coercion Rule Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable Numeric properties, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all numeric datatype (Unsigned, INTEGER, REAL, Double and Enumerated) to a Present_Value of a Channel object containing an Enumerated target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (OCTET STRING, CharacterString, BitString, Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing an Enumerated target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL, Unsigned and Enumerated) to a Present_Value of a Channel object containing an Enumerated target object property reference.
	Testing Hints	

3.53.10 Is Able to Correctly Handle Targets of NULL Data Type

The channel object on the IUT is able to correctly handle targets of NULL data type

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, Unsigned, INTEGER, REAL, Double, CharacterString, BitString, Enumerated, Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing an OCTET STRING target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		

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	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and OCTET STRING) to a Present_Value of a Channel object containing an OCTET STRING target object property reference.
	Testing Hints	

3.53.11 Is Able to Correctly Handle Targets of OCTET STRING Data Type

The channel object on the IUT is able to correctly handle targets of OCTET STRING data type

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, Unsigned, INTEGER, REAL, Double, CharacterString, BitString, Enumerated, Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing an OCTET STRING target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and OCTET STRING) to a Present_Value of a Channel object containing an OCTET STRING target object property reference.
	Testing Hints	

3.53.12 Is Able to Correctly Handle Targets of CharacterString Data Type

The channel object on the IUT is able to correctly handle targets of Character String data type.

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, Unsigned, INTEGER, REAL, Double, OCTET STRING, BitString, Enumerated, Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing a Character String target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		

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	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and Character String) to a Present_Value of a Channel object containing a Character String target object property reference.
	Testing Hints	

3.53.13 Is Able to Correctly Handle Targets of BIT STRING Data Type

The channel object on the IUT is able to correctly handle targets of BITSTRING data type.

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, Unsigned, INTEGER, REAL, Double, OCTET STRING, Character String, Enumerated, Date, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing a BIT STRING target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and BitString) to a Present_Value of a Channel object containing a BitString target object property reference.
	Testing Hints	

3.53.14 Is Able to Correctly Handle Targets of Date Data Type

The channel object on the IUT is able to correctly handle targets of Date data type

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, Unsigned, INTEGER, REAL, Double, OCTET STRING, Character String, BitString, Enumerated, Time, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing a Date target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and Date) to a Present_Value of a Channel object containing a Date target object property reference.

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	Testing Hints	

3.53.15 Is Able to Correctly Handle Targets of Time Data Type

The channel object on the IUT is able to correctly handle targets of Time data type.

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, Unsigned, INTEGER, REAL, Double, OCTET STRING, Character String, BitString, Enumerated, Date, BACnetObjectIdentifier and BACnetLightingCommand) to a Present_Value of a Channel object containing a Time target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	
	Test Directives	Repeat the test by writing all data type that does not require coercion (NULL and Time) to a Present_Value of a Channel object containing an OCTET STRING target object property reference.
	Testing Hints	

3.53.16 Is Able to Correctly Handle Targets of BACnetObjectIdentifier Data Type

The channel object on the IUT is able to correctly handle targets of BACnetObjectIdentifier data type.

BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (BOOLEAN, INTEGER, REAL, Double, OCTET STRING, Character String, BitString, Enumerated, Date, Time and BACnetLightingCommand) to a Present_Value of a Channel object containing a BACnetObjectIdentifier target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing data type that does not require coercion (NULL, Unsigned and BACnetObjectIdentifier) to a Present_Value of a Channel object containing a BACnetObjectIdentifier target object property reference.
	Testing Hints	

3.53.17 Is Able to Correctly Handle Targets of BACnetLightingCommand Data Type

The channel object on the IUT is able to correctly handle targets of BACnetLighting Command data type.

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BTL - 7.3.2.X40.10 - Invalid Datatype Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. Skip the test for (an) invalid data type(s) not supported by the device containing a target object property.
	Test Directives	Repeat the test by writing all invalid data type (NULL, BOOLEAN, Unsigned, INTEGER, REAL, Double, OCTET STRING, Character String, BitString, Enumerated, Date, Time and BACnetObjectIdentifier) to a Present_Value of a Channel object containing a BACnetLightingCommand target object property reference.
	Testing Hints	
BTL - 7.3.2.X40.11 - No Coercion Test		
	Test Conditionality	Test with both local and remote target. If DS-WG-E-B is not supported, test only with local target. If the IUT does not contain or cannot be made to contain any writable object properties of the written value type, skip the test with local target. Select a value within an acceptable range of the target object property.
	Test Directives	Repeat the test by writing BACnetLightingCommand value to a Present_Value of a Channel object containing a BACnetObjectIdentifier target object property reference.
	Testing Hints	

3.53.18 Supports DS-WG-I-B

The IUT supports DS-WG-I-B in order to execute a WriteGroup service

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WG-I-B in the checklist.
	Testing Hints	

3.53.19 Supports DS-WG-E-B

The IUT supports DS-WG-E-B in order to execute a WriteGroup service and then to initiate a write service to propagate a value to one or more target object on one or more remote device.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WG-E-B in the checklist.
	Testing Hints	

3.53.20 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in channel objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.54 Lighting Output Object

3.54.1 Base Requirements

Base requirements must be met by any IUT that can contain Lighting Output objects.

BTL - 7.3.2.X54.21 - Lighting Output Tracking Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X54.22 - Lighting Output Present Value between 0.0 and 1.0 Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.2 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.3 Supports all BACnetLightingOperations

The objects can perform all operations defined by the BACnetLightingOperations enumeration.

BTL -7.3.2.X54.31 - Lighting Command Operation NONE Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X54.32 - Lighting Command Operation FADE_TO Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by using the BACnetLightingCommand without the optional fields (priority and fade-time) and check that PTY1= Lighting_Command_Default_Priority and fade-time = Default_Fade_Time
	Testing Hints	
BTL - 7.3.2.X54.33 - Lighting Command Operation RAMP_TO Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by using the BACnetLightingCommand without the optional fields (priority and ramp-rate) and check that PTY1= Lighting_Command_Default_Priority and ramp-rate = Default_ Ramp_Rate
	Testing Hints	
BTL - 7.3.2.X54.34 - Lighting Command Operation STEP_UP Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by using the BACnetLightingCommand without the optional fields (priority and ramp-rate) and check that PTY1= Lighting_Command_Default_Priority and step-increment = Default_ Step_Increment

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	Testing Hints	
BTL - 7.3.2.X54.35 - Lighting Command Operation STEP_DOWN Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by using the BACnetLightingCommand without the optional fields (priority and ramp-rate) and check that PTY1= Lighting_Command_Default_Priority and step-increment = Default_ Step_increment
	Testing Hints	
BTL - 7.3.2.X54.36 - Lighting Command Operation STEP_ON Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by using the BACnetLightingCommand without the optional fields (priority and ramp-rate) and check that PTY1= Lighting_Command_Default_Priority and step-increment = Default_ step-increment
	Testing Hints	
BTL - 7.3.2.X54.37 - Lighting Command Operation STEP_OFF Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test by using the BACnetLightingCommand without the optional fields (priority and ramp-rate) and check that PTY1= Lighting_Command_Default_Priority and step-increment = Default_ step-increment
	Testing Hints	

3.54.4Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Lighting Output objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed using an Lighting Output object
	Testing Hints	

3.54.5Supports Blink-Warn

The Blink_Warn_Enable property in Lighting Output is writable or can be changed to TRUE by other means.

BTL - 7.3.1.X41.Y1 - Blink-Warn WARN Command Test		
	Test Conditionality	Must be executed.
	Test Directives	Must be executed using both the Present_Value and Lighting_Command properties.
	Testing Hints	
BTL - 7.3.1.X41.Y2 - Blink-Warn WARN_OFF Command Test		
	Test Conditionality	Must be executed.
	Test Directives	Must be executed using both the Present_Value and Lighting_Command properties.
	Testing Hints	
BTL - 7.3.1.X41.Y3 - Blink-Warn WARN_RELINQUISH Command Test		
	Test Conditionality	Must be executed.
	Test Directives	Must be executed using both the Present_Value and Lighting_Command properties.
	Testing Hints	
BTL - 7.3.1.X41.Y4 - Blink-Warn STOP Command Test		

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	Test Conditionality	Must be executed.
	Test Directives	Repeat the test with WARN_OFF and WARN_RELINQUISH commands
	Testing Hints	
BTL - 7.3.1.X41.Y5 - Blink-Warn WARN Command Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y6 - Blink-Warn WARN_OFF Command Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y7 - Blink-Warn WARN_RELINQUISH Command Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y8 - Blink-Warn WARN_OFF Command Halted Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y9 - Blink-Warn WARN_RELINQUISH Command Halted Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.6 Supports Transition Property

The IUT contains Lighting Output Objects in which the Transition property is supported.

BTL - 7.3.2.X54.41 - Transition None Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X54.42 - Transition Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.7 Supports Feedback_Value Property

The IUT contains Lighting Output Objects in which the the Feedback_Value property is supported.

BTL - 7.3.2.X54.51 - Feedback_Value Clamping Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.8 Supports Min_Actual_Value and Max_Actual_Value Properties

The IUT contains Lighting Output Objects in which the the Min_Actual_Value and Max_Actual_Value properties are supported.

BTL - 7.3.2.X54.61 - Min_Actual_Value and Max_Actual_Value Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X54.62 - Min_Actual_Value and Max_Actual_Value Scaling Test		

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	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.9 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in lighting output objects.

BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.54.10 Supports Color_Reference property

The IUT supports the Color_Reference property.

Contact BTL for interim tests for this functionality.

3.54.11 Supports Color_Override property

The IUT supports the Color_Override property.

Contact BTL for interim tests for this functionality.

3.54.12 Supports Trim_Fade_Time property

The IUT supports the Trim_Fade_Time property.

Contact BTL for interim tests for this functionality.

3.54.13 Supports Intrinsic Reporting

The IUT supports intrinsic reporting.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-I-B in the Checklist with option "Implements the CHANGE_OF_RELIABILITY - NONE".
	Testing Hints	

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3.55 Binary Lighting Output Object

3.55.1 Base Requirements

Base requirements must be met by any IUT that can contain Binary Lighting Output objects. There are no base requirements for this object.

3.55.2 Supports Command Prioritization

The objects contain a priority array and support command prioritization.

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	If no object can be made to meet the configuration requirements, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.55.3 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Binary Lighting Output objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.55.4 Supports Blink-Warn

The IUT supports blink-warn in the Binary Lighting Output object. The Blink_Warn_Enable property is true or can be set to true.

BTL - 7.3.1.X41.Y1 - Blink-Warn WARN Command Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y2 - Blink-Warn WARN_OFF Command Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y3 - Blink-Warn WARN_RELINQUISH Command Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y4 - Blink-Warn STOP Command Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test with WARN_OFF and WARN_RELINQUISH commands
	Testing Hints	
BTL - 7.3.1.X41.Y5 - Blink-Warn WARN Command Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test with WARN_OFF and WARN_RELINQUISH commands
	Testing Hints	

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BTL - 7.3.1.X41.Y6 - Blink-Warn WARN_OFF Command Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y7 - Blink-Warn WARN_RELINQUISH Command Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y8 - Blink-Warn WARN_OFF Command Halted Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X41.Y9 - Blink-Warn WARN_RELINQUISH Command Halted Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.55.5 Supports Writable Polarity Property

The IUT supports a writable Polarity property in the Binary Output object.

135.1-2019 - 7.3.2.6.3 - Polarity Property Tests		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

3.55.6 Supports Strike Count Tracking

The IUT contains a Binary Lighting Output object that has the Strike_Count and Time_Of_Strike_Count_Reset properties.

BTL - 7.3.1.X20.2 - Strike Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X20.1 - Non-zero Writable Strike Count Test		
	Test Conditionality	If no Binary Lighting Output object contains a writable Strike_Count that accepts writes of non-zero values then this test shall be executed. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Lighting Output object.
	Testing Hints	

3.55.7 Supports Elapsed Active Time Tracking

The IUT contains or can be made to contain an object with the Elapsed_Active_Time and Time_Of_Active_Time_Reset properties.

BTL - 7.3.1.9 - Elapsed Active Time Test		
	Test Conditionality	If no Binary Lighting Output object contains a writable Elapsed_Active_Time then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Lighting Output object.
	Testing Hints	
BTL - 7.3.1.X19 - Non-zero Writable Elapsed Active Time Test		

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	Test Conditionality	If no Binary Lighting Output object contains a writable Elapsed_Active_Time that accepts writes of non-zero values then this test shall be skipped. If IUT claims Protocol_Revision less than 16, then this test shall be skipped.
	Test Directives	This test shall be performed using a Binary Lighting Output object.
	Testing Hints	

3.55.8 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in binary lighting output objects.

BTL - 7.3.1.X42.Y3 - Value_Source Property None Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y4 - Commandable Value Source Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.55.9 Supports Color_Reference property

The IUT supports the Color_Reference property.

Contact BTL for interim tests for this functionality.

3.55.10 Supports Color_Override property

The IUT supports the Color_Override property.

Contact BTL for interim tests for this functionality.

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3.56 Network Port Object

3.56.1 Base Requirements

Base requirements must be met by any IUT that can contain Network Port objects.

BTL - 7.3.2.X62.1.3 - Network Port Non-Volatility Properties Test		
	Test Conditionality	Must be executed if any writable properties are supported for which the values are required for proper operation of the network.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.1.4 - Network Port Configuration Conflict Test		
	Test Conditionality	If the IUT does not support any Network Port objects with writable properties, this test shall be skipped.
	Test Directives	
	Testing Hints	Note that almost all Network Port objects have mandated writable properties, so take care to verify that an IUT which claims no writable properties in its Network Port objects is allowed to make such a claim.
BTL - 9.18.1.X5 - ReadProperty of the Network Port Object using the Unknown Instance		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.20.1.X3 - ReadPropertyMultiple of the Network Port Object using the Unknown Instance		
	Test Conditionality	If the IUT does not support execution of ReadPropertyMultiple this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.5 - APDU_Length Test		
	Test Conditionality	Must be executed.
	Test Directives	If the IUT supports data links with different allowable APDU lengths, run this test at least twice where the calculated maximum APDU length would be different.
	Testing Hints	

3.56.2 Supports Writable Network_Number Property

The Network_Number property in Network Port objects contained in the IUT is writable.

BTL - 7.3.2.X62.2 - Network-Number-Is Updates Network_Number_Quality Test		
	Test Conditionality	For routers which do not accept a value of zero in their Network_Number property, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.56.3 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Network Port objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.1.1.X5 - Out_Of_Service, Status_Flags, Reliability and Command Property Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.56.4 Supports Hierarchical Network Port Objects

The IUT contains, or can be made to contain, a set of Network Port objects which form a hierarchy of protocols.

BTL - 7.3.2.X62.4.1 - Valid Hierarchy Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each supported Network_Type at the BACNET_APPLICATION level.
	Testing Hints	
BTL - 7.3.2.X62.4.2 - Properties in Referenced Network Port Reflected in Top Network Port Object		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each supported Network_Type at the BACNET_APPLICATION level.
	Testing Hints	The test is written such that it tests all configured BACNET_APPLICATION Network Port objects so configuring the IUT to contain an example of each will allow the test to be run fewer times.
BTL - 7.3.2.X62.4.3 - Changes Reflected in Top Network Port Object		
	Test Conditionality	Test shall be skipped if the IUT does not support any writable properties in its Network Port hierarchies.
	Test Directives	Repeat for each supported Network_Type at the BACNET_APPLICATION level.
	Testing Hints	The test is written such that it tests all configured BACNET_APPLICATION Network Port objects so configuring the IUT to contain an example of each will allow the test to be run fewer times.
BTL - 7.3.2.X62.4.4 - Changes Reflected in Lower Network Port Objects		
	Test Conditionality	Test shall be skipped if the IUT does not support any writable properties in its Network Port hierarchies.
	Test Directives	Repeat for each supported Network_Type at the BACNET_APPLICATION level.
	Testing Hints	The test is written such that it tests all configured BACNET_APPLICATION Network Port objects so configuring the IUT to contain an example of each will allow the test to be run fewer times.

3.56.5 Supports the Command Property

The IUT support the Command property in Network Port objects.

BTL - 7.3.2.X62.3.1 - IDLE Command Rejected		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.3.9 - No Commands if Changes_Pending Test		
	Test Conditionality	Must be executed if the IUT supports DISCARD_CHANGES and at least 1 other non-IDLE command.
	Test Directives	
	Testing Hints	

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3.56.6 Supports the DISCARD_CHANGES Command

The IUT supports the DISCARD_CHANGES command in Network Port objects.

BTL - 7.3.2.X62.3.2 - DISCARD_CHANGES Command Test		
	Test Conditionality	Must be executed if the IUT supports the DISCARD_CHANGES command.
	Test Directives	
	Testing Hints	

3.56.7 Supports the RENEW_FD_REGISTRATION Command

The IUT supports the RENEW_FD_REGISTRATION command in Network Port objects.

BTL - 7.3.2.X62.3.3.1 - RENEW_FD_REGISTRATION Command Test		
	Test Conditionality	Must be executed if the IUT supports the RENEW_FD_REGISTRATION command and BACnet/IP or BACnet/Ipv6.
	Test Directives	Repeat for BACnet/IP and BACnet/Ipv6, if supported.
	Testing Hints	
BTL - 7.3.2.X62.3.3.2 - RENEW_FD_REGISTRATION Command Failure Test		
	Test Conditionality	Must be executed if the IUT supports a Network Port object for which RENEW_FD_REGISTRATION is not applicable or not supported.
	Test Directives	
	Testing Hints	

3.56.8 Supports the RESTART_SLAVE_DISCOVERY Command

The IUT supports the RESTART_SLAVE_DISCOVERY command in Network Port objects.

BTL - 7.3.2.X62.3.4.1 - RESTART_SLAVE_DISCOVERY Command Test		
	Test Conditionality	Must be executed if the IUT supports the RESTART_SLAVE_DISCOVERY command.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.3.4.2 - RESTART_SLAVE_DISCOVERY Command Failure Test		
	Test Conditionality	Must be executed if the IUT supports a Network Port object for which RESTART_SLAVE_DISCOVERY is not applicable or not supported.
	Test Directives	
	Testing Hints	

3.56.9 Supports the RENEW_DHCP Command

The IUT supports the RENEW_DHCP command in Network Port Objects.

BTL - 7.3.2.X62.3.5.1 - RENEW_DHCP Command Test		
	Test Conditionality	Must be executed if the IUT supports the RENEW_DHCP command.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.3.5.2 - RENEW_DHCP Command Failure Test		
	Test Conditionality	Must be executed if the IUT supports a Network Port object for which RENEW_DHCP is not applicable or not supported.
	Test Directives	
	Testing Hints	

3.56.10 Supports the RESTART_AUTONEGOTIATION Command

The IUT supports the RESTART_AUTONEGOTIATION command in Network Port objects.

BTL - 7.3.2.X62.3.6.1 - RESTART_AUTONEGOTIATION Command Test

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	Test Conditionality	Must be executed if the IUT supports the RESTART_AUTONEGOTIATION command.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.3.6.2 - RESTART_AUTONEGOTIATION Command Failure Test		
	Test Conditionality	Must be executed if the IUT supports a Network Port object for which RESTART_AUTONEGOTIATION is not applicable or not supported.
	Test Directives	
	Testing Hints	

3.56.11 Supports the DISCONNECT Command

The IUT upports the DISCONNECT command in Network Port objects.

BTL - 7.3.2.X62.3.7.1 - DISCONNECT Command Test		
	Test Conditionality	Must be executed if the IUT supports the DISCONNECT command.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.3.7.2 - DISCONNECT Command Failure Test		
	Test Conditionality	Must be executed if the IUT supports a Network Port object for which DISCONNECT is not applicable or not supported.
	Test Directives	
	Testing Hints	

3.56.12 Supports the RESTART_PORT Command

The IUT supports the RESTART_PORT command in Network Port objects.

BTL - 7.3.2.X62.3.8.1 - RESTART_PORT Command Test		
	Test Conditionality	Must be executed if the IUT supports the RESTART_PORT command.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.3.8.2 - RESTART_PORT Command Failure Test		
	Test Conditionality	Must be executed if the IUT supports a Network Port object for which RESTART_PORT is not supported.
	Test Directives	
	Testing Hints	

3.56.13 Supports the Routing_Table Property

The IUT supports the Routing_Table property in Network Port objects.

BTL - 7.3.2.X62.6 - Routing_Table Test		
	Test Conditionality	If the IUT only supports 1 entry in its routing table, then this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.57 Timer Object

3.57.1 Base Requirements

Base requirements must be met by any IUT that can contain Timer objects.

BTL - 7.3.2.X63.1.1 - Timer State_Change_Values		
	Test Conditionality	If the IUT does not support a State_Change_Values property in any Timer object, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.2 - Timer Running then Expired Test		
	Test Conditionality	If the IUT does not support a writable Timer_Running in any Timer object, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.5 - Restarting An Expired Timer		
	Test Conditionality	If the IUT does not support a writable Timer_Running in any Timer object, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.6 - Already Running Timer restarted by writing the Present_Value		
	Test Conditionality	If the IUT supports writable Present_Value in Timer object while Out_Of_Service is FALSE, there is no need to repeat this test.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.7 - Already Running Timer restarted with Default_Timeout		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.10 - Forcing Timer Expiration by writing Zero		
	Test Conditionality	If Present_Value is never writable, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.3 - Invalid Property Writing in a Timer		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.4 - Expired Timer Ignores Writing Zero		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.5 - Expired Timer Ignores Writing FALSE		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.6 - Idle Timer Ignores Writing Zero		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.7 - Idle Timer Ignores Writing FALSE		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 7.3.2.X63.2.8 - Idle Timer Ignores Writing IDLE		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.57.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Timer objects are either writable or can be modified by any other means.

BTL - 7.3.1.1.X1 - Out_Of_Service, Status_Flags, and Reliability Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.4 - Running Timer by writing the Present_Value		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	If Present_Value is only writable while Out_Of_Service is TRUE, then the presence of Min_Pres_Value and Max_Pres_Value is optional.
BTL - 7.3.2.X63.1.11 - Forcing Timer Expiration by writing FALSE		
	Test Conditionality	If the IUT does not support a writable Timer_Running, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.12 - Forcing Timer Expiration by writing IDLE		
	Test Conditionality	If the IUT does not support a writable Timer_State, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.13 - Resetting Timer by writing IDLE		
	Test Conditionality	If the IUT does not support a writable Timer_State this test shall be skipped.
	Test Directives	
	Testing Hints	

3.57.3 Supports Writable Present_Value while Out_Of_Service is FALSE

The Present_Value property in a Timer object is writable while Out_Of_Service is FALSE.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that Present_Value property is marked as conditionally writable in at least one Timer object.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that Min_Pres_Value and Max_Pres_Value properties are present in every Timer object which has a conditionally writable Present_Value property.
	Testing Hints	
BTL - 7.3.2.X63.1.4 - Running Timer by writing the Present_Value		
	Test Conditionality	Must be executed. Note that this test is included in multiple Test Plan sections for the Timer object but it needs to only be executed once.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.6 - Already Running Timer restarted by writing the Present_Value		

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	Test Conditionality	Must be executed. Note that this test is included in multiple Test Plan sections for the Timer object but it needs to only be executed once.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.11 - Forcing Timer Expiration by writing FALSE		
	Test Conditionality	Must be executed. Note that this test is included in multiple Test Plan sections for the Timer object but it needs to be only executed once.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.12 - Forcing Timer Expiration by writing IDLE		
	Test Conditionality	Must be executed. Note that this test is included in multiple Test Plan sections for the Timer object but it needs to be only executed once.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.13 - Resetting Timer by writing IDLE		
	Test Conditionality	Must be executed. Note that this test is included in multiple Test Plan sections for the Timer object but it needs to be only executed once.
	Test Directives	
	Testing Hints	

3.57.4 Supports Update_Time

The IUT supports the Update_Time property in a Timer object.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that Local_Date and Local_Time properties are present in the Device object.
	Testing Hints	

3.57.5 Supports Expiration_Time

The IUT supports the Expiration_Time property in a Timer object.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that Local_Date and Local_Time properties are present in the Device object.
	Testing Hints	
BTL - 7.3.2.X63.1.14 - Timer Object Operation Unaffected by Changes to Local_Time and Local_Date		
	Test Conditionality	Must be Executed.
	Test Directives	
	Testing Hints	

3.57.6 Supports Default_Timeout

The IUT supports the Default_Timeout property in a Timer object.

BTL - 7.3.2.X63.1.3 - Default_Timeout Test		
	Test Conditionality	If the IUT does not support a writable Timer_Running in any Timer object which contains a Default_Timeout, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.5 - Restarting An Expired Timer		
	Test Conditionality	If the IUT does not support a writable Timer_Running in any Timer object which contains a Default_Timeout, this test shall be skipped.
	Test Directives	

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	Testing Hints	
BTL - 7.3.2.X63.1.7 - Already Running Timer restarted with Default_Timeout		
	Test Conditionality	If the IUT does not support a writable Timer_Running in any Timer object which contains a Default_Timeout, this test shall be skipped. If every Timer only goes into RUNNING state with an Initial_Value equal to Default_Value, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.1.16 - Changing Default_Timeout Test		
	Test Conditionality	If the IUT does not support a writable Timer_Running in any Timer object which contains a writable Default_Timeout, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.9 - Default_Timeout Written Outside Supported Range		
	Test Conditionality	If Default_Timeout property is not writable in any Timer object, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.57.7 Supports Priority_For_Writing

The IUT supports the Priority_For_Writing property in a Timer object.

BTL - 7.3.2.X63.1.15 - Changes made by State_Change_Values are at Correct Priority		
	Test Conditionality	If List_Of_Object_Property_References cannot reference a commandable property, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.57.8 Supports Writable Priority_For_Writing and List_Of_Object_Property_References

The IUT supports writable Priority_For_Writing and List_Of_Object_Property_References properties in a Timer object.

BTL - 7.3.2.X63.1.8 - Timer accepts all the required datatypes in an Internal Reference		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with a Timer object that can be configured to monitor a property within the IUT. Repeat the test with the List_Of_Object_Property_References making its references to, and the State_Change_Values property containing non-NULL values of each of these datatypes: NULL, BOOLEAN, Unsigned, INTEGER, REAL, and ENUMERATED. Support for writing to properties with other datatypes is optional.
	Testing Hints	
BTL - 7.3.2.X63.2.1 - Writing Timer with an Unsupported External Reference		
	Test Conditionality	If the IUT claims support for SCHED-TMR-E-B, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X63.2.2 - Writing an Unsupported Datatype to State_Change_Values		
	Test Conditionality	If there is no datatype which the IUT does not support, then this test shall be skipped.
	Test Directives	Write a value using a datatype which is not supported in the Timer instance.
	Testing Hints	

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3.58 Elevator Group Object

3.58.1 Base Requirements

Base requirements must be met by any IUT that can contain Elevator Group objects.

BTL - 7.3.2.X45.1 - Machine_Room_ID property references a Positive Integer Value Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X45.2 - Linking of Lift and Escalator Objects under Group_Members property of the Elevator Group Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.58.2 Supports Landing_Call_Control Property

The IUT contains, or can be made to contain, an Elevator Group object that contains the Landing_Call_Control Property.

BTL - 7.3.2.X45.3 - Landing_Call_Control Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.59 Lift Object

3.59.1 Base Requirements

Base requirements must be met by any IUT that can contain Lift objects.

BTL - 7.3.2.X45.2 - Linking of Lift and Escalator Objects under Group_Members property of the Elevator Group Object		
	Test Conditionality	If the IUT contains at least one Elevator_Group object, this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X46.1 - Array Size of the Lift Object Properties Based on Number of Car Doors		
	Test Conditionality	This test must be executed if two or more of the BACnetARRAY properties Car_Door_Text, Assigned_Landing_Calls, Making_Car_Call, Registered_Car_Call, Car_Door_Status, Car_Door_Command and Landing_Door_Status are present.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X46.2 - Lift Properties Operational Test		
	Test Conditionality	Must be executed. Repeat the test for each supported method of control (modification of Making_Car_Call property, modification of Assigned_Landing_Calls)
	Test Directives	
	Testing Hints	

3.59.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Lift objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.2.X46.3 - Out_Of_Service, Status_Flags for Lift Object		
	Test Conditionality	If the Out_Of_Service property is writable or can be modified by other means this test must be executed.
	Test Directives	
	Testing Hints	

3.59.3 Supports Energy_Meter_Ref and Energy_Meter Properties

The Energy_Meter_Ref and Energy_Meter properties are both present in at least one Lift object.

BTL - 7.3.2.X46.4 - Energy_Meter_Ref Property Tests		
	Test Conditionality	If the IUT does not contain a Lift object with both Energy_Meter_Ref and Energy_Meter properties, this test may be skipped.
	Test Directives	
	Testing Hints	

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3.60 Escalator Object

3.60.1 Base Requirements

Base requirements must be met by any IUT that can contain Escalator objects.

BTL - 7.3.2.X45.2 - Linking of Lift and Escalator Objects under Group_Members property of the Elevator Group Object		
	Test Conditionality	If the IUT contains at least one Elevator_Group object, this test may be skipped.
	Test Directives	
	Testing Hints	

3.60.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Escalator objects contained in the IUT are either writable or can be modified by any other means.

BTL - 7.3.2.X47.1 - Out_Of_Service, Status_Flags for Escalator Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

3.60.3 Supports Energy_Meter_Ref and Energy_Meter Properties

The Energy_Meter_Ref and Energy_Meter properties are both present in at least one Escalator object.

BTL - 7.3.2.X46.4 - Energy_Meter_Ref Property Tests		
	Test Conditionality	If the IUT does not contain an Escalator object with both Energy_Meter_Ref and Energy_Meter properties, this test may be skipped.
	Test Directives	
	Testing Hints	

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3.61 File Object

3.61.1 Base Requirements

For File object, there are no base requirements.

3.61.2 Supports DM-BR-B

The IUT supports a data File that is readable and writable during Backup and Restore using AtomicReadFile and AtomicWriteFile requests.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Device Management - Backup and Restore - B in the Checklist.
	Testing Hints	

3.61.3 Supports a Record-Based File Object for a Purpose Other Than Backup and Restore

For a device which contains a record-based File object for a purpose other than Backup and Restore, there are no testing requirements.

3.61.4 Supports a Stream-Based File Object for a Purpose Other Than Backup and Restore

The IUT supports a data stream-based File that is not accessed during Backup and Restore.

BTL - 9.12.1.2.1 - Reading an Entire Stream-Based File		
	Test Conditionality	Must be executed.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	
135.1-2019 - 9.12.2.2.2 - Attempting to Read Data from a Nonexistent File		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.12.2.2.3 - Attempting to Read Data Using the Wrong File Access Type		
	Test Conditionality	Must be executed.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	

3.61.5 Contains a Writable Stream-Based File for a Purpose Other Than Backup and Restore

The IUT supports a data stream-based File that is not accessed during Backup and Restore.

BTL - 9.13.1.2.1 - Writing an Entire Stream-Based File		
	Test Conditionality	Must be executed.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	
BTL - 9.13.1.2.3 - Appending Data to the End of a File		
	Test Conditionality	If the file size cannot be changed or if the IUT does not support files that cannot be modified except by replacing the entire file, then this test shall be skipped.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	

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135.1-2019 - 9.13.1.2.4 - Truncating a File		
	Test Conditionality	If the only value that the IUT accepts when writing File_Size is zero, then this test shall be skipped.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	
135.1-2019 - 9.13.1.2.5 - Deleting a File		
	Test Conditionality	If the file size cannot be changed, then this test shall be skipped.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	
135.1-2019 - 9.13.2.2.1 - Writing to a Stream Access File using Record Access		
	Test Conditionality	Must be executed.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	
135.1-2019 - 9.13.2.2.2 - Writing to a File with an Invalid Starting Position		
	Test Conditionality	Must be executed.
	Test Directives	Apply to a file not used for Backup & Restore.
	Testing Hints	
135.1-2019 - 9.13.2.2.4 - Writing to a Nonexistent File		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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3.62 Staging Object

3.62.1 Base Requirements

Base requirements must be met by any IUT that can contain Staging objects.

BTL - 7.3.2.X66.1 - Clamping Present_Value to Max_Pres_Value or Min_Pres_Value		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.2 - Present_Stage Evaluation		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.3 - Present_Stage Evaluates on Restart		
	Test Conditionality	If the IUT does not support remote references non-zero deadbands in a Staging object without a Default_Present_Value, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.4 - Default_Present_Value is Abided on Restart		
	Test Conditionality	If the IUT does not support Staging objects with a Default_Present_Value, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.5 - Writing to Target References		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.6 - Stage Value Bitstring is Same Length as Target_References		
	Test Conditionality	
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.7 - Max_Pres_Value Equals Last Stage Limit		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.8 - CONFIGURATION_ERROR when Min_Pres_Value is too Large		
	Test Conditionality	If the Min_Pres_Value and Stages properties are Read-Only, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL -7.3.2.X66.9 - COMMUNICATION_FAILURE on Failed Write to External Target Reference		
	Test Conditionality	If the IUT cannot be configured with an external object in the Target_References property, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL -7.3.2.X66.10 - Fault Indicated on Failed Write to Local Target Reference		
	Test Conditionality	If the IUT cannot be configured to reference a non-writable, or non-existent, local target, this test shall be skipped.
	Test Directives	
	Testing Hints	

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3.62.2 Supports Configurable Out_Of_Service Property

The Out_Of_Service property in Staging Objects contained in the IUT are either writable or can be modified by any other means

BTL -7.3.2.X66.11 - Out_Of_Service, Status_Flags, and Reliability for Staging Object		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

3.62.3 Supports Configurable Stages Property

The Stages property in Staging Objects contained in the IUT is configurable.

BTL - 7.3.2.X66.12 - Stages Array Sizing Test		
	Test Conditionality	If the IUT cannot be made to contain a Staging object that is resizable by writing to ARRAY INDEX = 0, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.13 - Present_Stage Evaluates on Change to Stages Property		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.14 - CONFIGURATION_ERROR when Limits are Out of Order		
	Test Conditionality	If the Stages property is not writable and cannot be configured with non-ascending Stages, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.15 - CONFIGURATION_ERROR when Deadband < 0		
	Test Conditionality	If the Stages property is not writable and cannot be configured with a Deadband value < 0, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.16 - CONFIGURATION_ERROR when Stages Size is less than Two		
	Test Conditionality	If the Stages property is not writable and cannot be configured such that the size of the array is less than two, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.62.4 Supports Stage_Names Property

At least one Staging Object in the IUT supports the Stage_Names property.

BTL - 7.3.2.X66.17 - Stage_Names and Stages Size Equality Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.18 - Stage_Names Array Sizing Test		
	Test Conditionality	If the Stage_Names property cannot be resized by writing to it, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.62.5 Supports Writable Target_References Property

The IUT supports a writable Target_References property.

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BTL -7.3.2.X66.19 - Target_References Array Sizing Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X66.20 - Writing Target_References with an Unsupported External Reference		
	Test Conditionality	If the IUT allows external references in the Target_References property, this test shall be skipped.
	Test Directives	
	Testing Hints	

3.62.6 Supports the Value Source Mechanism

The IUT supports the Value Source Mechanism in staging objects.

BTL - 7.3.1.X42.Y2 - Non-commandable Value_Source Property Test		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X42.Y1 - Writing to the Value_Source Property by a Device Other than the Device that Commanded the Object		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

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3.63 Audit Reporter Object

3.63.1 Base Requirements

Base requirements must be met by any IUT that can contain Audit Reporter objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that at least one of Audit Reporting-Reporting-B or Audit Reporting-Forwarder-B is claimed.
	Testing Hints	

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3.64 Audit Log Object

3.64.1 Base Requirements

Base requirements must be met by any IUT that can contain Audit Log objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that at least one of Audit Reporting-Logging-A or Audit Reporting-Forwarder-B is claimed.
	Testing Hints	

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3.65 Color Object

3.65.1 Base Requirements

Base requirements must be met by any IUT that can contain Color objects

Contact BTL for interim tests for this object.

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3.66 Color Temperature Object

3.66.1 Base Requirements

Base requirements must be met by any IUT that can contain Color Temperature objects

Contact BTL for interim tests for this object.

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4 Data Sharing BIBBs

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4.1 Data Sharing - ReadProperty - A

4.1.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

For all of the DS-RP-A tests, the vendor must supply information on how to make the IUT generate the specified requests.

As with all A-side BIBBs, the IUT must be able to initiate the service against any BACnet device.

There are no base requirements tests for this section.

4.1.2 Can Read Non-Array Properties

The IUT is able to read non-array properties from another BACnet device.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.1.3 Can Read Array Elements

The IUT is able to read array elements from another BACnet device.

135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.1.4 Can Read the Size of an Array

The IUT is able to read the 0th element of an array property to determine the number of elements in the array.

135.1-2019 - 8.18.5 - Reading an Array Size		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.1.5 Can Read Whole Arrays

The IUT is able to read complete array properties without the use of array indices.

135.1-2019 - 8.18.4 - Reading Whole Array Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.1.6 Can Read List Properties

The IUT is able to read list properties.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that is an array of lists.
	Test Directives	The property that the IUT reads shall be a list property.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a list property.

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	Test Directives	The property that the IUT reads shall be an array of lists.
	Testing Hints	

4.1.7 Can Read NULL Property Values

The IUT is able to read NULL values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a NULL value.
	Test Directives	
	Testing Hints	A non-array properties that might contain a NULL value are the Present_Value and Schedule_Default properties of a Schedule Object, and Low_Diff_Limit in the Loop Object.
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a NULL value.
	Test Directives	
	Testing Hints	Array properties that might contain a NULL value are the Alarm_Values and Fault_Values of the CharacterString Value Object.

4.1.8 Can Read BOOLEAN Property Values

The IUT is able to read BOOLEAN values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a BOOLEAN value.
	Test Directives	The property that the IUT reads shall contain a BOOLEAN value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a BOOLEAN value.
	Test Directives	The property that the IUT reads shall contain a BOOLEAN value.
	Testing Hints	

4.1.9 Can Read Enumerated Property Values

The IUT is able to read Enumerated values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains an Enumerated value.
	Test Directives	The property that the IUT reads shall contain an Enumerated value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains an Enumerated value.
	Test Directives	The property that the IUT reads shall contain an Enumerated value.
	Testing Hints	

4.1.10 Can Read INTEGER Property Values

The IUT is able to read INTEGER values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties

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	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains an INTEGER value.
	Test Directives	The property that the IUT reads shall contain an INTEGER value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains an INTEGER value.
	Test Directives	The property that the IUT reads shall contain an INTEGER value.
	Testing Hints	

4.1.11 Can Read Unsigned Property Values

The IUT is able to read Unsigned values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains an Unsigned value.
	Test Directives	The property that the IUT reads shall contain an Unsigned value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains an Unsigned value.
	Test Directives	The property that the IUT reads shall contain an Unsigned value.
	Testing Hints	

4.1.12 Can Read REAL Property Values

The IUT is able to read REAL values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a REAL value.
	Test Directives	The property that the IUT reads shall contain a REAL value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a REAL value.
	Test Directives	The property that the IUT reads shall contain a REAL value.
	Testing Hints	

4.1.13 Can Read Double Property Values

The IUT is able to read Double values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a Double value.
	Test Directives	The property that the IUT reads shall contain a Double value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a Double value.
	Test Directives	The property that the IUT reads shall contain a Double value.
	Testing Hints	

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4.1.14 Can Read Time Property Values

The IUT is able to read Time values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a Time value.
	Test Directives	The property that the IUT reads shall contain a Time value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a Time value.
	Test Directives	The property that the IUT reads shall contain a Time value.
	Testing Hints	

4.1.15 Can Read Date Property Values

The IUT is able to read Date values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a Date value.
	Test Directives	The property that the IUT reads shall contain a Date value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a Date value.
	Test Directives	The property that the IUT reads shall contain a Date value.
	Testing Hints	

4.1.16 Can Read Character String Property Values

The IUT is able to read Character String values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a Character String value.
	Test Directives	The property that the IUT reads shall contain a Character String value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a Character String value.
	Test Directives	The property that the IUT reads shall contain a Character String value.
	Testing Hints	

4.1.17 Can Read Octet String Property Values

The IUT is able to read Octet String values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains an Octet String value.
	Test Directives	The property that the IUT reads shall contain an Octet String value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains an Octet String value.

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	Test Directives	The property that the IUT reads shall contain an Octet String value.
	Testing Hints	

4.1.18 Can Read Bit String Property Values

The IUT is able to read Bit String values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a Bit String value.
	Test Directives	The property that the IUT reads shall contain a Bit String value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a Bit String value.
	Test Directives	The property that the IUT reads shall contain a Bit String value.
	Testing Hints	

4.1.19 Can Read BACnetObjectIdentifier Property Values

The IUT is able to read BACnetObjectIdentifier values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a BACnetObjectIdentifier value.
	Test Directives	The property that the IUT reads shall contain a BACnetObjectIdentifier value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a BACnetObjectIdentifier value.
	Test Directives	The property that the IUT reads shall contain a BACnetObjectIdentifier value.
	Testing Hints	

4.1.20 Can Read Constructed Property Values

The IUT is able to read constructed property values.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	This test can be skipped if 8.18.2 is executed against a property that contains a constructed value. This test shall be repeated for each standard constructed value that the IUT is able to read.
	Test Directives	The property that the IUT reads shall contain a constructed value.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a property that contains a constructed value. This test shall be repeated for each standard constructed value that the IUT is able to read.
	Test Directives	The property that the IUT reads shall contain a constructed value.
	Testing Hints	

4.1.21 Can Read Proprietary Property Values Of Basic Data Types

The IUT is able to read arbitrary proprietary properties with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Octet String, Time, Date, or BACnetObjectIdentifier.

135.1-2019 - 8.18.1 - Reading Non-Array Properties

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	Test Conditionality	This test can be skipped if 8.18.2 is executed against a proprietary property.
	Test Directives	The property that the IUT reads shall be proprietary and not in a device manufactured by the same vendor.
	Testing Hints	
135.1-2019 - 8.18.2 - Reading an Array Element		
	Test Conditionality	This test can be skipped if 8.18.1 is executed against a proprietary property.
	Test Directives	The property that the IUT reads shall be proprietary and not in a device manufactured by the same vendor.
	Testing Hints	

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4.2 Data Sharing - ReadProperty - B

4.2.1 Base Requirements

All devices must support this BIBB.

BTL - 7.1.1 - Read Support Test Procedure		
	Test Conditionality	Must be executed. To satisfy this test item, this test needs only be executed using ReadProperty.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.18.2.1 - Reading Non-Array Properties with an Array Index		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.18.2.3 - Reading an Unknown Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.18.2.4 - Reading an Unknown Property		
	Test Conditionality	Must be executed.
	Test Directives	Be sure to test at least one property identifier that is within the ASHRAE allocated range for standard property identifiers, but that has not yet been defined.
	Testing Hints	
135.1-2019 - 9.18.1.3 - Reading a Property From the Device Object using the Unknown Instance		
	Test Conditionality	If the device implements protocol revision 4 or higher, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.1.3 - Verifying Property_List against the EPICS		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 14 or greater.
	Test Directives	
	Testing Hints	
BTL - 9.18.1.X4 - Reading Array Properties at different Array Indexes		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for all supported BACnetARRAY properties
	Testing Hints	

4.2.2 Contains Enumerated Property Values

The IUT contains, or can be made to contain, a property with the value of Enumerated.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with the value Enumerated when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.3 Contains Unsigned Property Values

The IUT contains, or can be made to contain, a property with a data type of Unsigned.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type

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	Test Conditionality	If the IUT contains a property with a Unsigned data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.4 Contains BACnetObjectIdentifier Property Values

The IUT contains, or can be made to contain, a property with a data type of BACnetObjectIdentifier.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an BACnetObjectIdentifier data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.5 Contains Character String Property Values

The IUT contains, or can be made to contain, a property with a data type of Character String.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Character String data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.6 Contains Bit String Property Values

The IUT contains, or can be made to contain, a property with a data type of Bit String.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Bit String data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.7 Contains NULL Property Values

The IUT contains, or can be made to contain, a property with the value of NULL.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with the value NULL when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that contain NULL values.

4.2.8 Contains BOOLEAN Property Values

The IUT contains, or can be made to contain, a property with a data type of BOOLEAN.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type

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	Test Conditionality	If the IUT contains a property with a BOOLEAN data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.9 Contains INTEGER Property Values

The IUT contains, or can be made to contain, a property with a data type of INTEGER.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an INTEGER data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.10 Contains REAL Property Values

The IUT contains, or can be made to contain, a property with a data type of REAL.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a REAL data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.11 Contains Double Property Values

The IUT contains, or can be made to contain, a property with a data type of Double.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Double data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.12 Contains Time Property Values

The IUT contains, or can be made to contain, a property with a data type of Time.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Time data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.2.13 Contains Date Property Values

The IUT contains, or can be made to contain, a property with a data type of Date.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Date data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	

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	Testing Hints	

4.2.14 Contains Octet String Property Values

The IUT contains, or can be made to contain, a property with a data type of Octet String.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an Octet String data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	A property that contains an Octet String is the Present_Value of an OctetString Value object.

4.2.15 Contains Proprietary Properties with Basic Data Types

The IUT contains, or can be made to contain, a proprietary property with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Octet String, Time, Date, or BACnetObjectIdentifier.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	This test shall be skipped until such time as the test tools support interaction with proprietary properties.
	Test Directives	
	Testing Hints	

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4.3 Data Sharing - ReadPropertyMultiple - A

4.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

For all of the DS-RPM-A tests, the vendor must supply information on how to make the IUT generate the specified requests.

As with all A side tests, the IUT must be able to initiate the service against any BACnet device.

There are no base requirements tests for this section.

4.3.2 Supports DS-RP-A

The IUT supports DS-RP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims conformance to DS-RP-A.
	Testing Hints	

4.3.3 Can Read Multiple Properties from a Single Object

The IUT is able to read multiple properties from a single object in a single ReadPropertyMultiple request.

135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.3.4 Can Read a Single Property from Multiple Objects

The IUT is able to read a single property from multiple objects in a single ReadPropertyMultiple request. The same property need not be read from each object.

135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.3.5 Can Read Multiple Properties from Multiple Objects

The IUT is able to read multiple properties from multiple objects in a single ReadPropertyMultiple request.

135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.3.6 Can Read Using the Special ALL Property Identifier

The IUT is able to read the special ALL property.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed with property ALL.

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	Test Directives	At least one of the properties read by the selected test shall be the special ALL property.
	Testing Hints	

4.3.7 Can Read Using the Special OPTIONAL Property Identifier

The IUT is able to read the special OPTIONAL property.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed with property OPTIONAL.
	Test Directives	At least one of the properties read by the selected test shall be the special OPTIONAL property.
	Testing Hints	

4.3.8 Can Read Using the Special REQUIRED Property Identifier

The IUT is able to read the special REQUIRED property.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed with property REQUIRED.
	Test Directives	At least one of the properties read by the selected test shall be the special REQUIRED property.
	Testing Hints	

4.3.9 Can Fallback to ReadProperty Based on Protocol_Services_Supported

The IUT is able to select between initiating ReadPropertyMultiple and ReadProperty requests based on whether or not support for ReadPropertyMultiple is advertised by a peer device's Protocol_Services_Supported property.

BTL - 8.20.5.1 - The IUT Determines the TD does not Support the ReadPropertyMultiple Service		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.3.10 Can fallback to ReadProperty upon receipt of UNRECOGNIZED_SERVICE

The IUT is able to read property values with the ReadProperty service when it receives a Reject-PDU with a Reject Reason of UNRECOGNIZED_SERVICE in response to a ReadPropertyMultiple request.

BTL - 8.20.5.2 - Fallback to ReadProperty on Reject - UNRECOGNIZED_SERVICE Response		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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4.3.11 Can Read a Single Property from a Single Object

The IUT is able to read a single property from a single object.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.3.12 Can Read Non-Array Properties

The IUT is able to read non-array properties from another BACnet device.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a non-array property.
	Test Directives	At least one of the properties read by the selected test shall be a non-array property
	Testing Hints	

4.3.13 Can Read Array Elements

The IUT is able to read array elements from another BACnet device.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against an array element.
	Test Directives	At least one of the properties read by the selected test shall be an array element. This will require the inclusion of an array index in the property specification even though the test definition does not show one.
	Testing Hints	

4.3.14 Can Read the Size of an Array

The IUT is able to read the 0th element of an array property to determine the number of elements in the array.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against the 0th element of an array.
	Test Directives	At least one of the properties read by the selected test shall be the 0th element of an array.
	Testing Hints	

4.3.15 Can Read Whole Arrays

The IUT is able to read complete array properties without the use of array indices.

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135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against an array property without the use of an array index.
	Test Directives	At least one of the properties read by the selected test shall be array property without an array element specified.
	Testing Hints	

4.3.16 Can Read List Properties

The IUT is able to read list properties.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a list property.
	Test Directives	At least one of the properties read by the selected test shall be a list property.
	Testing Hints	

4.3.17 Can Read NULL Property Values

The IUT is able to read NULL values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a NULL value.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that contain NULL Values.

4.3.18 Can Read BOOLEAN Property Values

The IUT is able to read BOOLEAN values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a BOOLEAN value.
	Test Directives	At least one of the properties read by the selected test shall contain a BOOLEAN value.
	Testing Hints	

4.3.19 Can Read Enumerated Property Values

The IUT is able to read Enumerated values.

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135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with an Enumerated value.
	Test Directives	At least one of the properties read by the selected test shall contain an Enumerated value.
	Testing Hints	

4.3.20 Can Read INTEGER Property Values

The IUT is able to read INTEGER values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with an INTEGER value.
	Test Directives	At least one of the properties read by the selected test shall contain an INTEGER value.
	Testing Hints	

4.3.21 Can Read Unsigned Property Values

The IUT is able to read Unsigned values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with an Unsigned value.
	Test Directives	At least one of the properties read by the selected test shall contain an Unsigned value.
	Testing Hints	

4.3.22 Can Read REAL Property Values

The IUT is able to read REAL values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a REAL value.
	Test Directives	At least one of the properties read by the selected test shall contain a REAL value.
	Testing Hints	

4.3.23 Can Read Double Property Values

The IUT is able to read Double values.

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135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a Double value.
	Test Directives	At least one of the properties read by the selected test shall contain a Double value.
	Testing Hints	

4.3.24 Can Read Time Property Values

The IUT is able to read Time values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a Time value.
	Test Directives	At least one of the properties read by the selected test shall contain a Time value.
	Testing Hints	

4.3.25 Can Read Date Property Values

The IUT is able to read Date values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a Date value.
	Test Directives	At least one of the properties read by the selected test shall contain a Date value.
	Testing Hints	

4.3.26 Can Read Character String Property Values

The IUT is able to read Character String values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a Character String value.
	Test Directives	At least one of the properties read by the selected test shall contain a Character String value.
	Testing Hints	

4.3.27 Can Read Octet String Property Values

The IUT is able to read Octet String values.

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135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with an Octet String value.
	Test Directives	At least one of the properties read by the selected test shall contain an Octet String value.
	Testing Hints	

4.3.28 Can Read Bit String Property Values

The IUT is able to read Bit String values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a Bit String value.
	Test Directives	At least one of the properties read by the selected test shall contain a Bit String value.
	Testing Hints	

4.3.29 Can Read BACnetObjectIdentifier Property Values

The IUT is able to read BACnetObjectIdentifier values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a BACnetObjectIdentifier value.
	Test Directives	At least one of the properties read by the selected test shall contain a BACnetObjectIdentifier value.
	Testing Hints	

4.3.30 Can Read Constructed Property Values

The IUT is able to read constructed property values.

135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a property with a constructed value. This test shall be repeated for each standard constructed value that the IUT is able to read.
	Test Directives	At least one of the properties read by the selected test shall contain a constructed value.
	Testing Hints	

4.3.31 Can Read Proprietary Property Values Of Basic Data Types

The IUT is able to read arbitrary proprietary properties with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Octet String, Time, Date, or BACnetObjectIdentifier.

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135.1-2019 - 8.20.1 - Reading a Single Property of a Single Object, 135.1-2019 - 8.20.2 - Reading Multiple Properties of a Single Object, 135.1-2019 - 8.20.3 - Reading Multiple Objects, One Property Each, or 135.1-2019 - 8.20.4 - Reading Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.20.1..8.20.4) shall be executed against a proprietary property.
	Test Directives	At least one of the properties read by the selected test shall be proprietary.
	Testing Hints	

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4.4 Data Sharing - ReadPropertyMultiple - B

4.4.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.1.1 - Read Support Test Procedure		
	Test Conditionality	Must be executed. To satisfy this test item, test 7.1 need only be executed using ReadPropertyMultiple.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.1 - Reading a Single Property from a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.2 - Reading Multiple properties from a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.3 - Reading a Single Property from Multiple Objects		
	Test Conditionality	This test can be skipped if the IUT cannot be made to contain more than 1 object.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.4 - Reading Multiple Properties from Multiple Objects		
	Test Conditionality	This test can be skipped if the IUT cannot be made to contain more than 1 object.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.5 - Reading Multiple Properties with a Single Embedded Access Error		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.6 - Reading Multiple Properties with Multiple Embedded Access Errors		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.7 - Reading ALL Properties		
	Test Conditionality	Must be executed. This test shall be skipped for any object type whose set of properties cannot be transmitted in the largest supported response message based on the IUT's APDU and segmentation limitations.
	Test Directives	
	Testing Hints	The pre-tester should apply this test to every object type. If the set of properties differs between instances of the same object type in the IUT, each form of the object type should be tested.
BTL - 9.20.1.8 - Reading OPTIONAL Properties		
	Test Conditionality	Must be executed. This test shall be skipped for any object type whose set of optional properties cannot be transmitted in the largest supported response message based on the IUT's APDU and segmentation limitations.
	Test Directives	
	Testing Hints	The pre-tester should apply this test to every object type.

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		If the set of properties differs between instances of the same object type in the IUT, each form of the object type should be tested.
BTL - 9.20.1.9 - Reading REQUIRED Properties		
	Test Conditionality	Must be executed. This test shall be skipped for any object type whose set of optional properties cannot be transmitted in the largest supported response message based on the IUT's APDU and segmentation limitations.
	Test Directives	
	Testing Hints	The pre-tester should apply this test to every object type. If the set of properties differs between instances of the same object type in the IUT, each form of the object type should be tested.
135.1-2019 - 9.20.1.10 - Reading the Size of an Array		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.20.2.1 - Reading a Single, Unsupported Property from a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.20.2.2 - Reading Multiple Properties with Access Errors for Every Property		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.20.2.3 - Reading Non-Array Properties with an Array Index		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.20.1.11 - Reading a Property From the Device Object using the Unknown Instance		
	Test Conditionality	If the device implements protocol revision 4 or higher, this test must be executed. If the device does not support ReadPropertyMultiple, this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.20.1.X2 - ReadPropertyMultiple Array Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for all supported BACnetARRAY properties
	Testing Hints	

4.4.2 Contains Enumerated Property Values

The IUT contains, or can be made to contain, a property with the value of Enumerated.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with the value Enumerated when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.3 Contains Unsigned Property Values

The IUT contains, or can be made to contain, a property with a data type of Unsigned.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type

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	Test Conditionality	If the IUT contains a property with a Unsigned data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.4 Contains BACnetObjectIdentifier Property Values

The IUT contains, or can be made to contain, a property with a data type of BACnetObjectIdentifier.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an BACnetObjectIdentifier data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.5 Contains Character String Property Values

The IUT contains, or can be made to contain, a property with a data type of Character String.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Character String data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.6 Contains Bit String Property Values

The IUT contains, or can be made to contain, a property with a data type of Bit String.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Bit String data type when test BTL - 7.1 is executed and the EPICS does not contain a ? for this property, this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.7 Contains NULL Property Values

The IUT contains, or can be made to contain, a property with the value of NULL.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a NULL data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that contain NULL Values.

4.4.8 Contains BOOLEAN Property Values

The IUT contains, or can be made to contain, a property with a data type of BOOLEAN.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a BOOLEAN data type when test BTL - 7.1 is executed this test can be skipped.

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	Test Directives	
	Testing Hints	

4.4.9 Contains INTEGER Property Values

The IUT contains, or can be made to contain, a property with a data type of INTEGER.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an INTEGER data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.10 Contains REAL Property Values

The IUT contains, or can be made to contain, a property with a data type of REAL.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a REAL data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.11 Contains Double Property Values

The IUT contains, or can be made to contain, a property with a data type of Double.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Double data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.12 Contains Time Property Values

The IUT contains, or can be made to contain, a property with a data type of Time.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Time data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.13 Contains Date Property Values

The IUT contains, or can be made to contain, a property with a data type of Date.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Date data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.14 Contains Octet String Property Values

The IUT contains, or can be made to contain, a property with a data type of Octet String.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type

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	Test Conditionality	If the IUT contains a property with an Octet String data type when test BTL - 7.1 is executed this test can be skipped.
	Test Directives	
	Testing Hints	

4.4.15 Contains Proprietary Properties with Basic Data Types

The IUT contains, or can be made to contain, a proprietary property with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Bit String, Octet String, Time, Date, or BACnetObjectIdentifier.

BTL - 9.20.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	This test shall be skipped until such time as the test tools support interaction with proprietary properties.
	Test Directives	
	Testing Hints	

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4.5 Data Sharing - WriteProperty - A

4.5.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

For all of the DS-WP-A tests, the vendor must supply information on how to make the IUT generate the specified requests.

As with all A-side tests, the IUT must be able to initiate the service against any BACnet device.

There are no base requirements tests for this section.

4.5.2 Can Write Non-Array Properties

The IUT is able to write values to properties that are not arrays.

135.1-2019 - 8.22.1 - Writing Non-Array Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.5.3 Can Write Array Elements

The IUT is able to write values to the elements of an array individually.

135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.5.4 Can Write Whole Arrays

The IUT is able to write whole array properties without an array index.

BTL - 8.22.X4 - Writing Array Properties as a Whole Array		
	Test Conditionality	Must be executed.
	Test Directives	If possible, for resizable array properties, repeat this test for 0, 1, and *n* elements.
	Testing Hints	

4.5.5 Can Write Whole Lists

The IUT is able to write list values using WriteProperty.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a list.
	Test Directives	The property chosen must be a list or an array of lists depending on the test used.
	Testing Hints	

4.5.6 Can Command and Relinquish With a Priority

The IUT is able to supply a priority parameter when writing to a property with WriteProperty as is required in order to command commandable properties at a priority other than 16.

135.1-2019 - 8.22.3 - Writing Commandable Properties		
	Test Conditionality	Must be applied twice, once with a NULL value and once with a non-NULL value.

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	Test Directives	
	Testing Hints	

4.5.7 Can Write NULL Property Values to non-commandable Properties

The IUT is able to write NULL values to non-commandable properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a NULL value.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

4.5.8 Can Write the Size of an Array

The IUT is able to change the size of array properties by writing to the 0th element.

135.1-2019 - 8.22.6 - Writing An Array Size		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.5.9 Can Write BOOLEAN Property Values

The IUT is able to write BOOLEAN values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a BOOLEAN value.
	Test Directives	
	Testing Hints	

4.5.10 Can Write Enumerated Property Values

The IUT is able to write Enumerated values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing an Enumerated value.
	Test Directives	
	Testing Hints	

4.5.11 Can Write INTEGER Property Values

The IUT is able to write INTEGER values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing an INTEGER value.

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	Test Directives	
	Testing Hints	

4.5.12 Can Write Unsigned Property Values

The IUT is able to write Unsigned values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing an Unsigned value.
	Test Directives	
	Testing Hints	

4.5.13 Can Write REAL Property Values

The IUT is able to write REAL values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a REAL value.
	Test Directives	
	Testing Hints	

4.5.14 Can Write Double Property Values

The IUT is able to write Double values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a Double value.
	Test Directives	
	Testing Hints	

4.5.15 Can Write Time Property Values

The IUT is able to write Time values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a Time value.
	Test Directives	
	Testing Hints	

4.5.16 Can Write Date Property Values

The IUT is able to write Date values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a Date value.
	Test Directives	
	Testing Hints	

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4.5.17 Can Write Character String Property Values

The IUT is able to write Character String values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a Character String value.
	Test Directives	
	Testing Hints	

4.5.18 Can Write Octet String Property Values

The IUT is able to write Octet String values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing an Octet String value.
	Test Directives	
	Testing Hints	

4.5.19 Can Write Bit String Property Values

The IUT is able to write Bit String values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a Bit String value.
	Test Directives	
	Testing Hints	

4.5.20 Can Write BACnetObjectIdentifier Property Values

The IUT is able to write BACnetObjectIdentifier values to properties.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing a BACnetObjectIdentifier value.
	Test Directives	
	Testing Hints	

4.5.21 Can Write Constructed Property Values

The IUT is able to write constructed values to properties. Constructed values are SEQUENCEs or CHOICEs of basic or other constructed datatypes.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	For each type of standard constructed datatypes that the IUT can write. At least one of these tests must be applied.
	Test Directives	
	Testing Hints	

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4.5.22 Can Write Proprietary Property Values of Basic Data Types

The IUT is able to write basic datatype values to properties. The basic datatypes are NULL, BOOLEAN, Enumerated, INTEGER, Unsigned, REAL, Double, Date, Time, Character String, Octet String, Bit String, and BACnetObjectIdentifier.

135.1-2019 - 8.22.1 - Writing Non-Array Properties, or 135.1-2019 - 8.22.2 - Writing Array Properties		
	Test Conditionality	At least one of these tests must be applied with the IUT writing any basic datatype value to a proprietary property.
	Test Directives	
	Testing Hints	

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4.6 Data Sharing - WriteProperty - B

4.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.2.2 - Write Support Test Procedure		
	Test Conditionality	Must be executed.
	Test Directives	For each property on which 9.22.1.X2 is executed on each writable datatype, that property can be skipped in the performance of 7.2.2. To satisfy this test item, test 7.2.2, need only be executed using WriteProperty.
	Testing Hints	
BTL - 9.22.1.3 - Writing a Non-Commandable Property with a Priority		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.22.2.3 - Writing with a Property Value Having the Wrong Datatype		
	Test Conditionality	Must be executed.
	Test Directives	Do not use NULL as the invalid datatype when applying the test.
	Testing Hints	The pre-tester may want to consider running this test on a number of different properties with differing datatypes as this is a commonly failed test at the BTL.
BTL - 9.22.2.4 - Writing with a Property Value that is Out of Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.22.2.X1 - Writing Non-Array Read-only Property with an Array Index		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that if the IUT is capable of executing AddListElement and/or RemoveListElement, that the DS-WP-B option “Contains Writable List Properties” is claimed.
	Testing Hints	
BTL - 9.22.2.X2 - Resizing a writable fixed size array property		
	Test Conditionality	If IUT does not contain a writable fixed size array property, then this test shall be skipped.
	Test Directives	
	Testing Hints	For example, Weekly_Schedule.
BTL - 9.22.2.X4 - Writing a Property Value Related to Non-supported Optional Functionality		
	Test Conditionality	If the IUT does not support a writable property with an explicit mention BACnet-Error-code OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED, then this test shall be skipped.
	Test Directives	For each writable property that is related to an optional functionality that the object is not supported
	Testing Hints	135-2020 clause 12. (12.12.8,12.24.10,12.25.26,12.30.11,12.53.11,12.56.14,12.57.21,12.62.14)
BTL - 9.22.1.X3 - Writing NULL to Non-commandable Properties		
	Test Conditionality	If the IUT claims Protocol_Revision 20, or prior, this test shall be skipped.

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		If the IUT does not contain any writable non-commandable properties, this test shall be skipped.
	Test Directives	Repeat the test for a selection of writable non-commandable, non-Present_Value properties which do not support the value NULL. Repeat the test for each object type with a writable non-commandable Present_Value supported by the IUT which do not support the value NULL.
	Testing Hints	

4.6.2 Contains Writable Non-Array Properties

The IUT contains, or can be made to contain, a writable property that is not an array.

BTL - 9.22.2.1 - Writing Non-Array Properties with an Array Index		
	Test Conditionality	Must be executed.
	Test Directives	The IUT must contain a writable non-array property.
	Testing Hints	

4.6.3 Contains Writable Array Properties

The IUT contains, or can be made to contain, a writeable array property.

BTL - 9.22.1.1 - Writing a Single Element of an Array		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.22.2.2 - Writing Array Properties with an Array Index that is Out of Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.6.4 Contains Resizable Array Properties

The IUT contains, or can be made to contain, an array property that is resizable by writing to the 0th element.

BTL - 9.22.1.X1 - Writing an Array Size		
	Test Conditionality	This test shall be executed on a single instance of each resizable property, both standard and proprietary, that do not have specific tests for those properties.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.16 - Array Sizing Test		
	Test Conditionality	This test shall be executed if the IUT is protocol revision 4 or higher on a single instance of each resizable property, both standard and proprietary, that do not have specific tests for those properties.
	Test Directives	
	Testing Hints	

4.6.5 Contains Writable List Properties

The IUT contains, or can be made to contain, a writable list property. A writable list property is one that is modifiable via any of the BACnet services: WriteProperty, WritePropertyMultiple, AddListElement, or RemoveListElement.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	Must be executed.

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	Test Directives	The property that is written for this instance of this test must be a list property.
	Testing Hints	

4.6.6 Contains Commandable Properties

The IUT contains, or can be made to contain, a commandable property. Commandable properties are ones that are controlled by the command prioritization mechanism described in Clause 19.2 of BACnet-2001.

135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.22.1.2 - Writing a Commandable Property Without a Priority		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.6.7 Contains non-commandable Properties which Accept a Written NULL Value

The IUT contains, or can be made to contain, a writable property that accepts a written NULL value.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT cannot be configured to contain a property that will accept and retain a NULL value, then this test shall be omitted. Note that commandable properties do not retain the NULL value and as such devices that accept NULL values only for the relinquishing of commanded values will not be subjected to this test.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

4.6.8 Contains Writable BOOLEAN Properties

The IUT contains, or can be made to contain, a writable property with a data type of BOOLEAN.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a BOOLEAN data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.9 Contains Writable Enumerated Properties

The IUT contains, or can be made to contain, a writable property with a data type of Enumerated.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an Enumerated data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.10 Contains Writable INTEGER Properties

The IUT contains, or can be made to contain, a writable property with a data type of INTEGER.

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BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an INTEGER data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.11 Contains Writable Unsigned Properties

The IUT contains, or can be made to contain, a writable property with a data type of Unsigned.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an Unsigned data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.12 Contains Writable REAL Properties

The IUT contains, or can be made to contain, a writable property with a data type of REAL.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a REAL data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.13 Contains Writable Double Properties

The IUT contains, or can be made to contain, a writable property with a data type of Double.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Double data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.14 Contains Writable Time Properties

The IUT contains, or can be made to contain, a writable property with a data type of Time.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Time data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.15 Contains Writable Date Properties

The IUT contains, or can be made to contain, a writable property with a data type of Date.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Date data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.16 Contains Writable Character String Properties

The IUT contains, or can be made to contain, a writable property with a data type of Character String.

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BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Character String data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.17 Contains Writable Octet String Properties

The IUT contains, or can be made to contain, a writable property with a data type of Octet String.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Octet String data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.18 Contains Writable Bit String Properties

The IUT contains, or can be made to contain, a writable property with a data type of Bit String.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Bit String data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.19 Contains Writable BACnetObjectIdentifier Properties

The IUT contains, or can be made to contain, a writable property with a data type of BACnetObjectIdentifier.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a BACnetObjectIdentifier data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.6.20 Contains Writable Properties with Non-Basic Data Types

The IUT contains, or can be made to contain, a writable property with a non-basic data type. A non-basic data type is one that is represented by a SEQUENCE or CHOICE construct when described in ASN.1.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	If properties of each of the writable non-basic data types that the IUT supports are present in the IUT when test 135.1-2019 - 7.2.2 is executed, this test can be skipped. Otherwise this test shall be repeated for non-basic writable data type that the IUT supports that was not tested by the execution of 135.1-2019 - 7.2.2.
	Test Directives	
	Testing Hints	

4.6.21 Contains Writable Proprietary Properties with Basic Data Types

The IUT contains, or can be made to contain, at least one writable proprietary property with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Octet String, Time, Date, or BACnetObjectIdentifier.

BTL - 9.22.1.X2 - Writing to Properties Based on Data Type		
	Test Conditionality	This test shall be skipped until such time as the test tools support interaction with proprietary properties.

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	Test Directives	
	Testing Hints	

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4.7 Data Sharing - WritePropertyMultiple - A

4.7.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

For all of the DS-WPM-A tests, the vendor must supply information on how to make the IUT generate the specified requests.

As with all A side tests, the IUT must be able to initiate the service against any BACnet device that advertises that it executes WritePropertyMultiple.

4.7.2 Supports DS-WP-A

The IUT supports DS-WP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims conformance to DS-WP-A.
	Testing Hints	

4.7.3 Can Write Multiple Properties to a Single Object

The IUT is able to write multiple properties to a single object in a single WritePropertyMultiple request.

135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.7.4 Can Write A Single Property to Multiple Objects

The IUT is able to write a single property to multiple objects in a single WritePropertyMultiple request. The same property need not be written to each object.

135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.7.5 Can Write Multiple Properties to Multiple Objects

The IUT is able to write multiple properties to multiple objects in a single WritePropertyMultiple request.

135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.7.6 Can Write A Single Property to a Single Object

The IUT is able to write a single property to a single object.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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4.7.7 Can Write Non-Array Properties

The IUT is able to write non-array properties in another BACnet device.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a non-array property.
	Test Directives	At least one of the properties written by the selected test shall be a non-array property.
	Testing Hints	

4.7.8 Can Write Array Elements

The IUT is able to write array elements in another BACnet device.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against an array element.
	Test Directives	At least one of the properties written by the selected test shall be an array element. This will require the inclusion of an array index in the property specification even though the test definition does not show one.
	Testing Hints	

4.7.9 Can Write the Size of an Array

The IUT is able to write the 0th element of an array property to change the number of elements in the array.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against the 0th element of an array.
	Test Directives	At least one of the properties written by the selected test shall be the 0th element of an array.
	Testing Hints	

4.7.10 Can Write Whole Arrays

The IUT is able to write complete array properties without the use of array indices.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against an array property without the use of an array index.
	Test Directives	At least one of the properties written by the selected test shall be array property without an array element specified.
	Testing Hints	

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4.7.11 Can Write Whole Lists

The IUT is able to write list properties.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a list property.
	Test Directives	At least one of the properties written by the selected test shall be a list property.
	Testing Hints	

4.7.12 Can Command and Relinquish With a Priority

The IUT is able to include a priority when writing.

135.1-2019 - 8.23.6 - Writing Commandable Properties		
	Test Conditionality	Note that the test calls for 2 properties to be written, and only 1 contains a priority. The tester shall accept any well formed WritePropertyMultiple request, regardless of the number of properties contained in it, regardless of the number of properties for which a priority is supplied (as long as there is at least 1), and regardless of the position of the property(s) within the request that are accompanied by a priority.
	Test Directives	At least one of the properties written by the selected test shall be written with a priority.
	Testing Hints	

4.7.13 Can Write NULL Property Values to non-commandable Properties

The IUT is able to write NULL values to non-commandable properties.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a NULL value.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object, are standard properties that should accept a written NULL.

4.7.14 Can Write BOOLEAN Property Values

The IUT is able to write BOOLEAN values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a BOOLEAN value.

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	Test Directives	At least one of the properties written by the selected test shall contain a BOOLEAN value.
	Testing Hints	

4.7.15 Can Write Enumerated Property Values

The IUT is able to write Enumerated values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with an Enumerated value.
	Test Directives	At least one of the properties written by the selected test shall contain an Enumerated value.
	Testing Hints	

4.7.16 Can Write INTEGER Property Values

The IUT is able to write INTEGER values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with an INTEGER value.
	Test Directives	At least one of the properties written by the selected test shall contain an INTEGER value.
	Testing Hints	

4.7.17 Can Write Unsigned Property Values

The IUT is able to write Unsigned values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with an Unsigned value.
	Test Directives	At least one of the properties written by the selected test shall contain an Unsigned value.
	Testing Hints	

4.7.18 Can Write REAL Property Values

The IUT is able to write REAL values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a REAL value.
	Test Directives	At least one of the properties written by the selected test shall contain a REAL value.

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	Testing Hints	

4.7.19 Can Write Double Property Values

The IUT is able to write Double values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a Double value.
	Test Directives	At least one of the properties written by the selected test shall contain a Double value.
	Testing Hints	

4.7.20 Can Write Time Property Values

The IUT is able to write Time values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a Time value.
	Test Directives	At least one of the properties written by the selected test shall contain a Time value.
	Testing Hints	

4.7.21 Can Write Date Property Values

The IUT is able to write Date values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a Date value.
	Test Directives	At least one of the properties written by the selected test shall contain a Date value.
	Testing Hints	

4.7.22 Can Write Character String Property Values

The IUT is able to write Character String values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a Character String value.
	Test Directives	At least one of the properties written by the selected test shall contain a Character String value.
	Testing Hints	

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4.7.23 Can Write Octet String Property Values

The IUT is able to write Octet String values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with an Octet String value.
	Test Directives	At least one of the properties written by the selected test shall contain an Octet String value.
	Testing Hints	

4.7.24 Can Write Bit String Property Values

The IUT is able to write Bit String values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a Bit String value.
	Test Directives	At least one of the properties written by the selected test shall contain a Bit String value.
	Testing Hints	

4.7.25 Can Write BACnetObjectIdentifier Property Values

The IUT is able to write BACnetObjectIdentifier values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a BACnetObjectIdentifier value.
	Test Directives	At least one of the properties written by the selected test shall contain a BACnetObjectIdentifier value.
	Testing Hints	

4.7.26 Can Write Constructed Property Values

The IUT is able to write constructed property values.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a property with a constructed value
	Test Directives	This test shall be repeated for each standard constructed value that the IUT is able to write.
	Testing Hints	Where a constructed value can take on different forms, such as a constructed value that contains optional elements, or is a CHOICE, the tester should test all forms of the datatype. Where the constructed value

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		contains an ANY type, the tester should limit testing to supported primitive datatypes and, if supported, BACnetDateTime.

4.7.27 Can Write Proprietary Property Values of Basic Data Types

The IUT is able to write arbitrary proprietary properties with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Octet String, Time, Date, or BACnetObjectIdentifier.

135.1-2019 - 8.23.1 - Writing a Single Property of a Single Object, 135.1-2019 - 8.23.2 - Writing Multiple Properties of a Single Object, 135.1-2019 - 8.23.3 - Writing Multiple Objects, One Property Each, or 135.1-2019 - 8.23.4 - Writing Multiple Objects, Multiple Properties for Each		
	Test Conditionality	At least one of the tests (8.23.1..8.23.4) shall be executed against a proprietary property.
	Test Directives	At least one of the properties written by the selected test shall be proprietary.
	Testing Hints	

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4.8 Data Sharing - WritePropertyMultiple - B

4.8.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.2.2 - Write Support Test Procedure		
	Test Conditionality	Must be executed.
	Test Directives	For each property on which 9.23.1.7 - Writing to Properties Based on Data Type is executed on each writable datatype, that property can be skipped in the performance of 7.2.2. To satisfy this test item, test 7.2.2 need only be executed using WritePropertyMultiple.
	Testing Hints	
BTL - 9.23.1.1 - Writing a Single Property to a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.23.1.5 - Writing a Non-Commandable Property With a Priority		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.1 - Writing Multiple Properties with a Property Access Error		
	Test Conditionality	Must be executed.
	Test Directives	The IUT must contain a writable non-array property.
	Testing Hints	
BTL - 9.23.2.2 - Writing Multiple Properties with an Object Access Error		
	Test Conditionality	If the product does not contain, or cannot be made to contain an object with a writable property and a read-only property, then this test shall be omitted
	Test Directives	
	Testing Hints	
BTL - 9.23.2.3 - Writing Multiple Properties with a Write Access Error		
	Test Conditionality	If the product does not contain, or cannot be made to contain an object with a writable property and a read-only property, then this test shall be omitted.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.6 - Writing with a Property Value Having the Wrong Datatype		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.7 - Writing with a Property Value that is Out of Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X1 - WritePropertyMultiple Reject Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 10 or greater.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X2 - Resizing a writable fixed size array property using WritePropertyMultiple service		
	Test Conditionality	If IUT does not contain a writable fixed size array property, then this test shall be skipped.
	Test Directives	

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	Testing Hints	For example, Weekly_Schedule.
BTL - 9.23.2.X6 - Writing first element of 'List of Write Access Specifications' with a Property Access Error		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X3 - Writing first element of 'List of Write Access Specifications' with Object Access Error		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X4 - Writing First Element of 'List of Write Access Specifications' with a Write Access Error		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X5 - WritePropertyMultiple Reject Test for first element of 'List of Write Access Specifications'		
	Test Conditionality	Must be executed if the IUT claims Protocol Revision 10 or greater.
	Test Directives	
	Testing Hints	
BTL - 9.23.2.X7 - Writing a Property Value Related to a Non-supported Optional Functionality		
	Test Conditionality	If the IUT does not support a writable property with an explicit mention BACnet-Error-code OPTIONAL_FUNCTIONALITY_NOT_SUPPORTED, then this test shall be skipped.
	Test Directives	For each writable property that is related to an optional functionality that the object is not supported
	Testing Hints	135-2020 clause 12. (12.12.8,12.24.10,12.25.26,12.30.11,12.53.11,12.56.14,12.57.21,12.62.14)

4.8.2 Contains Multiple Objects with Writable Properties

The IUT contains, or can be made to contain, multiple objects with writable properties.

BTL - 9.23.1.3 - Writing a Single Property to Multiple Objects		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.8.3 Contains Objects with Multiple Writable Properties

The IUT contains, or can be made to contain, at least one object with multiple writable properties.

BTL - 9.23.1.2 - Writing Multiple properties to a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	The IUT must contain a writable non-array property.
	Testing Hints	

4.8.4 Contains Multiple Objects with Multiple Writable Properties

BTL - 9.23.1.4 - Writing Multiple Properties to Multiple Objects		
	Test Conditionality	This test shall be skipped if the IUT has only a single object with multiple writable properties.

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	Test Directives	The IUT must contain a writable non-array property.
	Testing Hints	

4.8.5 Contains Writable Non-Array Properties

The IUT contains, or can be made to contain, a writeable non-array property.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed against a writable non-array property of any data type.
	Testing Hints	

4.8.6 Contains Writable Array Properties

The IUT contains, or can be made to contain, a writeable array property.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be executed against a whole writable array property (no array index provided, and all elements written).
	Testing Hints	
BTL - 9.23.2.5 - Writing Array Properties with an Array Index that is Out of Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.8.7 Contains Resizable Array Properties

The IUT contains, or can be made to contain, an array property that is resizable by writing to the 0th element.

BTL - 9.23.1.X4 - Writing an Array Size		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X16 - Array Resizing Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall be executed if the IUT is protocol revision 4 or higher.
	Test Directives	Execute on at least one instance of each resizable array property, both standard and proprietary
	Testing Hints	

4.8.8 Contains Writable List Properties

The IUT contains, or can be made to contain, a writable list property. A writable list property is one that is modifiable via any of the BACnet services: WriteProperty, WritePropertyMultiple, AddListElement, or RemoveListElement.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	Must be executed.
	Test Directives	The property that is written for this instance of this test must be a list property.
	Testing Hints	

4.8.9 Contains Commandable Properties

The IUT contains, or can be made to contain, a commandable property. Commandable properties are ones that are controlled by the command prioritization mechanism described in Clause 19.2 of BACnet-2001.

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135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	Use WritePropertyMultiple is used in place of WriteProperty.
	Testing Hints	
135.1-2019 - 9.23.1.6 - Writing a Commandable Property Without a Priority		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.8.10 Contains non-commandable Properties which Accept a Written NULL Value

The IUT contains, or can be made to contain, a writable property that accepts a written NULL value.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT cannot be configured to contain a property that will accept and retain a NULL value, then this test shall be omitted. Note that commandable properties do not retain the NULL value and as such devices that accept NULL values only for the relinquishing of commanded values will not be subjected to this test.
	Test Directives	
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

4.8.11 Contains Writable BOOLEAN Properties

The IUT contains, or can be made to contain, a writable property with a data type of BOOLEAN.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a BOOLEAN data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.12 Contains Writable Enumerated Properties

The IUT contains, or can be made to contain, a writable property with a data type of Enumerated.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an Enumerated data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.13 Contains Writable INTEGER Properties

The IUT contains, or can be made to contain, a writable property with a data type of INTEGER.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an INTEGER data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

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4.8.14 Contains Writable Unsigned Properties

The IUT contains, or can be made to contain, a writable property with a data type of Unsigned.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with an Unsigned data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.15 Contains Writable REAL Properties

The IUT contains, or can be made to contain, a writable property with a data type of REAL.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a REAL data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.16 Contains Writable Double Properties

The IUT contains, or can be made to contain, a writable property with a data type of Double.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Double data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.17 Contains Writable Time Properties

The IUT contains, or can be made to contain, a writable property with a data type of Time.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Time data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.18 Contains Writable Date Properties

The IUT contains, or can be made to contain, a writable property with a data type of Date.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Date data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.19 Contains Writable Character String Properties

The IUT contains, or can be made to contain, a writable property with a data type of Character String.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Character String data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

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4.8.20 Contains Writable Octet String Properties

The IUT contains, or can be made to contain, a writable property with a data type of Octet String.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Octet String data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.21 Contains Writable Bit String Properties

The IUT contains, or can be made to contain, a writable property with a data type of Bit String.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a Bit String data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.22 Contains Writable BACnetObjectIdentifier Properties

The IUT contains, or can be made to contain, a writable property with a data type of BACnetObjectIdentifier.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If the IUT contains a property with a BACnetObjectIdentifier data type when test 135.1-2019 - 7.2.2 is executed, this test can be skipped.
	Test Directives	
	Testing Hints	

4.8.23 Contains Writable Properties with Non-Basic Data Types

The IUT contains, or can be made to contain, a writable property with a non-basic data type. A non-basic data type is one that is represented by a SEQUENCE or CHOICE construct when described in ASN.1.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	If properties of each of the writable non-basic data types that the IUT supports are present in the IUT when test 135.1-2019 - 7.2.2 is executed, this test can be skipped. Otherwise this test shall be repeated for non-basic writable data type that the IUT supports that was not tested by the execution of 135.1-2019 - 7.2.2.
	Test Directives	
	Testing Hints	

4.8.24 Contains Writable Proprietary Properties with Basic Data Types

The IUT contains, or can be made to contain, at least one writable proprietary property with a data type of NULL, BOOLEAN, INTEGER, Unsigned, REAL, Double, Character String, Octet String, Time, Date, or BACnetObjectIdentifier.

135.1-2019 - 9.23.1.8 - Writing to Properties Based on Data Type		
	Test Conditionality	This test shall be skipped until such time as the test tools support interaction with proprietary properties.
	Test Directives	
	Testing Hints	

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4.9 Data Sharing - Change Of Value - A

4.9.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements for this section.

4.9.2 Subscribes with Lifetimes up to 8 Hours in Duration

The IUT is capable of subscribing with a lifetime less than or equal to 28800 seconds (8 hours).

135.1-2019 - 8.10.4 - Generates 8 Hour Lifetimes		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.9.3 Can Subscribe for Confirmed Notifications

The IUT can subscribe for, receive, and process confirmed Change of Value notifications.

135.1-2019 - 8.10.1 - Confirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	This test shall not be executed with a lifetime of 0.
	Testing Hints	
BTL - 9.2.2.1 - Change of Value Notification Arrives after Subscription has Expired		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.2.2.2 - Change of Value Notifications with Invalid Process Identifier		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.2.2.4 - Change of Value Notifications with Invalid Monitored Object Identifier		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.9.4 Can Subscribe for Unconfirmed Notifications

The IUT can subscribe for, receive, and process unconfirmed Change of Value notifications.

135.1-2019 - 8.10.2 - Unconfirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	This test shall not be executed with a lifetime of 0.
	Testing Hints	

4.9.5 Can Subscribe for COV from Analog Objects

The IUT can subscribe for, receive, and process Change of Value notifications from at least one object using type REAL in its parameters.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type REAL.
	Testing Hints	

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BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type REAL.
	Testing Hints	

4.9.6 Can Subscribe for COV from Binary Objects

The IUT can subscribe for, receive, and process Change of Value notifications from at least one object using type BACnetBinaryPV in its parameters.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetBinaryPV.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetBinaryPV.
	Testing Hints	

4.9.7 Can Subscribe for COV from Life Safety Objects

The IUT can subscribe for, receive, and process Change of Value notifications from at lease one Life Safety Point or Life Safety Zone object using type BACnetLifeSafetyState in its parameters.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetLifeSafetyState.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetLifeSafetyState.
	Testing Hints	

4.9.8 Can Subscribe for COV from Loop Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Loop objects.

135.1-2019 - 9.2.1.2 - Change of Value Notification from Loop Objects		
	Test Conditionality	Either 9.2.1.2 or 9.3.3 must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.3.3 - Change of Value Notification from Loop Objects		
	Test Conditionality	Either 9.2.1.2 or 9.3.3 must be executed.
	Test Directives	
	Testing Hints	

4.9.9 Can Subscribe for COV from Multi-state Objects

The IUT can subscribe for, receive, and process Change of Value notifications from at leaset one object using type Unsigned in its parameters.

BTL - 9.2.1.1 - Change of Value Notifications

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	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Unsigned.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	Either 9.2.1.1 or 9.3.2 must be executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Unsigned.
	Testing Hints	

4.9.10 Can Subscribe for COV from CharacterString Objects

The IUT can subscribe for, receive, and process Change of Value notifications from CharacterString Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type CharacterString.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type CharacterString.
	Testing Hints	

4.9.11 Can Subscribe for COV from Date Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Date Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Date.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Date.
	Testing Hints	

4.9.12 Can Subscribe for COV from DateTime Objects

The IUT can subscribe for, receive, and process Change of Value notifications from DateTime Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetDateTime.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetDateTime.
	Testing Hints	

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4.9.13 Can Subscribe for COV from Integer Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Integer Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Integer.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Integer.
	Testing Hints	

4.9.14 Can Subscribe for COV from Large Analog Objects

The IUT can subscribe for, receive, and process Change of Value notifications fromLarge Analog Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Large Analog.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Large Analog.
	Testing Hints	

4.9.15 Can Subscribe for COV from OctetString Objects

The IUT can subscribe for, receive, and process Change of Value notifications from OctetString Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type OctetString.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type OctetString.
	Testing Hints	

4.9.16 Can Subscribe for COV from Positive Integer Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Positive Integer Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is using data type Unsigned, including the possible value zero.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.

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	Test Directives	Test one instance of each object type where Present_Value is using data type Unsigned, including the possible value zero.
	Testing Hints	

4.9.17 Can Subscribe for COV from Time Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Time Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Time.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type Time.
	Testing Hints	

4.9.18 Can Subscribe for COV from Pulse Converter Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Pulse Converter Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type REAL.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type REAL.
	Testing Hints	

4.9.19 Can Subscribe for COV from Access Door Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Access Door Objects.

BTL - 9.2.1.X5 - ConfirmedCOVNotification from Access Door Object		
	Test Conditionality	Either 9.2.1.X5 or 9.3.1.X6 must be executed
	Test Directives	Test at least one instance where object type is an Access Door.
	Testing Hints	
BTL - 9.3.1.X6 - UnconfirmedCOVNotification from Access Door Object		
	Test Conditionality	Either 9.2.1.X5 or 9.3.1.X6 must be executed
	Test Directives	Test at least one instance where object type is an Access Door.
	Testing Hints	

4.9.20 Can Subscribe for COV from Load Control Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Load Control Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetShedState.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		

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	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetShedState.
	Testing Hints	

4.9.21 Can Subscribe for COV from Access Point Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Access Point Objects.

BTL - 9.2.1.X6 - ConfirmedCOVNotification from Access Point Object		
	Test Conditionality	Either 9.2.1.X6 or 9.3.1.X7 must be executed
	Test Directives	Test at least one instance where the object type is an Access Point.
	Testing Hints	
BTL - 9.3.1.X7 - UnconfirmedCOVNotification from Access Point Object		
	Test Conditionality	Either 9.2.1.X6 or 9.3.1.X7 must be executed
	Test Directives	Test at least one instance where the object type is an Access Point.
	Testing Hints	

4.9.22 Can Subscribe for COV from Credential Data Input Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Credential Data Input Objects.

BTL - 9.2.1.X7 - ConfirmedCOVNotification from Credential Data Input Object		
	Test Conditionality	Either 9.2.1.X7 or 9.3.1.X8 must be executed
	Test Directives	Test at least one instance where the object type is a Credential Data Input.
	Testing Hints	
BTL - 9.3.1.X8 - UnconfirmedCOVNotification from Credential Data Input Object		
	Test Conditionality	Either 9.2.1.X7 or 9.3.1.X8 must be executed
	Test Directives	Test at least one instance where the object type is a Credential Data Input.
	Testing Hints	

4.9.23 Can Subscribe for COV from Lighting Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Lighting Output Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type REAL.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type REAL.
	Testing Hints	

4.9.24 Can Subscribe for COV from Binary Lighting Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Binary Lighting Output Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.

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	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetBinaryLightingPV.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type where Present_Value is of data type BACnetBinaryLightingPV.
	Testing Hints	

4.9.25 Can Subscribe for COV from Staging Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Staging Objects.

BTL - 9.2.1.1 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.3.2 is executed.
	Test Directives	Test one instance of each object type.
	Testing Hints	
BTL - 9.3.2 - Change of Value Notifications		
	Test Conditionality	This test can be skipped if 9.2.1.1 is executed.
	Test Directives	Test one instance of each object type.
	Testing Hints	

4.9.26 Can Cancel Subscriptions

The IUT can explicitly cancel COV subscriptions (in contrast to just letting the subscription expire).

135.1-2019 - 8.10.3 - Cancelling a Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.9.27 Can Subscribe for COV from Proprietary Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Proprietary objects.

BTL - 9.2.1.X4 - Change of Value Notification from Proprietary Objects		
	Test Conditionality	This test is not yet defined and shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.3.X9 - Change of Value Notification from Proprietary Objects		
	Test Conditionality	This test is not yet defined and shall be skipped.
	Test Directives	
	Testing Hints	

4.9.28 Can Request Infinite Subscriptions

The IUT can generate COV subscription requests with no Lifetime parameter.

There are no tests for this functionality.

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4.10 Data Sharing - Change Of Value - B

4.10.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.10.1.1 - Confirmed COV Notifications		
	Test Conditionality	The functionality of this test is covered by tests 8.2.X which may be executed for each object type that supports COV. If the 8.2.X tests have been executed, then this test may be omitted.
	Test Directives	This test shall only be executed against objects which will accept the subscription.
	Testing Hints	
135.1-2019 - 9.10.1.2 - Unconfirmed COV Notifications		
	Test Conditionality	The functionality of this test is covered by tests 8.3.1 through 8.3.n which may be executed for each object type that supports COV. If the 8.3.n tests have been executed, then this test may be omitted.
	Test Directives	This test shall only be executed against objects which will accept the subscription.
	Testing Hints	
135.1-2019 - 9.10.1.4 - Cancelling COV Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.10.1.5 - Cancelling Expired or Non-Existing Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.10.1.7 - Finite Lifetime Subscriptions		
	Test Conditionality	Optional. The functionality of this test is covered by tests 8.2.1 through n and 8.3.1 through n which are executed for each object type that supports COV.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.10.1.9 - Ensuring Subscription Lifetimes Are Not Effected By Time Changes		
	Test Conditionality	This test must be executed if the device can execute TimeSynchronization or UTCTimeSynchronization.
	Test Directives	
	Testing Hints	
BTL - 9.10.2.1 - The Monitored Object Does Not Support COV Notification		
	Test Conditionality	This test shall only be executed if IUT contains objects which will not accept a COV subscription.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.10.1 - Active_COV_Subscriptions SubscribeCOV Test		
	Test Conditionality	This test must be executed if the device claims conformance to protocol revision 1 or higher.
	Test Directives	
	Testing Hints	
BTL - 9.10.2.X1 - The Monitored Object Does Not Exist		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.10.2.X2 - There Is No Space For A Subscription		

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	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.10.2.X3 - The Lifetime Parameter is Out of Range		
	Test Conditionality	If the lifetime parameter accepts values across the full range of unsigned values decodable by the IUT (which must be at least the full range of Unsigned16), then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.10.1.8 - Updating Existing Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.10.2 Supports Lifetimes up to 8 Hours in Duration

The IUT will accept COV subscriptions with lifetimes up to 8 hours.

135.1-2019 - 9.10.1.10 - Accepts 8 Hour Lifetimes		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.10.3 Supports 5 Concurrent COV Subscribers

The IUT supports 5 or more concurrent COV subscriptions

BTL - 9.10.1.X1 - Ensuring 5 Concurrent COV Subscribers		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.10.4 Supports COV for Analog Input Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Analog Input Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.1 is executed against an Analog Input object.
	Test Directives	The selected object must be an Analog Input.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against an Analog Input object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Analog Input.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.1 is executed against an Analog Input object.
	Test Directives	The selected object must be an Analog Input.
	Testing Hints	

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BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against an Analog Input object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Analog Input.
	Testing Hints	

4.10.5 Supports COV for Analog Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Analog Output Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	Must be executed.
	Test Directives	The selected object must be an Analog Output.
	Testing Hints	This may be skipped if 8.3.1 is executed against an Analog Output object.
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against an Analog Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Analog Output.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	Must be executed.
	Test Directives	The selected object must be an Analog Output.
	Testing Hints	This may be skipped if 8.2.1 is executed against an Analog Output object.
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against an Analog Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Analog Output.
	Testing Hints	

4.10.6 Supports COV for Analog Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Analog Value Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.1 is executed against an Analog Value object.
	Test Directives	The selected object must be an Analog Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against an Analog Value object.

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		This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Analog Value.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.1 is executed against an Analog Value object.
	Test Directives	The selected object must be an Analog Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against an Analog Value object. This may be skipped if 8.2.2 is executed against an Analog Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Analog Value.
	Testing Hints	

4.10.7 Supports COV for Binary Input Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Binary Input Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Binary Input object.
	Test Directives	The selected object must be a Binary Input.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Binary Input object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Input.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Binary Input object.
	Test Directives	The selected object must be a Binary Input.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Binary Input object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Input.
	Testing Hints	

4.10.8 Supports COV for Binary Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Binary Output Objects.

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BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Binary Output object.
	Test Directives	The selected object must be a Binary Output.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Binary Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Output.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Binary Output object.
	Test Directives	The selected object must be a Binary Output.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Binary Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Output.
	Testing Hints	

4.10.9 Supports COV for Binary Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Binary Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Binary Value object.
	Test Directives	The selected object must be a Binary Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Binary Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Binary Value object.
	Test Directives	The selected object must be a Binary Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Binary Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Value.
	Testing Hints	

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4.10.10 Supports COV for Life Safety Point Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Life Safety Point Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Life Safety Point object.
	Test Directives	The selected object must be a Life Safety Point.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Life Safety Point object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Life Safety Point.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Life Safety Point object.
	Test Directives	The selected object must be a Life Safety Point.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Life Safety Point object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Life Safety Point.
	Testing Hints	

4.10.11 Supports COV for Life Safety Zone Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Life Safety Zone Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Life Safety Zone object.
	Test Directives	The selected object must be a Life Safety Zone.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Life Safety Zone object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Life Safety Zone.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Life Safety Zone object.

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	Test Directives	The selected object must be a Life Safety Zone.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Life Safety Zone object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Life Safety Zone.
	Testing Hints	

4.10.12 Supports COV for Loop Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Loop Objects.

BTL - 8.2.7 - Change of Value Notification from Loop Object Present_Value Property		
	Test Conditionality	This may be skipped if 8.3.7 is executed against a Loop object.
	Test Directives	The selected object must be a Loop.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Loop object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Loop.
	Testing Hints	
BTL - 8.3.7 - Change of Value Notification from Loop Object Present_Value Property		
	Test Conditionality	This may be skipped if 8.2.7 is executed against a Loop object.
	Test Directives	The selected object must be a Loop
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Loop object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Loop.
	Testing Hints	

4.10.13 Supports COV for Multi-state Input Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Multi-state Input Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Multi-state Input object.
	Test Directives	The selected object must be a Multi-state Input.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Multi-state Input object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Multi-state Input.

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	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Multi-state Input object.
	Test Directives	The selected object must be a Multi-state Input.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Multi-state Input object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Multi-state Input.
	Testing Hints	

4.10.14 Supports COV for Multi-state Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Multi-state Output Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Multi-state Output object.
	Test Directives	The selected object must be a Multi-state Output.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Multi-state Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Multi-state Output.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Multi-state Output object.
	Test Directives	The selected object must be a Multi-state Output.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Multi-state Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Multi-state Output.
	Testing Hints	

4.10.15 Supports COV for Multi-state Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Multi-state Value Objects.

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BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Multi-state Value object.
	Test Directives	The selected object must be a Multi-state Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Multi-state Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Multi-state Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Multi-state Value object.
	Test Directives	The selected object must be a Multi-state Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Multi-state Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Multi-state Value.
	Testing Hints	

4.10.16 Supports COV for CharacterString Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from CharacterString Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a CharacterString Value object.
	Test Directives	The selected object must be a CharacterString Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a CharacterString Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a CharacterString Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a CharacterString Output object.
	Test Directives	The selected object must be a CharacterString Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		

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	Test Conditionality	This may be skipped if 8.2.2 is executed against a CharacterString Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a CharacterString Value.
	Testing Hints	

4.10.17 Supports COV for Date Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Date Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Date Value object.
	Test Directives	The selected object must be a Date Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Date Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Date Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Date Output object.
	Test Directives	The selected object must be a Date Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Date Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Date Value.
	Testing Hints	

4.10.18 Supports COV for Date Pattern Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Date Pattern Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Date Pattern Value object.
	Test Directives	The selected object must be a Date Pattern Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Date Pattern Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Date Pattern Value.
	Testing Hints	

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BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Date Pattern Output object.
	Test Directives	The selected object must be a Date Pattern Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Date Pattern Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Date Pattern Value.
	Testing Hints	

4.10.19 Supports COV for DateTime Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from DateTime Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a DateTime Value object.
	Test Directives	The selected object must be a DateTime Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a DateTime Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a DateTime Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a DateTime Output object.
	Test Directives	The selected object must be a DateTime Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a DateTime Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a DateTime Value.
	Testing Hints	

4.10.20 Supports COV for DateTime Pattern Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from DateTime Pattern Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment

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	Test Conditionality	This may be skipped if 8.3.3 is executed against a DateTime Pattern Value object.
	Test Directives	The selected object must be a DateTime Pattern Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a DateTime Pattern Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a DateTime Pattern Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a DateTime Pattern Output object.
	Test Directives	The selected object must be a DateTime Pattern Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a DateTime Pattern Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a DateTime Pattern Value.
	Testing Hints	

4.10.21 Supports COV for Integer Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Integer Value Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.1 is executed against an Integer Value object.
	Test Directives	The selected object must be an Integer Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against an Integer Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Integer Value.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.1 is executed against an Integer Value object.
	Test Directives	The selected object must be an Integer Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against an Integer Value object.

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		This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an Integer Value.
	Testing Hints	

4.10.22 Supports COV for Large Analog Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Large Analog Value Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.1 is executed against a Large Analog Value object.
	Test Directives	The selected object must be a Large Analog Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Large Analog Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Large Analog Value.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.1 is executed against a Large Analog Value object.
	Test Directives	The selected object must be a Large Analog Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Large Analog Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Large Analog Value.
	Testing Hints	

4.10.23 Supports COV for Positive Integer Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Positive Integer Value Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.1 is executed against a Positive Integer Value object.
	Test Directives	The selected object must be a Positive Integer Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Positive Integer Value object.

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		This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Positive Integer Value.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.1 is executed against a Positive Integer Value object.
	Test Directives	The selected object must be a Positive Integer Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Positive Integer Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Positive Integer Value.
	Testing Hints	

4.10.24 Supports COV for Time Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Time Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Time Value object.
	Test Directives	The selected object must be a Time Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Time Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Time Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Time Value object.
	Test Directives	The selected object must be a Time Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Time Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Time Value.
	Testing Hints	

4.10.25 Supports COV for Time Pattern Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Time Pattern Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment

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	Test Conditionality	This may be skipped if 8.3.3 is executed against a Time Pattern Value object.
	Test Directives	The selected object must be a Time Pattern Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Time Pattern Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Time Pattern Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Time Pattern Value object.
	Test Directives	The selected object must be a Time Pattern Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Time Pattern Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Time Pattern Value.
	Testing Hints	

4.10.26 Supports COV for OctetString Value Objects

The IUT can subscribe for, receive, and process Change of Value notifications from OctetString Value Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against an OctetString Value object.
	Test Directives	The selected object must be an OctetString Value.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against an OctetString Value object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an OctetString Value.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against an OctetString Value object.
	Test Directives	The selected object must be an OctetString Value.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against an OctetString Value object.

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		This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be an OctetString Value.
	Testing Hints	

4.10.27 Supports COV for Pulse Converter Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Pulse Converter Objects.

BTL - 8.2.X9 - ConfirmedCOVNotification Pulse Converter changing Present_Value		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.2.X10 - ConfirmedCOVNotification Pulse Converter changing Status_Flags		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.3.X12 - UnconfirmedCOVNotification Pulse Converter changing Present_Value		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.3.X13 - UnconfirmedCOVNotification Pulse Converter changing Status_Flags		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.10.28 Supports COV for Access Door Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Access Door Objects.

BTL - 8.2.X11 - Change of Value Notification from an Access Door object Present_Value, Status_Flags and Door_Alarm_State property		
	Test Conditionality	This may be skipped if **BTL - 8.3.X14** is executed against an Access Door object.
	Test Directives	Test at least one instance where object type is an Access Door.
	Testing Hints	
BTL - 8.3.X14 - Change of Value Notification from an Access Door object Present_Value, Status_Flags and Door_Alarm_State property		
	Test Conditionality	This may be skipped if **BTL - 8.2.X11** is executed against an Access Door object.
	Test Directives	Test at least one instance where object type is an Access Door.
	Testing Hints	

4.10.29 Supports COV for Load Control Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Load Control Objects.

Contact BTL for interim tests for this object.

4.10.30 Supports COV for Access Point Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Access Point Objects.

BTL - 8.2.X12 - Change of Value Notification from an Access Point object		
	Test Conditionality	This may be skipped if **BTL - 8.3.X15** is executed against an Access Point object.

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	Test Directives	Test at least one instance where the object type is an Access Point object.
	Testing Hints	
BTL - 8.3.X15 - Change of Value Notification from an Access Point object		
	Test Conditionality	This may be skipped if **BTL - 8.2.X12** is executed against an Access Point object.
	Test Directives	Test at least one instance where the object type is an Access Point object.
	Testing Hints	

4.10.31 Supports COV for Credential Data Input Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Credential Data Input Objects.

BTL - 8.2.X13 - Change of Value Notification from a Credential Data Input Object		
	Test Conditionality	This may be skipped if **BTL - 8.3.X16** is executed against a Credential Data Input object.
	Test Directives	Test at least one instance where the object type is a Credential Data Input object.
	Testing Hints	
BTL - 8.3.X16 - Change of Value Notification from a Credential Data Input Object		
	Test Conditionality	This may be skipped if **BTL - 8.2.X13** is executed against a Credential Data Input object.
	Test Directives	Test at least one instance where the object type is a Credential Data Input object.
	Testing Hints	

4.10.32 Supports COV for Lighting Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Lighting Output Objects.

BTL - 8.2.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	This may be skipped if 8.3.1 is executed against a Lighting Output object.
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Lighting Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Lighting Output.
	Testing Hints	
BTL - 8.3.1 - Change of Value Notification for Changes to Present_Value in Objects with a COV_Increment		
	Test Conditionality	Must be executed.
	Test Directives	The selected object must be a Lighting Output.
	Testing Hints	This may be skipped if 8.2.1 is executed against a Lighting Output object.
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Lighting Output object.

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		This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Lighting Output.
	Testing Hints	

4.10.33 Supports COV for Binary Lighting Output Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Binary Lighting Output Objects.

BTL - 8.2.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.3.3 is executed against a Binary Lighting Output object.
	Test Directives	The selected object must be a Binary Lighting Output object.
	Testing Hints	
BTL - 8.2.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.3.2 is executed against a Binary Lighting Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Lighting Output object.
	Testing Hints	
BTL - 8.3.3 - Change of Value Notification for Changes to Present_Value in Objects without a COV_Increment		
	Test Conditionality	This may be skipped if 8.2.3 is executed against a Binary Lighting Output object.
	Test Directives	The selected object must be a Binary Lighting Output object.
	Testing Hints	
BTL - 8.3.2 - Change of Value Notification for Changes to Status_Flags Property		
	Test Conditionality	This may be skipped if 8.2.2 is executed against a Binary Lighting Output object. This test shall be skipped if the Status_Flags property cannot be changed or can only be changed as a side-effect of changing Present_Value.
	Test Directives	The selected object must be a Binary Lighting Output object.
	Testing Hints	

4.10.34 Supports COV for Staging Objects

The IUT can subscribe for, receive, and process Change of Value notifications from Staging Objects.

BTL - 8.2.X17 - Change of Value Notification of Staging Object Present_Value Property		
	Test Conditionality	If the IUT cannot contain a Staging object where the COV_Increment is less than the Present_Value range for a single stage, this test shall be skipped. This may be skipped if 8.3.X17 is executed against a Staging object.
	Test Directives	The selected object must be a Staging object.
	Testing Hints	
BTL - 8.2.X18 - Change of Value Notification of Staging Object Status_Flags Property		
	Test Conditionality	If the IUT cannot contain a Staging object where the Status_Flags property can be changed, this test shall be skipped. This may be skipped if 8.3.X18 is executed against a Staging object.
	Test Directives	The selected object must be a Staging object.
	Testing Hints	

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BTL - 8.2.X19 - Change of Value Notification of Staging Object Present_Stage Property		
	Test Conditionality	This may be skipped if 8.3.X19 is executed against a Staging object.
	Test Directives	The selected object must be a Staging object.
	Testing Hints	
BTL - 8.3.X17 - Change of Value Notification of Staging Object Present_Value Property		
	Test Conditionality	If the IUT cannot contain a staging object where the COV_Increment is less than the Present_Value range for a single stage, this test shall be skipped. This may be skipped if 8.2.X17 is executed against a Staging object.
	Test Directives	The selected object must be a Staging object.
	Testing Hints	
BTL - 8.3.X18 - Change of Value Notification of Staging Object Status_Flags Property		
	Test Conditionality	If the IUT cannot contain a Staging object where the Status_Flags property can be changed, this test shall be skipped. This may be skipped if 8.2.X18 is executed against a Staging object.
	Test Directives	The selected object must be a Staging object.
	Testing Hints	
BTL - 8.3.X19 - Change of Value Notification of Staging Object Present_Stage Property		
	Test Conditionality	This may be skipped if 8.2.X19 is executed against a Staging object.
	Test Directives	The selected object must be a Staging object.
	Testing Hints	

4.10.35 Supports COV for Proprietary Objects

The IUT supports change of value notifications for at least one proprietary object.

There is no test defined for this functionality at this time.

4.10.36 Will Accept Infinite COV Subscriptions

The IUT will accept subscriptions that do not include a lifetime parameter.

The BTL does not consider the use of infinite subscriptions a wise implementation choice due to the inability of the server to timeout the subscription if the client disappears. For the sake of interoperability, the BTL considers it wise for all COV server implementations to accept infinite subscriptions.

135.1-2019 - 9.10.1.3 - Explicit Indefinite Lifetime COV Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.2.9 - Missing Lifetime Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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4.11 Data Sharing - View - A

4.11.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed, unless the IUT also claims support for DS-AV-A.
	Test Directives	Repeat the test for each of the standard object types and associated properties defined for the claimed Protocol_Revision and described in table K-1 in the DS-V-A BIBB definition of the BACnet standard.
	Testing Hints	

4.11.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.12 Data Sharing - Advanced View - A

4.12.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard objects and properties, excluding the Life Safety and Access Control objects, and the Object_Identifier and Object_Type properties.
	Testing Hints	For properties that contain a CHOICE construct, the IUT shall be capable of reading and presenting each of the forms of the datatype as defined in the IUT's claimed protocol revision. Full accuracy presentation is not required throughout the IUT, but there should be at least one place provided by the IUT that allows the presentation of each property to be presented in such a way that the presentation requirements of DS-AV-A are met.

4.12.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.13 Data Sharing - Modify - A

4.13.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed, unless the IUT also claims support for DS-AM-A.
	Test Directives	Repeat the test for each of the required object types and associated properties defined for the claimed Protocol_Revision and described in table K-5 in the DS-M-A BIBB definition of the BACnet standard except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table (table K-6) in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed, unless the IUT also claims support for DS-AM-A.
	Test Directives	Repeat the test for all commandable properties defined for the claimed Protocol_Revision. This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.13.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.14 Data Sharing - Advanced Modify - A

4.14.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard objects and properties, excluding the Life Safety and Access Control objects, and the Object_Identifier and Object_Type properties. Also exclude any properties that are required to be read-only by the BACnet standard, and exclude properties which are commandable because those are covered by a different test. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all priority values, 1 through 16.
	Testing Hints	

4.14.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.15 Initiates ReadRange

4.15.1 Base Requirements

Base requirements must be met by any IUT that initiates ReadRange.

BTL - 8.21.1 - Reading Values with no Specified Range, or BTL - 8.21.3 - Reading a Range of Values by Position		
	Test Conditionality	May be skipped if the IUT initiates ReadRange in another tested BIBB that uses ReadRange (eg T-ATR-A).
	Test Directives	
	Testing Hints	

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4.16 Executes ReadRange

4.16.1 Base Requirements

Base requirements must be met by any IUT that executes ReadRange.

BTL - 9.21.1.X1 - ReadRange Support for All List Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.1 - Attempting to Read a Property That Does not Exist		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.2 - Attempting to Read a Property That is not a List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.3 - Attempting to Read a non-Array Property with an Array Index		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.6 - Reading a Range of Items that do not Exist by Position		
	Test Conditionality	If the only list properties supported by the device is Log_Buffer, this test shall be skipped.
	Test Directives	Apply to a single non-empty list property that is not Log_Buffer.
	Testing Hints	
BTL - 9.21.2.X7 - Attempting to Read a List Property by Sequence That Does not Have Sequence Numbers		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 21 or greater and supports a List Property that supports Timestamps.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.X8 - Attempting to Read a List Property by ByTime That Does not Have Timestamps		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 21 or greater and supports a List Property that supports Sequence Numbers.
	Test Directives	
	Testing Hints	

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4.17 Data Sharing - Change Of Value Unsubscribed - A

4.17.1 Base Requirements

There are no Base Requirementsfor this BIBB.

4.17.2 Accepts UnconfirmedCOVNotifications Containing NULL Values

The IUT accepts UnconfirmedCOVNotifications containing NULL values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is the NULL value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.3 Accepts UnconfirmedCOVNotifications Containing BOOLEAN Values

The IUT accepts UnconfirmedCOVNotifications containing BOOLEAN values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a BOOLEAN value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.4 Accepts UnconfirmedCOVNotifications Containing Enumerated Values

The IUT accepts UnconfirmedCOVNotifications containing Enumerated values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is an Enumerated value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.5 Accepts UnconfirmedCOVNotifications Containing INTEGER Values

The IUT accepts UnconfirmedCOVNotifications containing INTEGER values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is an INTEGER value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

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4.17.6 Accepts UnconfirmedCOVNotifications Containing Unsigned Values

The IUT accepts UnconfirmedCOVNotifications containing Unsigned values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is an Unsigned value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.7 Accepts UnconfirmedCOVNotifications Containing REAL Values

The IUT accepts UnconfirmedCOVNotifications containing REAL values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a REAL value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.8 Accepts UnconfirmedCOVNotifications Containing Double Values

The IUT accepts UnconfirmedCOVNotifications containing Double values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a Double value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.9 Accepts UnconfirmedCOVNotifications Containing Time Values

The IUT accepts UnconfirmedCOVNotifications containing Time values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a Time value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.10 Accepts UnconfirmedCOVNotifications Containing Date Values

The IUT accepts UnconfirmedCOVNotifications containing Date values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a Date value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

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4.17.11 Accepts UnconfirmedCOVNotifications Containing DateTime Values

The IUT accepts UnconfirmedCOVNotifications containing DateTime values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a DateTime value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.12 Accepts UnconfirmedCOVNotifications Containing Octet String Values

The IUT accepts UnconfirmedCOVNotifications containing Octet String values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is an Octet String value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.13 Accepts UnconfirmedCOVNotifications Containing Bit String Values

The IUT accepts UnconfirmedCOVNotifications containing Bit String values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a Bit String value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.14 Accepts UnconfirmedCOVNotifications Containing Character String Values

The IUT accepts UnconfirmedCOVNotifications containing Character String values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a Character String value, and at least one other entry in the Notification is a constructed value.
	Testing Hints	

4.17.15 Accepts UnconfirmedCOVNotifications Containing BACnetObjectIdentifier Values

The IUT accepts UnconfirmedCOVNotifications containing BACnetObjectIdentifier values.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.

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	Test Directives	Apply the test where one of the entries in the Notification is a BACnetObjectIdentifier value, and at least one other entry in the Notification is a constructed value At least one of the properties observed to be processed by the test shall contain a BACnetObjectIdentifier value.
	Testing Hints	

4.17.16 Accepts UnconfirmedCOVNotifications Containing Constructed Values

The IUT accepts UnconfirmedCOVNotifications containing constructed property values, whole arrays, and lists.

BTL - 9.10.3.X1 - Unsubscribed COVNotification Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test where one of the entries in the Notification is a constructed value, whole array, or list.
	Testing Hints	

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4.18 Data Sharing - Change Of Value Unsubscribed - B

4.18.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.3.9 - Unsubscribed Change of Value Notifications		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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4.19 Data Sharing - Change Of Value Property - A

4.19.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.11.X1.3 - Change of Value Notification Arrives after Subscription has Expired		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.11.X1.2 - Change of Value Notifications with Invalid Process Identifier		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.11.X1.4 - Change of Value Notifications with Invalid Monitored Object Identifier		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.11.X1.5 - Change of Value Notifications with Invalid Monitored property		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.19.2 Subscribes with Lifetimes up to 8 Hours in Duration

The IUT is capable of subscribing with a lifetime less than or equal to 28800 seconds (8 hours).

BTL - 8.11.X4 - Requests 8 Hour Lifetimes		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.19.3 Can Subscribe for Confirmed Notifications

The IUT can subscribe for, receive, and process confirmed Change of Value notifications.

BTL - 8.11.1 - Confirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.19.4 Can Subscribe for Unconfirmed Notifications

The IUT can subscribe for, receive, and process unconfirmed Change of Value notifications.

BTL - 8.11.2 - Unconfirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.19.5 Can Subscribe to Non-array Properties

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that does not contain the ‘Property Array Index’ parameter and can correctly process the response

BTL - 8.11.X1.1 - Change of Value Notification

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	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid non-array property which the vendor supports in a SubscribeCOVProperty-Request)
	Testing Hints	

4.19.6 Can Subscribe to Array Elements

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that references a specific element of an array property and can correctly process the response

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVProperty-Request and optional array index with value different from 0)
	Testing Hints	

4.19.7 Can Subscribe to the Size of an Array

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that references the size of an array property and can correctly process the response

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVProperty-Request) and optional array index with value equal to 0)
	Testing Hints	

4.19.8 Can Subscribe to Whole Arrays

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that does not contain the 'Property Array Index' parameter for an array property and can correctly process the response.

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVProperty-Request) object with no optional array index)
	Testing Hints	

4.19.9 Can Subscribe to List Properties

Purpose: To verify that the IUT can subscribe for, receive, and process a Change of Value notification that references a list property and can correctly process the response

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.

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	Test Directives	Execute test using 'Monitored Property Identifier' = (any list property which the vendor supports in a SubscribeCOVProperty-Request))
	Testing Hints	

4.19.10 Can Subscribe with a COV Increment

The IUT can subscribe with the parameter 'COV Increment' for, receive, and process Change of Value notifications

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request) and ensure that IUT generates a SubscribeCOVProperty-Request which contains 'COV Increment' parameter,
	Testing Hints	

4.19.11 Can Subscribe to NULL Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from property that contains a NULL value

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a NULL value)
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

4.19.12 Can Subscribe to BOOLEAN Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from BOOLEAN property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a BOOLEAN value)
	Testing Hints	

4.19.13 Can Subscribe to Enumerated Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Enumerated property values

BTL - 8.11.X1.1 - Change of Value Notification

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	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an Enumerated value)
	Testing Hints	

4.19.14 Can Subscribe to INTEGER Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from INTEGER property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an INTEGER value)
	Testing Hints	

4.19.15 Can Subscribe to Unsigned Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Unsigned property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an Unsigned value)
	Testing Hints	

4.19.16 Can Subscribe to REAL Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from REAL property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a REAL value)
	Testing Hints	

4.19.17 Can Subscribe to Double Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Double property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a Double value)
	Testing Hints	

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4.19.18 Can Subscribe to Time Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Time property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a Time value)
	Testing Hints	

4.19.19 Can Subscribe to Date Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from Date property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a Date value)
	Testing Hints	

4.19.20 Can Subscribe to CharacterString Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from CharacterString property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a CharacterString value)
	Testing Hints	

4.19.21 Can Subscribe to OctetString Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from OctetString property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain an OctetString value)
	Testing Hints	

4.19.22 Can Subscribe to BitString Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from BitString property values

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BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a BitString value)
	Testing Hints	

4.19.23 Can Subscribe to BACnetObjectIdentifier Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from BACnetObjectIdentifier property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a BACnetObjectIdentifier value)
	Testing Hints	

4.19.24 Can Subscribe to Constructed Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from constructed property values

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a constructed value)
	Testing Hints	

4.19.25 Can Subscribe to Proprietary Property Values of Basic Data Types

The IUT can subscribe for, receive, and process Change of Value notifications from proprietary property values of basic data types

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Either a confirmed or an unconfirmed COV notification may be observed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a proprietary value of basic data types)
	Testing Hints	

4.19.26 Can Subscribe to DateTime Property Values

The IUT can subscribe for, receive, and process Change of Value notifications from DateTime property values.

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BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVProperty-Request that can contain a DateTime value)
	Testing Hints	Either a confirmed or an unconfirmed COV notification may be observed.

4.19.27 Can Cancel Subscriptions

The IUT can explicitly cancel COV subscriptions (in contrast to just letting the subscription expire).

BTL - 8.11.3 - Canceling a Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.19.28 Can Subscribe to Value_Source Properties

The IUT supports change of value notifications on Value_Source properties.

BTL - 8.11.X1.1 - Change of Value Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Property Identifier' = Value_Source
	Testing Hints	

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4.20 Data Sharing - Change Of Value Property - B

4.20.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.11.1.1 - Confirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty.
	Testing Hints	
BTL - 9.11.1.2 - Unconfirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test to an object and property which supports SubscribeCOVProperty.
	Testing Hints	
BTL - 9.11.1.4 - Canceling COV Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.11.1.5 - Canceling Expired or Non-Existing Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.11.1.7 - Finite Lifetime Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.11.1.8 - Updating Existing Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.11.1.9 - Client-Supplied COV Increment		
	Test Conditionality	Must be executed if the IUT can be made to contain a property of numeric datatype with support for COVP.
	Test Directives	
	Testing Hints	
BTL - 9.11.2.1 - The Monitored Object Does Not Support COV Notification		
	Test Conditionality	Must be executed, unless all objects support SubscribeCOVProperty on at least one of its properties.
	Test Directives	Apply the test to a property in an object that does not support COV (on any property).
	Testing Hints	
BTL - 9.11.2.2 - The Monitored Property Does Not Support COV Notification		
	Test Conditionality	Must be executed, unless all objects support SubscribeCOVProperty on all properties.
	Test Directives	Apply the test to a property for which the IUT does not support COV, which is contained in an object that does support COV (on a different property).
	Testing Hints	
BTL - 9.11.2.X11 - Monitored Object Does Not Exist		
	Test Conditionality	Must be executed if Protocol_Revision >= 15
	Test Directives	
	Testing Hints	

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BTL - 9.11.2.X12 - Monitored Property Does Not Exist		
	Test Conditionality	Must be executed if Protocol_Revision >= 15
	Test Directives	Be sure to test at least one property identifier that is within the ASHRAE allocated range for standard property identifiers, but that has not yet been defined.
	Testing Hints	
BTL - 9.11.2.X13 - There Is No Space For Subscription		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.11.2.X14 - The Lifetime Parameter is Out of Range		
	Test Conditionality	Must be executed if Protocol_Revision >= 15
	Test Directives	
	Testing Hints	

4.20.2 Supports Lifetimes up to 8 Hours in Duration

The IUT will accept COVP subscriptions with lifetimes up to 8 hours.

BTL - 9.11.1.X10 - Accepts SubscribeCOVProperty-Requests with 8 Hour Lifetimes		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.20.3 Supports COVP for Status_Flags Changes

The IUT supports change of value notifications for Status_Flags changes

BTL - 9.11.1.X21 - Confirmed Change of Value Notification from Status_Flags Property		
	Test Conditionality	This test shall be skipped if no objects support: - the Status_Flags property, - changes in Status_Flags other than via changes in Present_Value and, - SubscribeCOVProperty.
	Test Directives	Repeat test for at least one object of each type that meets the test conditionality.
	Testing Hints	
BTL - 9.11.1.X22 - Unconfirmed Change of Value Notification from Status_Flags Property		
	Test Conditionality	This test shall be skipped if no objects support: - the Status_Flags property, - changes in Status_Flags other than via changes in Present_Value and, - SubscribeCOVProperty.
	Test Directives	Repeat test for at least one object of each type that meets the test conditionality.
	Testing Hints	

4.20.4 Supports COVP for Non-array Properties

The IUT supports change of value notifications for at least one non-array property

BTL - 9.11.1.1 - Confirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty.
	Testing Hints	
BTL - 9.11.1.2 - Unconfirmed COV Notifications		

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	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty
	Testing Hints	

4.20.5Supports COVP for Array Elements

The IUT supports change of value notifications for at least one array element.

BTL - 9.11.1.1 - Confirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty.
	Testing Hints	
BTL - 9.11.1.2 - Unconfirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty
	Testing Hints	

4.20.6Supports COVP for the Size of an Array

The IUT supports change of value notifications for at least one index 0 of an array

BTL - 9.11.1.1 - Confirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty
	Testing Hints	
BTL - 9.11.1.2 - Unconfirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty
	Testing Hints	

4.20.7Supports COVP for Whole Arrays

The IUT supports change of value notifications for at least one whole array

BTL - 9.11.1.1 - Confirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty.
	Testing Hints	
BTL - 9.11.1.2 - Unconfirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty
	Testing Hints	

4.20.8Supports COVP for a List Property

The IUT supports change of value notifications for at least one list property

BTL - 9.11.1.1 - Confirmed COV Notifications		
	Test Conditionality	Must be executed.

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	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty.
	Testing Hints	
BTL - 9.11.1.2 - Unconfirmed COV Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVProperty
	Testing Hints	

4.20.9 Supports COVP for NULL Property Values

The IUT supports change of value notifications for at least one property that contains a NULL value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that can contain or accept a written NULL.
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that can contain or accept a written NULL.

4.20.10 Supports COVP for BOOLEAN Property Values

The IUT supports change of value notifications for at least one BOOLEAN property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.

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	Testing Hints	

4.20.11 Supports COVP for Enumerated Property Values

The IUT supports change of value notifications for at least one Enumerated property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.12 Supports COVP for INTEGER Property Values

The IUT supports change of value notifications for at least one INTEGER property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.13 Supports COVP for Unsigned Property Values

The IUT supports change of value notifications for at least one Unsigned Property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

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BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.14 Supports COVP for REAL Property Values

The IUT supports change of value notifications for at least one REAL property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.15 Supports COVP for Double Property Values

The IUT supports change of value notifications for at least one Double property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.16 Supports COVP for Time Property Values

The IUT supports change of value notifications for at least one Time property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value

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	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.17 Supports COVP for Date Property Values

The IUT supports change of value notifications for at least one Date property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.18 Supports COVP for CharacterString Property Values

The IUT supports change of value notifications for at least one CharacterString property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.

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	Testing Hints	

4.20.19 Supports COVP for OctetString Property Values

The IUT supports change of value notifications for at least one property with value of type OctetString.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.20 Supports COVP for BitString Property Values

The IUT supports change of value notifications for at least one property with value of type BitString.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.21 Supports COVP for BACnetObjectIdentifier Property Values

The IUT supports change of value notifications for at least one property with value of type BACnetObjectIdentifier.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.

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	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.22 Supports COVP for Constructed Property Values

The IUT supports change of value notifications for at least one constructed property value.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.23 Supports COVP for Value_Source Properties

The IUT supports change of value notifications on Value_Source properties.

BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 Value_Source property. Ensure that after all applications of this test (regardless of the property or datatype it is applied to), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 Value_Source property. Ensure that after all applications of this test (regardless of the property or datatype it is applied to), that the test has been applied at least once to each object type which supports COVP on one or more of its properties.
	Testing Hints	

4.20.24 Supports COVP for DateTime Properties

The IUT supports change of value notifications for at least one DateTime property value.

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BTL - 9.11.1.X11 - Confirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties
	Testing Hints	
BTL - 9.11.1.X12 - Unconfirmed Change of Value Notification from Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVP on one or more of its properties
	Testing Hints	

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4.21 Data Sharing - WriteGroup - A

4.21.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.X2.1 - Broadcasting to a Group of Channel Objects		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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4.22 Data Sharing - WriteGroup - Internal - B

4.22.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

There are no base requirements tests for this section.

4.22.2 Supports the Channel Object that can Propagate Values to Local Objects

The B device shall execute the WriteGroup service when appropriate using given primitive values. This will be confirmed using Channel objects.

BTL - 9.X40.1.X1 - Channel and Group Number Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X40.1.X2 - Write Priority and Overriding Priority Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X40.1.X3 - Relinquish Control Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.22.3 Supports the Channel Object with a Writable Allow_Group_Delay_Inhibit Property

The B device shall inhibit any execution delay when appropriate.

BTL - 9.X40.1.X4 - Inhibit Delay Test with WriteGroup		
	Test Conditionality	This test shall be skipped if the Channel object does not support at least 2 entries in the List_Of_Object_Property_References.
	Test Directives	
	Testing Hints	

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4.23 Data Sharing - WriteGroup - External - B

4.23.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

There are no base requirements tests for this section.

4.23.2 Supports DS-WG-I-B

The IUT shall support DS-WG-I-B in order to claim DS-WG-E-B

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WG-I-B.
	Testing Hints	

4.23.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to claim DS-WG-E-B

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

4.23.4 Supports the Channel Object That Can Propagate Values to Objects on Remote Devices

The B device shall execute the WriteGroup service when appropriate, and the Channel object can propagate values to remote devices by using either WriteProperty or WritePropertyMultiple request.

BTL - 7.3.2.X40.4 - Propagation Entirety Test		
	Test Conditionality	Must be executed.
	Test Directives	Write to the Channel Object by a WriteGroup. Use external object references for List_Of_Object_Property_References.
	Testing Hints	

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4.24 Data Sharing - Value Source Information - B

4.24.1 Base Requirements

Base requirements must be met by any IUT that supports value source information in one or more of its objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that all commandable objects claim the "Supports the Value Source Mechanism", or that at least 1 non-commandable object type claims support if the IUT does not support commandable objects.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that all instances of commandable objects contain the value source properties.
	Testing Hints	

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4.25 Data Sharing - Change Of Value Multiple - A

4.25.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.X12.1.5 - Subscribe to Two Properties in a Single Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.X12.1.6 - Subscribe to Properties in Multiple Objects Using a Single Request		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.25.2 Subscribes With Lifetimes Up to 8 Hours in Duration

The IUT is capable of subscribing with a lifetime less than or equal to 28800 seconds (8 hours).

BTL - 8.X12.1.3 - Requests 8 Hour Lifetimes		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.25.3 Can Cancel Subscriptions

The IUT can explicitly cancel COV subscriptions (in contrast to just letting the subscription expire).

BTL - 8.X12.1.8 - Canceling a Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.25.4 Can Subscribe for Confirmed Notifications

The IUT can subscribe for, receive, and process confirmed Change of Value Multiple notifications.

BTL - 8.X12.1.1 - Confirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.X12.2.2 - Unknown Subscription		
	Test Conditionality	Must be executed.
	Test Directives	Repeat this test with an Invalid Process Identifier, Invalid Monitored Object Identifier, and Invalid Monitored property reference
	Testing Hints	
BTL - 8.X12.2.1 - Change of Value Multiple Notification Arrives After Subscription Has Expired		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.25.5 Can Subscribe for Unconfirmed Notifications

The IUT can subscribe for, receive, and process unconfirmed Change of Value Multiple notifications.

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BTL - 8.X12.1.2 - Unconfirmed Notifications Subscription		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.25.6 Supports Subscribing to Timestamped Notifications

The IUT can subscribe for and receive Timestamped Notifications.

BTL - 8.X12.1.4 - Subscribe to Timestamped Notifications		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.25.7 Can Subscribe to Non-array Properties

The IUT can subscribe for and receive a Change of Value Multiple notification that that references a non-array property and can correctly process the response.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing the property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property' = (any valid non-array property in the Monitored Object, which the vendor supports in a SubscribeCOVPropertyMultiple-Request)
	Testing Hints	

4.25.8 Can Subscribe to Array Elements

The IUT can subscribe for and receive a Change of Value Multiple notification that references a specific element of an array property and can correctly process the response.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing the property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVPropertyMultiple-Request and array index with value different from 0)
	Testing Hints	

4.25.9 Can Subscribe to the Size of an Array

The IUT can subscribe for and receive a Change of Value Multiple notification that references the size of an array property and can correctly process the response.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing the property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any valid array property which the vendor supports in a

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		SubscribeCOVPropertyMultiple-Request) and array index with value equal to 0)
	Testing Hints	

4.25.10 Can Subscribe to Whole Arrays

The IUT can subscribe for and receive a Change of Value Multiple notification for an array property and can correctly process the response.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing the property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any valid array property which the vendor supports in a SubscribeCOVPropertyMultiple-Request with no array index)
	Testing Hints	

4.25.11 Can Subscribe to List Properties

The IUT can subscribe for and receive a Change of Value Multiple notification that references a list property and can correctly process the response

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing the list property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any valid list property which the vendor supports in a SubscribeCOVPropertyMultiple-Request)
	Testing Hints	

4.25.12 Can Subscribe with a COV Increment

The IUT can subscribe with the parameter 'COV Increment'.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and ensure that IUT generates a SubscribeCOVPropertyMulitple-Request which contains 'COV Increment' parameter,
	Testing Hints	

4.25.13 Can Subscribe to NULL Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from property that contains a NULL value.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.

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	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a NULL value)
	Testing Hints	Schedule_Default of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

4.25.14 Can Subscribe to BOOLEAN Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from BOOLEAN property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a BOOLEAN value)
	Testing Hints	

4.25.15 Can Subscribe to Enumerated Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from Enumerated property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain an Enumerated value)
	Testing Hints	

4.25.16 Can Subscribe to INTEGER Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from INTEGER property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain an Integer value)
	Testing Hints	

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4.25.17 Can Subscribe to Unsigned Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from Unsigned property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain an Unsigned value)
	Testing Hints	

4.25.18 Can Subscribe to REAL Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from REAL property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a REAL value)
	Testing Hints	

4.25.19 Can Subscribe to Double Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from Double property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a Double value)
	Testing Hints	

4.25.20 Can Subscribe to Time Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from Time property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a Time value)
	Testing Hints	

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4.25.21 Can Subscribe to Date Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from Date property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a Date value)
	Testing Hints	

4.25.22 Can Subscribe to CharacterString Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from CharacterString property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a CharacterString value)
	Testing Hints	

4.25.23 Can Subscribe to OctetString Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from OctetString property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain an OctetString value)
	Testing Hints	

4.25.24 Can Subscribe to BitString Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from BitString property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a

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		SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a BitString value)
	Testing Hints	

4.25.25 Can Subscribe to BACnetObjectIdentifier Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from BACnetObjectIdentifier property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a BACnetObjectIdentifier value)
	Testing Hints	

4.25.26 Can Subscribe to Value_Source Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from Value_Source property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object which contains a Value_Source property and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = Value_Source
	Testing Hints	

4.25.27 Can Subscribe to Constructed Property Values

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from constructed property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubcribeCOVPropertyMultiple-Request that can contain a constructed property value)
	Testing Hints	

4.25.28 Can Subscribe to Proprietary Property Values of Basic Data Types

The IUT can subscribe for, receive, and process Change of Value Multiple notifications from proprietary property values of basic data types.

BTL - 8.X12.1.7 - Change of Value Multiple Notification

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	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a proprietary value of basic data types)
	Testing Hints	

4.25.29 Can Subscribe to DateTime Property Values

The IUT can subscribe for, receive and process Change of Value Multiple notifications from DateTime property values.

BTL - 8.X12.1.7 - Change of Value Multiple Notification		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using 'Monitored Object' = (any valid object containing a property to monitor and which the vendor supports in a SubscribeCOVPropertyMultiple-Request) and 'Monitored Property Identifier' = (any property which the vendor supports in a SubscribeCOVPropertyMultiple-Request that can contain a DateTime value)
	Testing Hints	

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4.26 Data Sharing - Change Of Value Multiple - B

4.26.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.X41.1.1 - Supports Non-Timestamped Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Execute this test using a property that supports non-timestamped notifications
	Testing Hints	
BTL - 9.X41.1.2 - Supports Timestamped Notifications		
	Test Conditionality	Must be executed.
	Test Directives	Execute this test using a property that supports timestamped notifications
	Testing Hints	
BTL - 9.X41.1.5 - Supports Subscriptions to Multiple Properties Using Multiple Requests		
	Test Conditionality	Must be executed.
	Test Directives	Select objects and properties which support COV-multiple notifications
	Testing Hints	
BTL - 9.X41.1.9 - Canceling Subsets of COVM Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X41.1.10 - Canceling Expired or Non-Existing Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X41.1.8 - Updating Existing Subscriptions		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X41.1.7 - Supports Client-Supplied COV Increment		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.1 - The Monitored Object Does Not Support COVM Notification		
	Test Conditionality	Must be executed, unless all objects support SubscribeCOVPropertyMultiple on at least one of its properties.
	Test Directives	Apply the test to a property in an object that does not support COVM (on any property).
	Testing Hints	
BTL - 9.X41.2.2 - The Monitored Property Does Not Support COVM Notification		
	Test Conditionality	Must be executed, unless all objects support SubscribeCOVPropertyMultiple on all properties.
	Test Directives	Apply the test to a property for which the IUT does not support COVM, which is contained in an object that does support COVM (on a different property).
	Testing Hints	
BTL - 9.X41.2.3 - Monitored Object Does Not Exist		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.4 - Monitored Property Does Not Exist		
	Test Conditionality	Must be executed

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	Test Directives	Be sure to test at least one property identifier that is within the ASHRAE allocated range for standard property identifiers, but that has not yet been defined.
	Testing Hints	
BTL - 9.X41.2.5 - Array Index Provided But Property is Not an Array		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.6 - Array Index Provided Is Out Of Range		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.7 - No Space to Add List Element		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.8 - The Lifetime Parameter is Out Of Range		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.9 - The Max Notification Delay Parameter is Out Of Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X41.2.10 - The Max Notification Delay is Greater Than the Lifetime		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.26.2 Supports Lifetimes Up to 8 Hours in Duration

The IUT will accept COVM subscriptions with lifetimes up to 8 hours.

BTL - 9.X41.1.11 - Subscription Expiration Test		
	Test Conditionality	Must be executed.
	Test Directives	Execute this test using a Lifetime of 8 hours.
	Testing Hints	

4.26.3 Supports a Minimum of 5 COV-Multiple Contexts with 5 COV-References per Context

The IUT supports 5 or more concurrent COVM subscriptions

BTL - 9.X41.1.6 - Ensuring 5 Concurrent COV-Multiple Contexts With 5 COV-References Per Context		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

4.26.4 Supports COVM for Non-Array Property

The IUT supports COVM notifications for at least one non-array property

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.

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	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple
	Testing Hints	

4.26.5 Supports COVM for Array Element

The IUT supports COVM notifications for at least one array element.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple
	Testing Hints	

4.26.6 Supports COVM for the Size of an Array

The IUT supports COVM notifications for at least one index 0 of an array

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple
	Testing Hints	

4.26.7 Supports COVM for the Whole Array

The IUT supports COVM notifications for at least one whole array

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple
	Testing Hints	

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4.26.8 Supports COVM for List Property

The IUT supports COVM notifications for at least one list property

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Select parameters for an object and property which supports SubscribeCOVPropertyMultiple
	Testing Hints	

4.26.9 Supports COVM for NULL Property Values

The IUT supports COVM notifications for at least one property that contains a NULL value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	Schedule_Default of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that can contain or accept a written NULL.
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	Schedule_Default of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that can contain or accept a written NULL.

4.26.10 Supports COVM for BOOLEAN Property Values

The IUT supports change of value notifications for at least one BOOLEAN property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype.

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		Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.11 Supports COVM for Enumerated Property Values

The IUT supports change of value notifications for at least one Enumerated property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.12 Supports COVM for INTEGER Property Values

The IUT supports change of value notifications for at least one INTEGER property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.13 Supports COVM for Unsigned Property Values

The IUT supports change of value notifications for at least one Unsigned Property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

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BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.14 Supports COVM for REAL Property Values

The IUT supports change of value notifications for at least one REAL property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.15 Supports COVM for Double Property Values

The IUT supports change of value notifications for at least one Double property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.16 Supports COVM for Time Property Values

The IUT supports change of value notifications for at least one Time property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype.

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		Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.17 Supports COVM for Date Property Values

The IUT supports change of value notifications for at least one Date property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.18 Supports COVM for CharacterString Property Values

The IUT supports change of value notifications for at least one CharacterString property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.19 Supports COVM for OctetString Property Values

The IUT supports change of value notifications for at least one property with value of type OctetString.

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BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.20 Supports COVM for BitString Property Values

The IUT supports change of value notifications for at least one property with value of type BitString.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.21 Supports COVM for BACnetObjectIdentifier Property Values

The IUT supports change of value notifications for at least one property with value of type BACnetObjectIdentifier.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

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4.26.22 Supports COVM for Value_Source Property Values

The IUT supports change of value notifications for at least one Value_Source property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.23 Supports COVM for Constructed Property Values

The IUT supports change of value notifications for at least one constructed property value.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	

4.26.24 Supports COVM for DateTime property Values

The IUT supports change of value notifications for at least one DateTime property values.

BTL - 9.X41.1.3 - Confirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.
	Testing Hints	
BTL - 9.X41.1.4 - Unconfirmed Change of Value Notification From Property Value		
	Test Conditionality	Must be executed.
	Test Directives	Apply to at least 1 property of the specified datatype. Ensure that after all applications of this test (regardless of the property datatype it is applied for), that the test has been applied at least once to each object type which supports COVM on one or more of its properties.

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	Testing Hints	

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4.27 Data Sharing - Life Safety View - A

4.27.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-LSAV-A.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-LSV-A.
	Testing Hints	

4.27.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.28 Data Sharing - Life Safety Advanced View - A

4.28.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard objects and properties identified in DS-LSAV-A. For properties that contain a CHOICE construct, the IUT shall be capable of reading and presenting each of the forms of the datatype as defined in the IUT's claimed protocol revision. Full accuracy presentation is not required throughout the IUT, but there should be at least one place provided by the IUT that allows the presentation of each property to be presented in such a way that the presentation requirements of DS-LSAV-A are met.
	Testing Hints	

4.28.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.29 Data Sharing - Life Safety Modify - A

4.29.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-LSAM-A.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-LSAM-A.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.29.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.30 Data Sharing - Life Safety Advanced Modify - A

4.30.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all priority values, 1 through 16.
	Testing Hints	

4.30.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.31 Data Sharing - Access Control View - A

4.31.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-ACAV-A.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-ACV-A.
	Testing Hints	

4.31.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.32 Data Sharing - Access Control Advanced View - A

4.32.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard objects and properties identified in DS-ACAV-A. For properties that contain a CHOICE construct, the IUT shall be capable of reading and presenting each of the forms of the datatype as defined in the IUT's claimed protocol revision. Full accuracy presentation is not required throughout the IUT, but there should be at least one place provided by the IUT that allows the presentation of each property to be presented in such a way that the presentation requirements of DS-ACAV-A are met.
	Testing Hints	

4.32.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.33 Data Sharing - Access Control Modify - A

4.33.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-ACAM-A.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-ACAM-A.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.33.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.34 Data Sharing - Access Control Advanced Modify - A

4.34.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all priority values, 1 through 16.
	Testing Hints	

4.34.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.35 Data Sharing - Access Control User Configuration - A

4.35.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-ACUC-A.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.35.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties of Access Control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

4.35.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

4.35.4 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to create and delete Access Control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A, and that all object types required by DS-ACUC-A are claimed within DM-OCD-A.
	Testing Hints	

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4.36 Data Sharing - Access Control User Configuration - B

4.36.1 Base Requirements

There are no base requirements for this BIBB.

4.36.2 Supports DS-WP-B

The IUT supports the Write Property service for its Access Rights, Access User, and Access Credential objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

4.36.3 Supports Access User objects with writable configuration properties

The IUT supports the Access User object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access User object type with at least one of the following properties present and writable: - User_Type - User_Name - Members - Member_Of - Credentials
	Testing Hints	

4.36.4 Supports Access Rights objects with writable configuration properties

The IUT supports the Access Rights object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access Rights object type with at least one of the following properties present and writable: - Enable - Negative_Access_Rules - Positive_Access_Rules - Accompaniment
	Testing Hints	

4.36.5 Supports Access Credential objects with writable configuration properties

The IUT supports the Access Credential object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access Credential object type with at least one of the following properties present and writable: - Authentication_Factors

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		- Activation_Time - Expiration_Time - Credential_Disable - Days_Remaining - Uses_Remaining - Absentee_Limit - Belongs_To - Assigned_Access_Rights - Threat_Authority - Extended_Time_Enable - Authorization_Exemptions
	Testing Hints	

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4.37 Data Sharing - Access Control Site Configuration - A

4.37.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-ACSC-A.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.37.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties of Access Control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

4.37.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

4.37.4 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to create and delete Access Control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A, and that all object types required by DS-ACSC-A are claimed within DM-OCD-A.
	Testing Hints	

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4.38 Data Sharing - Access Control Site Configuration - B

4.38.1 Base Requirements

There are no base requirements for this BIBB.

4.38.2 Supports DS-WP-B

The IUT supports the Write Property service for its Access Point, Access Zone, Access Door, and Access Credential objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

4.38.3 Supports Access Point objects with writable configuration properties

The IUT supports the Access Point object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access Point object type with at least one of the following properties present and writable: - Active_Authentication_Policy - Authentication_Policy_List - Authorization_Mode - Lockout - Lockout_Relinquish_Time - Max_Failed_Attempts - Failed_Attempts_Time - Threat_Level - Occupancy_Upper_Limit_Enforced - Occupancy_Lower_Limit_Enforced - Occupancy_Count_Adjust - Accompaniment_Time - Access_Doors - Zone_To - Zone_From
	Testing Hints	

4.38.4 Supports Access Zone objects with writable configuration properties

The IUT supports the Access Zone object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access Zone object type with at least one of the following properties present and writable: - Occupancy_Count_Enable - Adjust_Value - Occupancy_Upper_Limit - Occupancy_Lower_Limit - Credentials_In_Zone

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		- Passback_Mode - Passback_Timeout - Entry_Points - Exit_Points
	Testing Hints	

4.38.5 Supports Credential Data Input objects with writable configuration properties

The IUT supports the Access Door object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Credential Data Input object type with at least one of the following properties present and writable: - Supported_Formats - Supported_Format_Classes
	Testing Hints	

4.38.6 Supports Access Door objects with writable configuration properties

The IUT supports the Credential Data Input object type with one or more configurable properties.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access Door object type with at least one of the following properties present and writable: - Relinquish_Default - Door_Members - Door_Pulse_Time - Door_Extended_Pulse_Time - Door_Unlock_Delay_Time - Door_Open_Too_Long_Time - Masked_Alarm_Values
	Testing Hints	

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4.39 Data Sharing - Access Control Access Door - A

4.39.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-ACAD-A.
	Testing Hints	

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.39.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties of Access Door objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

4.39.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update Access Door properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.40 Data Sharing - Access Control Access Door - B

4.40.1 Base Requirements

There are no base requirements for this BIBB.

4.40.2 Supports DS-WP-B

The IUT supports the Write Property service for its Access Door objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

4.40.3 Supports Access Door objects

The IUT supports the Access Door object type.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Access Door object type
	Testing Hints	

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4.41 Data Sharing - Access Control Credential Data Input - A

4.41.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-ACCDI-A.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.41.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties of Credential Data Input objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

4.41.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update Credential Data Input properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

4.41.4 Supports DS-COV-A

The IUT shall support DS-COV-A in order to receives COV notifications for Credential Data Input objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-COV-A, and that Credential Data Input is claimed within DS-COV-A.
	Testing Hints	

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4.42 Data Sharing - Access Control Credential Data Input - B

4.42.1 Base Requirements

There are no base requirements for this BIBB.

4.42.2 Supports DS-WP-B

The IUT supports the Write Property service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

4.42.3 Supports DS-COV-B for the Present_Value of at least one Credential Data Input object

The IUT supports the Change of Value service for at least one Credential Data Input object.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Credential Data Input objects in the DS-COV-B BIBB.
	Testing Hints	

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4.43 Data Sharing - Lighting Output - A

4.43.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.1 - Writing Non-Array Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-ALO-A.
	Test Directives	Repeat the test for each of the object types listed in the BIBB, writing to the Present_Value property.
	Testing Hints	

4.43.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.44 Data Sharing - Lighting Output Status - A

4.44.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.1 - Reading Non-Array Properties		
	Test Conditionality	
	Test Directives	Repeat the test for each of the object types listed in the BIBB, reading the Present_Value and Egress_Active properties from the objects types as required by the BIBB.
	Testing Hints	

4.44.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to retrieve property values from lighting objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A, and claims the ability to read non-array properties, Enumerated, Unsigned, and REAL properties.
	Testing Hints	

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4.45 Data Sharing - Advanced Lighting Output - A

4.45.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.1 - Writing Non-Array Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each property of each of the object types listed in the BIBB, except those that are required to be read-only by the standard.
	Testing Hints	

4.45.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.46 Data Sharing - Lighting Output - B

4.46.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Lighting Output object type.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

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4.47 Data Sharing - Binary Lighting Output - B

4.47.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Binary Lighting Output object type.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

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4.48 Data Sharing - Lighting View - A

4.48.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-LAV-A.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-LV-A.
	Testing Hints	

4.48.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.49 Data Sharing - Lighting Advanced View - A

4.49.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard objects and properties identified in DS-LAV-A. For properties that contain a CHOICE construct, the IUT shall be capable of reading and presenting each of the forms of the datatype as defined in the IUT's claimed protocol revision. Full accuracy presentation is not required throughout the IUT, but there should be at least one place provided by the IUT that allows the presentation of each property to be presented in such a way that the presentation requirements of DS-LAV-A are met.
	Testing Hints	

4.49.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.50 Data Sharing - Lighting Modify - A

4.50.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-LAM-A.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-LAM-A.
	Test Directives	This test should be executed at priority 8 only, i.e. $PR_1 = 8$.
	Testing Hints	

4.50.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.51 Data Sharing - Lighting Advanced Modify - A

4.51.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all priority values, 1 through 16.
	Testing Hints	

4.51.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.52 Data Sharing - Elevator View - A

4.52.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if the IUT does not support DS-EAV-A.
	Test Directives	Repeat the test for each of the standard object types and associated properties specified by DS-EV-A.
	Testing Hints	

4.52.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.53 Data Sharing - Elevator Advanced View - A

4.53.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard objects and properties identified in DS-EAV-A. For properties that contain a CHOICE construct, the IUT shall be capable of reading and presenting each of the forms of the datatype as defined in the IUT's claimed protocol revision. Full accuracy presentation is not required throughout the IUT, but there should be at least one place provided by the IUT that allows the presentation of each property to be presented in such a way that the presentation requirements of DS-EAV-A are met.
	Testing Hints	

4.53.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

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4.54 Data Sharing - Elevator Modify - A

4.54.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed, unless the IUT also claims support for DS-EAM-A.
	Test Directives	Repeat the test for each of the required object types and associated properties defined for the claimed Protocol_Revision and described in table K-5 in the DS-EM-A BIBB definition of the BACnet standard except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table (table K-6) in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed, unless the IUT also claims support for DS-EAM-A.
	Test Directives	Repeat the test for all commandable properties defined for the claimed Protocol_Revision. This test should be executed at priority 8 only, i.e. PR = 8.
	Testing Hints	

4.54.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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4.55 Data Sharing - Elevator Advanced Modify - A

4.55.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the required object types listed in the BIBB definition. Repeat for each of the required properties listed in the BIBB definition, except for those properties which are commandable. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.5 - Accepting Input and Commanding/Relinquishing Properties		
	Test Conditionality	Must be executed, unless the IUT also claims support for DS-EAM-A.
	Test Directives	Repeat the test for all priority values, 1 through 16.
	Testing Hints	

4.55.2 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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5 Alarm and Event Management BIBBs

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5.1 Alarm and Event Management - Notification - A

5.1.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Note that the BTL requires that the IUT support execution of confirmed and unconfirmed notifications for all of the standard BACnet event algorithms generated both intrinsically and algorithmically, excluding BUFFER_READY, ACCESS_EVENT and CHANGE_OF_LIFE_SAFETY in order to claim conformance to this BIBB.

135.1-2019 - 9.4.7 - Unsupported Message Text Character Set ConfirmedEventNotification Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.5.3 - Unsupported Message Text Character Set UnconfirmedEventNotification Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.4.X2 - Decoding BACnetPropertyStates in 'Event Values'		
	Test Conditionality	If Protocol_Revision < 16 this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.5.X2 - Decoding BACnetPropertyStates in 'Event Values'		
	Test Conditionality	If Protocol_Revision < 16 this test shall be skipped.
	Test Directives	
	Testing Hints	

5.1.2 Executes ConfirmedEventNotifications

The IUT is capable of executing ConfirmedEventNotifications. This functionality will be covered by the testing of the individual algorithms.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT's EPICS claims that it supports the ConfirmedEventNotification service.
	Testing Hints	

5.1.3 Executes UnconfirmedEventNotifications

The IUT is capable of executing UnconfirmedEventNotifications. There are currently no tests defined for this functional item.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT's EPICS claims that it supports the UnconfirmedEventNotification service.
	Testing Hints	

5.1.4 Processes Intrinsically Generated Notifications

The IUT is capable of executing ConfirmedEventNotifications that reference an object type other than Event Enrollment.

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135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Object Identifier referencing a BACnet object other than an Event Enrollment object.
	Test Directives	
	Testing Hints	

5.1.5 Processes Algorithmically Generated Notifications

The IUT is capable of executing ConfirmedEventNotifications that reference an Event Enrollment object.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Object Identifier referencing an Event Enrollment object.
	Test Directives	
	Testing Hints	

5.1.6 Processes CHANGE_OF_BITSTRING Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_BITSTRING event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to CHANGE_OF_BITSTRING.
	Test Directives	
	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.

5.1.7 Processes CHANGE_OF_STATE Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_STATE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to CHANGE_OF_STATE.
	Test Directives	

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	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.

5.1.8 Processes CHANGE_OF_VALUE Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_VALUE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to CHANGE_OF_VALUE.
	Test Directives	
	Testing Hints	This test should be repeated for both To-Normal and To-Fault transitions.

5.1.9 Processes COMMAND_FAILURE Notifications

The IUT is capable of executing event notifications that convey a COMMAND_FAILURE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to COMMAND_FAILURE.
	Test Directives	
	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.

5.1.10 Processes FLOATING_LIMIT Notifications

The IUT is capable of executing event notifications that convey a FLOATING_LIMIT event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to FLOATING_LIMIT.
	Test Directives	
	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions. This test should be repeated for High-Limit and Low-Limit transitions.

5.1.11 Processes OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey an OUT_OF_RANGE event transition.

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135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to OUT_OF_RANGE.
	Test Directives	
	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions. This test should be repeated for High-Limit and Low-Limit transitions.

5.1.12 Processes UNSIGNED_RANGE Notifications

The IUT is capable of executing event notifications that convey a UNSIGNED_RANGE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to UNSIGNED_RANGE.
	Test Directives	
	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions. This test should be repeated for High-Limit and Low-Limit transitions.

5.1.13 Processes Notifications that Convey a Proprietary Event Type

The IUT is capable of executing event notifications that convey a proprietary Event Type.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Type set to a proprietary value.
	Test Directives	
	Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions. This test should be repeated for each of the standard off-normal event state values, and at least 1 proprietary event state value. The test should be repeated with the list of BACnetPropertyValue empty and non-empty.

5.1.14 Processes Event Notifications with Timestamps of the BACnetDateTime Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the BACnetDateTime form.

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135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.1.15 Processes Event Notifications with Timestamps of the Time Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the Time form.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.1.16 Processes Event Notifications with Timestamps of the Sequence Number Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the Sequence Number form.

135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.1.17 Processes EXTENDED Notifications that Convey a Proprietary Set of Event Values

The IUT is capable of executing event notifications that use the EXTENDED event notification CHOICE. EXTENDED Notifications convey an Alert or proprietary set of Event Values.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed.
	Test Directives	At least one of the tests must be executed with the Event Type set to EXTENDED.
	Testing Hints	

5.1.18 Processes DOUBLE_OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey a DOUBLE_OUT_OF_RANGE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher.

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	Test Directives	At least one of the tests must be executed with the Event Type set to DOUBLE_OUT_OF_RANGE. The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
	Testing Hints	

5.1.19 Processes SIGNED_OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey a SIGNED_OUT_OF_RANGE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to SIGNED_OUT_OF_RANGE. The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
	Testing Hints	

5.1.20 Processes UNSIGNED_OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey a UNSIGNED_OUT_OF_RANGE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to UNSIGNED_OUT_OF_RANGE. This test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
	Testing Hints	

5.1.21 Processes CHANGE_OF_CHARACTERSTRING Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_CHARACTERSTRING event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_CHARACTERSTRING. The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.

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	Testing Hints	

5.1.22 Processes CHANGE_OF_STATUS_FLAGS Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_STATUS_FLAGS event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 11 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_STATUS_FLAGS.
	Testing Hints	

5.1.23 Processes CHANGE_OF_RELIABILITY Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_ RELIABILITY event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 13 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_RELIABILITY.
	Testing Hints	

5.1.24 Processes CHANGE_OF_DISCRETE_VALUE Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_DISCRETE_VALUE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 16 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_DISCRETE_VALUE.
	Testing Hints	

5.1.25 Processes CHANGE_OF_TIMER Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_TIMER event transition.

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135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 17 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_TIMER.
	Testing Hints	

5.1.26 Processes CHANGE_OF_RELIABILITY - FAULT_OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_RELIABILITY - FAULT_OUT_OF_RANGE event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 16 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_RELIABILITY - FAULT_OUT_OF_RANGE.
	Testing Hints	

5.1.27 Processes CHANGE_OF_LIFE_SAFETY Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_LIFE_SAFETY event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed if the device claims conformance to protocol revision 13 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_LIFE_SAFETY.
	Testing Hints	

5.1.28 Processes ACCESS_EVENT Notifications

The IUT is capable of executing event notifications that convey an ACCESS_EVENT event transition.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text

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	Test Conditionality	Must be executed if the device claims conformance to protocol revision 13 or higher.
	Test Directives	At least one of the tests must be executed with the Event Type set to ACCESS_EVENT.
	Testing Hints	

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5.2 Alarm and Event Management - Notification - Internal - B

5.2.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.3.1.10.1 - Event_Enable Test for TO_OFFNORMAL and TO_NORMAL, and TO_FAULT		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	If Event Enrollment objects are supported, ensure this functionality is tested on Event Enrollment objects.
	Testing Hints	The BTL will apply this to a single object. The pretester should apply it to all objects that support alarm generation.
135.1-2019 - 7.3.1.12 - Notify_Type Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	If Event Enrollment objects are supported, ensure this functionality is also tested on Event Enrollment objects.
	Testing Hints	
135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Must be executed unless IUT only supports read-only Recipient_List properties and does not claim Notification Forwarder objects. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5 - UnconfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Must be executed. Any of the 8.5 tests can be used to ensure that the IUT properly generates UnconfirmedEventNotification requests. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using UnconfirmedEventNotifications, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.22.1 - Event_Detection_Enable Inhibits Event Generation		
	Test Conditionality	If Protocol_Revision < 13, then this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
135.1-2019 - 7.3.1.22.2 - Event_Detection_Enable Inhibits FAULT		
	Test Conditionality	If Protocol_Revision < 13 or if the IUT doesn't contain any event generating objects which support fault detection, then this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	

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BTL - 7.3.1.19.1 - Event_Algorithm_Inhibit Test		
	Test Conditionality	Apply this test when the Event_Algorithm_Inhibit property is present in an object which does not support the Event_Algorithm_Inhibit_Ref property or where the Event_Algorithm_Inhibit_Ref property is not initialized. If the IUT cannot be configured to contain such an object, then this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 7.3.1.20.1 - Event_Algorithm_Inhibit_Ref Test		
	Test Conditionality	If the IUT has no object in which the Event_Algorithm_Inhibit_Ref property is present this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 7.3.1.20.2 - Event_Algorithm_Inhibit Writable Test		
	Test Conditionality	Apply this test when the Event_Algorithm_Inhibit property is present in an object in which the Event_Algorithm_Inhibit_Ref property is absent or can be made uninitialized. If the IUT cannot be configured to contains such an object then this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 8.5.17.10 - After FAULT-to-NORMAL, Re-Notification of OFFNORMAL (UnconfirmedEventNotifications)		
	Test Conditionality	If the IUT has no object in which CHANGE_OF_RELIABILITY is implemented in an object that can be configured into an offnormal state, this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	

5.2.2 Supports AE-INFO-B

The IUT must support AE-INFO-B if it claims support for AE-N-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-INFO-B in the Checklist.
	Testing Hints	

5.2.3 Supports the Notification Class Object

The IUT supports the Notification Class object in order to send notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Notification Class Object in the Checklist.

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	Testing Hints	

5.2.4 Supports AE-ACK-B

The IUT supports AE-ACK-B in order to execute the AcknowledgeAlarm Service Service if the IUT is able to send event-notifications with service parameter AckRequired = True.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-ACK-B in the Checklist.
	Testing Hints	

5.2.5 Implements Intrinsic Alarming

The IUT contains, or can be made to contain, an object other than an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications.

Verify Test Selection		
	Test Conditionality	Must be executed.
	Test Directives	Ensure this functionality is tested on non-Event Enrollment objects by the clause 8.4 or 8.5 algorithm tests listed later in this section.
	Testing Hints	

5.2.6 Supports the Event Enrollment Object

The IUT contains, or can be made to contain an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications.

Verify Test Selection		
	Test Conditionality	Must be executed.
	Test Directives	Ensure this functionality is tested on Event Enrollment objects by the clause 8.4 or 8.5 algorithm tests listed later in this section.
	Testing Hints	

5.2.7 Implements the CHANGE_OF_BITSTRING Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_BITSTRING.

135.1-2019 - 8.4.1 - CHANGE_OF_BITSTRING Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_BITSTRING.
	Testing Hints	
135.1-2019 - 8.5.1 - CHANGE_OF_BITSTRING Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_BITSTRING.
	Testing Hints	

5.2.8 Implements the CHANGE_OF_STATE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_STATE.

BTL - 8.4.2 - CHANGE_OF_STATE Tests (ConfirmedEventNotification)

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	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_STATE.
	Testing Hints	
135.1-2019 - 8.5.2 - CHANGE_OF_STATE Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_STATE.
	Testing Hints	

5.2.9 Implements the Numeric Form of the CHANGE_OF_VALUE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type Real.

BTL - 8.4.3.1 - Numerical Algorithm (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type REAL.
	Testing Hints	
BTL - 8.5.3.1 - Numerical Algorithm (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type REAL.
	Testing Hints	

5.2.10 Implements the Bit String Form of the CHANGE_OF_VALUE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type Bit String.

135.1-2019 - 8.4.3.2 - Bitstring Algorithm (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type Bit String.
	Testing Hints	
135.1-2019 - 8.5.3.2 - Bitstring Algorithm (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type Bit String.
	Testing Hints	

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5.2.11 Implements the COMMAND_FAILURE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of COMMAND_FAILURE.

BTL - 8.4.4 - COMMAND_FAILURE Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of COMMAND_FAILURE.
	Testing Hints	
135.1-2019 - 8.5.4 - COMMAND_FAILURE Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of COMMAND_FAILURE.
	Testing Hints	

5.2.12 Implements the FLOATING_LIMIT Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of FLOATING_LIMIT.

BTL - 8.4.5 - FLOATING_LIMIT Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of FLOATING_LIMIT.
	Testing Hints	
135.1-2019 - 8.5.5 - FLOATING_LIMIT Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of FLOATING_LIMIT.
	Testing Hints	

5.2.13 Implements the OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of OUT_OF_RANGE.

BTL - 8.4.6 - OUT_OF_RANGE Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of OUT_OF_RANGE.
	Testing Hints	
135.1-2019 - 8.5.6 - OUT_OF_RANGE Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of OUT_OF_RANGE.
	Testing Hints	

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5.2.14 Implements a Proprietary Algorithm Using Complex Notifications

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of COMPLEX_EVENT_TYPE.

135.1-2019 - 8.4.16 - Proprietary Algorithm Tests (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5.16 - Proprietary Algorithm Tests (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.2.15 Implements a Standard or Proprietary Algorithm Using Extended Notifications

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of EXTENDED.

BTL - 8.4.9 - EXTENDED Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5.9 - EXTENDED Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.2.16 Generates Event Notifications with Timestamps of the BacnetDateTime Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications and/or UnconfirmedEventNotifications with the Time Stamp parameter taking the BACnetDateTime form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the BACnetDateTime form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the BACnetDateTime form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5 - UnconfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Any of the 8.5 tests can be used to ensure that the IUT properly generates UnconfirmedEventNotification requests using the BACnetDateTime form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using UnconfirmedEventNotifications and the notification that is generated contains a timestamp of the BACnetDateTime form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

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5.2.17 Generates Event Notifications with Timestamps of the Time Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications and/or UnconfirmedEventNotifications with the Time Stamp parameter taking the Time form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Time form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Time form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5 - UnconfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Any of the 8.5 tests can be used to ensure that the IUT properly generates UnconfirmedEventNotification requests using the Time form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using UnconfirmedEventNotifications and the notification that is generated contains a timestamp of the Time form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

5.2.18 Generates Event Notifications with Timestamps of the Sequence Number Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications and/or UnconfirmedEventNotifications with the Time Stamp parameter taking the Sequence Number form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Sequence Number form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Sequence Number form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5 - UnconfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Any of the 8.5 tests can be used to ensure that the IUT properly generates UnconfirmedEventNotification requests using the Time form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using UnconfirmedEventNotifications and the notification that is generated contains a timestamp of the Sequence Number form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

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5.2.19 Implements Intrinsic Alarming in an Analog Object

The IUT contains, or can be made to contain, an Analog object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications and thus contains a Limit_Enable property.

BTL - 7.3.1.13.1 - Limit_Enable Test, LowLimitEnable		
	Test Conditionality	If Limit_Enable is not configurable, this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.13.2 - Limit_Enable Test, HighLimitEnable		
	Test Conditionality	If Limit_Enable is not configurable, this test may be skipped.
	Test Directives	
	Testing Hints	

5.2.20 Supports Writable Event_Parameters Properties

The IUT contains, or can be made to contain, an Event Enrollment object with a writable Event_Parameters property.

135.1-2019 - 7.3.2.11.1 - Event_Type Test		
	Test Conditionality	If the IUT has a Protocol_Revision of 3 or less or if no Event_Enrollment object exists, or can be made to exist, in the IUT that accepts different CHOICEs of Event_Parameters, then this test shall be skipped.
	Test Directives	
	Testing Hints	

5.2.21 Implements the DOUBLE_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of DOUBLE_OUT_OF_RANGE.

135.1-2019 - 8.4.10 - DOUBLE_OUT_OF_RANGE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of DOUBLE_OUT_OF_RANGE.
	Testing Hints	
135.1-2019 - 8.5.10 - DOUBLE_OUT_OF_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of DOUBLE_OUT_OF_RANGE.
	Testing Hints	

5.2.22 Implements the SIGNED_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of SIGNED_OUT_OF_RANGE.

135.1-2019 - 8.4.11 - SIGNED_OUT_OF_RANGE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of SIGNED_OUT_OF_RANGE.
	Testing Hints	

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135.1-2019 - 8.5.11 - SIGNED_OUT_OF_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of SIGNED_OUT_OF_RANGE.
	Testing Hints	

5.2.23 Implements the UNSIGNED_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of UNSIGNED_OUT_OF_RANGE.

135.1-2019 - 8.4.12 - UNSIGNED_OUT_OF_RANGE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of UNSIGNED_OUT_OF_RANGE.
	Testing Hints	
135.1-2019 - 8.5.12 - UNSIGNED_OUT_OF_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of UNSIGNED_OUT_OF_RANGE.
	Testing Hints	

5.2.24 Implements the CHANGE_OF_CHARACTERSTRING Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_CHARACTERSTRING.

BTL - 8.4.13 - CHANGE_OF_CHARACTERSTRING Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_CHARACTERSTRING.
	Testing Hints	
135.1-2019 - 8.5.13 - CHANGE_OF_CHARACTERSTRING Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_CHARACTERSTRING.
	Testing Hints	

5.2.25 Implements the CHANGE_OF_STATUS_FLAGS Algorithm

The IUT contains, or can be made to contain, an object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_STATUS_FLAGS.

BTL - 8.4.15 - CHANGE_OF_STATUS_FLAGS Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_STATUS_FLAGS.
	Testing Hints	
135.1-2019 - 8.5.15 - CHANGE_OF_STATUS_FLAGS Test (UnconfirmedEventNotification)		

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	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_STATUS_FLAGS.
	Testing Hints	

5.2.26 Implements the UNSIGNED_RANGE Algorithm

The IUT contains, or can be made to contain, an object such as an Accumulator object, that can generate EventNotifications with an Event_Type of UNSIGNED_RANGE.

BTL - 8.4.14 - UNSIGNED_RANGE Test (ConfirmedEventNotification Test)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of UNSIGNED_RANGE.
	Testing Hints	
135.1-2019 - 8.5.14 - UNSIGNED_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of UNSIGNED_RANGE.
	Testing Hints	

5.2.27 Supports Event_Message_Texts Property

The IUT contains one or more objects that support the Event_Message_Texts property.

BTL - 7.3.1.17 - Event_Message_Texts Tests		
	Test Conditionality	Must be executed.
	Test Directives	Repeat test once for each object type in the IUT that contains an Event_Message_Texts property.
	Testing Hints	

5.2.28 Supports Event_Message_Texts_Config Property

The IUT contains one or more objects that support the Event_Message_Texts_Config property.

135.1-2019 - 7.3.1.18 - Event_Message_Texts_Config Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each supported transition type (TO_OFFNORMAL, TO_FAULT, TO_NORMAL). Different objects may be selected for different transitions.
	Testing Hints	

5.2.29 Implements Intrinsic Alarming in an Integer Object

The IUT contains, or can be made to contain, an Integer object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications and thus contains a Limit_Enable property.

BTL - 7.3.1.13.1 - Limit_Enable Test, LowLimitEnable		
	Test Conditionality	If Limit_Enable is not configurable, this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.13.2 - Limit_Enable Test, HighLimitEnable		

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	Test Conditionality	If Limit_Enable is not configurable, this test may be skipped.
	Test Directives	
	Testing Hints	

5.2.30 Implements the CHANGE_OF_RELIABILITY - NONE

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

BTL - 8.4.17.1 - CHANGE_OF_RELIABILITY with No Fault Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and which does not apply a standardized fault algorithm.
	Test Directives	Apply this test to all object types that support fault detection but do not apply a standardized fault algorithm.
	Testing Hints	
BTL - 8.5.17.1 - CHANGE_OF_RELIABILITY with No Fault Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and which does not apply a standardized fault algorithm.
	Test Directives	Apply this test to all object types that support fault detection but do not apply a standardized fault algorithm.
	Testing Hints	

5.2.31 Implements the CHANGE_OF_RELIABILITY - FAULT_CHARACTERSTRING Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.2 - CHANGE_OF_RELIABILITY with the FAULT_CHARACTERSTRING Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	
BTL - 8.5.17.2 - CHANGE_OF_RELIABILITY with the FAULT_CHARACTERSTRING Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	

5.2.32 Implements the CHANGE_OF_RELIABILITY - FAULT_EXTENDED Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

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135.1-2019 - 8.4.17.3 - CHANGE_OF_RELIABILITY with the FAULT_EXTENDED Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	
BTL - 8.5.17.3 - CHANGE_OF_RELIABILITY with the FAULT_EXTENDED Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	

5.2.33 Implements the CHANGE_OF_RELIABILITY - FAULT_LIFE_SAFETY Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.4 - CHANGE_OF_RELIABILITY with the FAULT_LIFE_SAFETY Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	
BTL - 8.5.17.4 - CHANGE_OF_RELIABILITY with the FAULT_LIFE_SAFETY Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	

5.2.34 Implements the CHANGE_OF_RELIABILITY - FAULT_STATE Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.5 - CHANGE_OF_RELIABILITY with the FAULT_STATE Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	
BTL - 8.5.17.5 - CHANGE_OF_RELIABILITY with the FAULT_STATE Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.

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	Testing Hints	

5.2.35 Implements the CHANGE_OF_RELIABILITY - FAULT_STATUS_FLAGS Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.6 - CHANGE_OF_RELIABILITY with the FAULT_STATUS_FLAGS Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	
BTL - 8.5.17.6 - CHANGE_OF_RELIABILITY with the FAULT_STATUS_FLAGS Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant shall be selected.
	Testing Hints	

5.2.36 Implements the CHANGE_OF_RELIABILITY - FAULT_LISTED algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

BTL - 8.4.17.X1.1 - NORMAL to FAULT Transition (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.4.17.X1.2 - FAULT-to-FAULT transition (ConfirmedEventNotification)		
	Test Conditionality	If the IUT supports only one fault condition, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.X1.1 - NORMAL to FAULT Transition (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.X1.2 - FAULT-to-FAULT transition (UnconfirmedEventNotification)		
	Test Conditionality	If the IUT supports only one fault condition, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.2.37 Supports CHANGE_OF_RELIABILITY in the Event Enrollment Object

The IUT contains, or can be made to contain, an Event Enrollment object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY.

BTL - 8.5.17.7.1 - Internal Faults Take Precedence Over Monitored Object Faults

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	Test Conditionality	If the IUT does not support an Event Enrollment object which can detect internal faults and monitor an object which detects faults, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.7.2 - Monitored Object Faults Take Precedence Over Fault Algorithms		
	Test Conditionality	If the IUT does not support an Event Enrollment object which monitors an object which detects faults and which applies a fault algorithm, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.7.3 - Internal Faults Take Precedence Over Fault Algorithms		
	Test Conditionality	If the IUT does not support an Event Enrollment object which can detect internal faults and which applies a fault algorithm, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.8 - CHANGE_OF_RELIABILITY of Event Enrollment Object, Monitored Object Fault (UnconfirmedEventNotifications)		
	Test Conditionality	If the IUT has no Event Enrollment object where the Monitored_Object that can transition to fault, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.9 - CHANGE_OF_RELIABILITY of Event Enrollment Object Fault (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.2.38 Implements the CHANGE_OF_LIFE_SAFETY Algorithm

Contact the BTL for interim tests for this algorithm.

5.2.39 Implements the ACCESS_EVENT Algorithm

The IUT supports objects which intrinsically generate ACCESS_EVENT notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims AE-AC-B.
	Testing Hints	

5.2.40 Implements the CHANGE_OF_DISCRETE_VALUE Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_DISCRETE_VALUE.

BTL - 8.4.X10 - CHANGE_OF_DISCRETE_VALUE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated for each datatype, BOOLEAN, Unsigned, Integer, Enumerated, CharacterString, Octet String, Date, Time, BACnetObjectIdentifier, or BACnetDateTime supported by the Object_Property_Reference property of the Event Enrollment object.
	Testing Hints	
BTL - 8.5.X10 - CHANGE_OF_DISCRETE_VALUE Test (UnconfirmedEventNotification)		

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	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated for each datatype, BOOLEAN, Unsigned, Integer, Enumerated, CharacterString, Octet String, Date, Time, BACnetObjectIdentifier, or BACnetDateTime supported by the Object_Property_Reference property of the Event Enrollment object.
	Testing Hints	

5.2.41 Implements the CHANGE_OF_TIMER Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_TIMER.

BTL - 8.4.X18.X1 - CHANGE_OF_TIMER ConfirmedEventNotification Test		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_TIMER.
	Testing Hints	
BTL - 8.4.X18.X2 - CHANGE_OF_TIMER Offnormal-to-Offnormal ConfirmedEventNotification		
	Test Conditionality	If pAlarmValues cannot be configured with two different values to which pMonitored will become equal, this test shall be skipped.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_TIMER.
	Testing Hints	
BTL - 8.5.X18.X1 - CHANGE_OF_TIMER UnconfirmedEventNotification Test		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_TIMER.
	Testing Hints	
BTL - 8.5.X18.X2 - CHANGE_OF_TIMER Offnormal-to-Offnormal UnconfirmedEventNotification Test		
	Test Conditionality	If pAlarmValues cannot be configured with two different values to which pMonitored will become equal, this test shall be skipped.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_TIMER.
	Testing Hints	

5.2.42 Implements the CHANGE_OF_RELIABILITY - FAULT_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

BTL - 8.4.17.X9.15 - CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE Algorithm (ConfirmedEventNotification)		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed for different Reliability transitions which are supported in the IUT such as No_Fault_Detected -Under_Range, Under_Range - No_Fault_Detected, No_Fault_Detected - OverRange, Over_Range - No_Fault_Detected, No_Fault_Detected - Under_Range,

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		Under_Range - Over_Range, Over_Range - Under_Range and Under_Range - No_Fault_Detected. This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE
	Testing Hints	
BTL - 8.5.17.X9.15 - CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE Algorithm (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed for different Reliability transitions which are supported in the IUT such as No_Fault_Detected -Under_Range, Under_Range - No_Fault_Detected, No_Fault_Detected - OverRange, Over_Range - No_Fault_Detected, No_Fault_Detected - Under_Range, Under_Range - Over_Range, Over_Range - Under_Range and Under_Range - No_Fault_Detected. This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE
	Testing Hints	

5.2.43 Implements the Reliability_Evaluation_Inhibit Property

The IUT supports the Reliability_Evaluation_Inhibit property to control the reliability evaluation in objects.

BTL - 7.3.1.21.1 - Reliability_Evaluation_Inhibit Test		
	Test Conditionality	If Protocol_Revision < 13, then this test shall be skipped. If no object exists in the IUT for which fault conditions can be generated or has no object in which Reliability_Evaluation_Inhibit can be made TRUE then this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
135.1-2019 - 7.3.1.21.2 - Reliability_Evaluation_Inhibit Summarization Test		
	Test Conditionality	If Protocol_Revision < 13, then this test shall be skipped. If no object exists in the IUT for which fault conditions can be or has no object in which Reliability_Evaluation_Inhibit can be made TRUE then this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.

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5.3 Alarm and Event Management - Notification - External - B

5.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.4.17.10 - After FAULT-to-NORMAL, Re-Notification of OFFNORMAL (ConfirmedEventNotifications)		
	Test Conditionality	If the IUT does not support an Event Enrollment object which his capable of generating OFFNORMAL transitions, this test shall be skipped.
	Test Directives	Execute test using an Event Enrollment object monitoring an object (O1) in a device other than the IUT.
	Testing Hints	
BTL - 8.5.17.10 - After FAULT-to-NORMAL, Re-Notification of OFFNORMAL (UnconfirmedEventNotifications)		
	Test Conditionality	If the IUT does not support an Event Enrollment object which his capable of generating OFFNORMAL transitions, this test shall be skipped.
	Test Directives	Execute test using an Event Enrollment object monitoring an object (O1) in a device other than the IUT.
	Testing Hints	

5.3.2 Supports AE-N-I-B

The IUT must support AE-N-I-B if it claims support for AE-N-E-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-I-B in the Checklist.
	Testing Hints	

5.3.3 Supports DS-RP-A for Retrieving Monitored Values

The IUT is able to use ReadProperty to retrieve property values that are monitored via an Event Enrollment object.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests or 135.1-2019 - 8.5 - UnconfirmedEventNotification Service Initiation Tests		
	Test Conditionality	The specific tests that can be executed are detailed under the test cases for the specific algorithms. If at least one of the referenced tests is executed with the monitored object in a device that does not support ReadPropertyMultiple or SubscribeCOV, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	This functionality will be tested by the clause 8.4 or 8.5 algorithm tests listed later in this section.

5.3.4 Supports the Event Enrollment Object

The IUT contains, or can be made to contain an Event Enrollment object, that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications.

Verify Checklist		
	Test Conditionality	Must be executed.

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	Test Directives	Verify that the IUT claims support for the Event Enrollment object in the Checklist.
	Testing Hints	
Verify Test Selection		
	Test Conditionality	Must be executed.
	Test Directives	Ensure this functionality is tested on Event Enrollment objects by the clause 8.4 or 8.5 algorithm tests listed later in this section.
	Testing Hints	

5.3.5 Implements the CHANGE_OF_BITSTRING Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_BITSTRING.

135.1-2019 - 8.4.1 - CHANGE_OF_BITSTRING Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.1 - CHANGE_OF_BITSTRING Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.6 Implements the CHANGE_OF_STATE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_STATE.

BTL - 8.4.2 - CHANGE_OF_STATE Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.2 - CHANGE_OF_STATE Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.7 Implements the Numeric Form of the CHANGE_OF_VALUE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of data type Real.

BTL - 8.4.3.1 - Numerical Algorithm (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
BTL - 8.5.3.1 - Numerical Algorithm (UnconfirmedEventNotification)		

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	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.8 Implements the Bit String Form of the CHANGE_OF_VALUE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_VALUE where the monitored value is of datatype bit string.

135.1-2019 - 8.4.3.2 - Bitstring Algorithm (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.3.2 - Bitstring Algorithm (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.9 Implements the COMMAND_FAILURE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of COMMAND_FAILURE.

BTL - 8.4.4 - COMMAND_FAILURE Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.4 - COMMAND_FAILURE Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.10 Implements the FLOATING_LIMIT Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of FLOATING_LIMIT.

BTL - 8.4.5 - FLOATING_LIMIT Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.5 - FLOATING_LIMIT Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

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5.3.11 Implements the OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of OUT_OF_RANGE.

BTL - 8.4.6 - OUT_OF_RANGE Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.6 - OUT_OF_RANGE Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.12 Implements the DOUBLE_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of DOUBLE_OUT_OF_RANGE.

135.1-2019 - 8.4.10 - DOUBLE_OUT_OF_RANGE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	
135.1-2019 - 8.5.10 - DOUBLE_OUT_OF_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	

5.3.13 Implements the SIGNED_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of SIGNED_OUT_OF_RANGE.

135.1-2019 - 8.5.11 - SIGNED_OUT_OF_RANGE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	
135.1-2019 - 8.5.11 - SIGNED_OUT_OF_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	

5.3.14 Implements the UNSIGNED_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of UNSIGNED_OUT_OF_RANGE.

135.1-2019 - 8.4.12 - UNSIGNED_OUT_OF_RANGE Test (ConfirmedEventNotification)

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	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	
135.1-2019 - 8.5.12 - UNSIGNED_OUT_OF_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	

5.3.15 Implements the CHANGE_OF_CHARACTERSTRING Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_CHARACTERSTRING.

BTL - 8.4.13 - CHANGE_OF_CHARACTERSTRING Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	
135.1-2019 - 8.5.13 - CHANGE_OF_CHARACTERSTRING Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT
	Testing Hints	

5.3.16 Implements the CHANGE_OF_STATUS_FLAGS Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of CHANGE_OF_STATUS_FLAGS.

BTL - 8.4.15 - CHANGE_OF_STATUS_FLAGS Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_STATUS_FLAGS.
	Testing Hints	
135.1-2019 - 8.5.15 - CHANGE_OF_STATUS_FLAGS Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_STATUS_FLAGS.
	Testing Hints	

5.3.17 Implements the UNSIGNED_RANGE Algorithm

The IUT contains, or can be made to contain an Event Enrollment object that can generate EventNotifications with an Event_Type of UNSIGNED_RANGE.

BTL - 8.4.14 - UNSIGNED_RANGE Test (ConfirmedEventNotification Test)		
	Test Conditionality	Must be executed.

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	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.14 - UNSIGNED_RANGE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.18 Implements the CHANGE_OF_RELIABILITY - NONE

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

BTL - 8.4.17.1 - CHANGE_OF_RELIABILITY with No Fault Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and which does not apply a standardized fault algorithm.
	Test Directives	Apply this test to all object types that support fault detection but do not apply a standardized fault algorithm.
	Testing Hints	
BTL - 8.5.17.1 - CHANGE_OF_RELIABILITY with No Fault Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and which does not apply a standardized fault algorithm.
	Test Directives	Apply this test to all object types that support fault detection but do not apply a standardized fault algorithm.
	Testing Hints	

5.3.19 Implements the CHANGE_OF_RELIABILITY - FAULT_CHARACTERSTRING Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.2 - CHANGE_OF_RELIABILITY with the FAULT_CHARACTERSTRING Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	
BTL - 8.5.17.2 - CHANGE_OF_RELIABILITY with the FAULT_CHARACTERSTRING Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	

5.3.20 Implements the CHANGE_OF_RELIABILITY - FAULT_EXTENDED Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

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135.1-2019 - 8.4.17.3 - CHANGE_OF_RELIABILITY with the FAULT_EXTENDED Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	
BTL - 8.5.17.3 - CHANGE_OF_RELIABILITY with the FAULT_EXTENDED Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	

5.3.21 Implements the CHANGE_OF_RELIABILITY - FAULT_LIFE_SAFETY Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.4 - CHANGE_OF_RELIABILITY with the FAULT_LIFE_SAFETY Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	
BTL - 8.5.17.4 - CHANGE_OF_RELIABILITY with the FAULT_LIFE_SAFETY Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	

5.3.22 Implements the CHANGE_OF_RELIABILITY - FAULT_STATE Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.5 - CHANGE_OF_RELIABILITY with the FAULT_STATE Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	
BTL - 8.5.17.5 - CHANGE_OF_RELIABILITY with the FAULT_STATE Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	

5.3.23 Implements the CHANGE_OF_RELIABILITY - FAULT_STATUS_FLAGS Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

135.1-2019 - 8.4.17.6 - CHANGE_OF_RELIABILITY with the FAULT_STATUS_FLAGS Algorithm (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	

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BTL - 8.5.17.6 - CHANGE_OF_RELIABILITY with the FAULT_STATUS_FLAGS Algorithm (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each object type that support this fault algorithm.
	Testing Hints	

5.3.24 Implements the CHANGE_OF_RELIABILITY - FAULT_LISTED Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

BTL - 8.4.17.X1.1 NORMAL to FAULT Transition (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.4.17.X1.2 FAULT-to-FAULT transition (ConfirmedEventNotification)		
	Test Conditionality	If the IUT supports only one fault condition, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.X1.1 NORMAL to FAULT Transition (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.5.17.X1.2 FAULT-to-FAULT transition (UnconfirmedEventNotification)		
	Test Conditionality	If the IUT supports only one fault condition, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.3.25 Supports CHANGE_OF_RELIABILITY in the Event Enrollment Object

The IUT contains, or can be made to contain, an Event Enrollment object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY.

BTL - 8.5.17.7.1 - Internal Faults Take Precedence Over Monitored Object Faults		
	Test Conditionality	Must be executed
	Test Directives	Execute test using an Event Enrollment object monitoring an object (O1) in a device other than the IUT.
	Testing Hints	
BTL - 8.5.17.7.2 - Monitored Object Faults Take Precedence Over Fault Algorithms		
	Test Conditionality	If the IUT does not support an Event Enrollment object which monitors an object which detects faults and which applies a fault algorithm, then this test shall be skipped.
	Test Directives	Execute test using an Event_Enrollment object monitoring an object (O1) in a device other than the IUT.
	Testing Hints	
BTL - 8.5.17.7.3 - Internal Faults Take Precedence Over Fault Algorithms		
	Test Conditionality	If the IUT does not support an Event Enrollment object which can detect internal faults and which applies a fault algorithm, then this test shall be skipped.
	Test Directives	Execute test using an Event_Enrollment object monitoring an object (O1) in a device other than the IUT.

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	Testing Hints	
BTL - 8.5.17.8 - CHANGE_OF_RELIABILITY of Event Enrollment Object, Monitored Object Fault (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using an Event_Enrollment object monitoring an object (M1) in a device other than the IUT.
	Testing Hints	
BTL - 8.5.17.9 - CHANGE_OF_RELIABILITY of Event Enrollment Object Fault (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	Execute test using an Event_Enrollment object monitoring an object (M1) in a device other than the IUT.
	Testing Hints	

5.3.26 Implements the CHANGE_OF_LIFE_SAFETY Algorithm

Contact the BTL for interim tests for this algorithm.

5.3.27 Implements the ACCESS_EVENT Algorithm

The IUT supports Event Enrollment objects which generate ACCESS_EVENT notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims AE-AC-B.
	Testing Hints	

5.3.28 Implements the CHANGE_OF_DISCRETE_VALUE Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_DISCRETE_VALUE.

BTL - 8.4.X10 - CHANGE_OF_DISCRETE_VALUE Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated for each datatype, BOOLEAN, Unsigned, Integer, Enumerated, CharacterString, Octet String, Date, Time, BACnetObjectIdentifier, or BACnetDateTime supported by the Object_Property_Reference property of the Event Enrollment object.
	Testing Hints	
BTL - 8.5.X10 - CHANGE_OF_DISCRETE_VALUE Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	This test must be repeated for each datatype, BOOLEAN, Unsigned, Integer, Enumerated, CharacterString, Octet String, Date, Time, BACnetObjectIdentifier, or BACnetDateTime supported by the Object_Property_Reference property of the Event Enrollment object.
	Testing Hints	

5.3.29 Implements the CHANGE_OF_TIMER Algorithm

The IUT contains, or can be made to contain, an object that can generate EventNotifications with an Event_Type of CHANGE_OF_TIMER.

BTL - 8.4.X18.X1 - CHANGE_OF_TIMER ConfirmedEventNotification Test		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

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BTL - 8.4.X18.X2 - CHANGE_OF_TIMER Offnormal-to-Offnormal ConfirmedEventNotification		
	Test Conditionality	If pAlarmValues cannot be configured with two different values to which pMonitored will become equal, this test shall be skipped.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
BTL - 8.5.X18.X1 - CHANGE_OF_TIMER UnconfirmedEventNotification Test		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
BTL - 8.5.X18.X2 - CHANGE_OF_TIMER Offnormal-to-Offnormal UnconfirmedEventNotification Test		
	Test Conditionality	If pAlarmValues cannot be configured with two different values to which pMonitored will become equal, this test shall be skipped.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.30 Implements the CHANGE_OF_RELIABILITY - FAULT_OUT_OF_RANGE Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate EventNotifications with an Event_Type of CHANGE_OF_RELIABILITY and supports the specified algorithm.

BTL - 8.4.17.X9.15 - CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE Algorithm (ConfirmedEventNotification)		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT. This test shall be executed for different Reliability transitions which are supported in the IUT such as No_Fault_Detected -Under_Range, Under_Range - No_Fault_Detected, No_Fault_Detected - OverRange, Over_Range - No_Fault_Detected, No_Fault_Detected - Under_Range, Under_Range - Over_Range, Over_Range - Under_Range and Under_Range - No_Fault_Detected.. This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE
	Testing Hints	
BTL - 8.5.17.X9.15 - CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE Algorithm (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT. This test shall be executed for different Reliability transitions which are supported in the IUT such as No_Fault_Detected -Under_Range, Under_Range - No_Fault_Detected, No_Fault_Detected - OverRange, Over_Range - No_Fault_Detected, No_Fault_Detected - Under_Range, Under_Range - Over_Range, Over_Range - Under_Range and Under_Range - No_Fault_Detected.

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		This test must be repeated once for each object type that is capable of generating event notifications with an Event_Type of CHANGE_OF_RELIABILITY with the FAULT_OUT_OF_RANGE.
	Testing Hints	

5.3.31 Implements a Proprietary Algorithm

The IUT contains, or can be made to contain, an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event_Type of Extended.

135.1-2019 - 8.4.16 - Proprietary Algorithm Tests (ConfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	
135.1-2019 - 8.5.16 - Proprietary Algorithm Tests (UnconfirmedEventNotifications)		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with an Event Enrollment object that is configured to monitor a property in a device other than the IUT.
	Testing Hints	

5.3.32 Supports Event_Message_Texts Property

The IUT contains one or more objects that support the Event_Message_Texts property.

BTL - 7.3.1.17 - Event_Message_Texts Tests		
	Test Conditionality	Must be executed.
	Test Directives	Repeat test once for each object type in the IUT that contains an Event_Message_Texts property.
	Testing Hints	

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5.4 Alarm and Event Management - Acknowledge - A

5.4.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.1 - AcknowledgeAlarm Service Initiation Tests		
	Test Conditionality	Must be executed once to acknowledge a ConfirmedEventNotification, and again to acknowledge an UnconfirmedEventNotification.
	Test Directives	
	Testing Hints	
BTL - 8.1.X2 - Successful Alarm Acknowledgment of Confirmed Event Notifications Using the 'Initiating Device Identifier' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.4.2 Generates AcknowledgeAlarm Requests with Acknowledge Timestamps of the BACnetDateTime Form

The IUT can generate AcknowledgeAlarm requests with a Time of Acknowledgement of the BACnetDateTime form.

BTL - 8.1 - AcknowledgeAlarm Service Initiation Tests		
	Test Conditionality	Must be executed. Verify that the Time of Acknowledgement parameter is of the BACnetDateTime form.
	Test Directives	
	Testing Hints	

5.4.3 Generates AcknowledgeAlarm Requests with Acknowledge Timestamps of the Time Form

The IUT can generate AcknowledgeAlarm requests with a Time of Acknowledgement of the Time form.

BTL - 8.1 - AcknowledgeAlarm Service Initiation Tests		
	Test Conditionality	Must be executed. Verify that the Time of Acknowledgement parameter is of the Time form.
	Test Directives	
	Testing Hints	

5.4.4 Generates AcknowledgeAlarm Requests with Acknowledge Timestamps of the Sequence Number Form

The IUT can generate AcknowledgeAlarm requests with a Time of Acknowledgement of the Sequence Number form.

BTL - 8.1 - AcknowledgeAlarm Service Initiation Tests		
	Test Conditionality	Must be executed. Verify that the Time of Acknowledgement parameter is of the Sequence Number form.
	Test Directives	
	Testing Hints	

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5.5 Alarm and Event Management - Acknowledge - B

5.5.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.1.1.1 - Successful Alarm Acknowledgment of Confirmed Event Notifications Using the Time Form of the 'Time of Acknowledgment' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.2 - Successful Alarm Acknowledgment of Confirmed Event Notifications using the Sequence Number Form of the 'Time of Acknowledgment' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.3 - Successful Alarm Acknowledgment of Confirmed Event Notifications Using the Date Time Form of the 'Time of Acknowledgment' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.1.1.4 - Successful Alarm Acknowledgment of Unconfirmed Event Notifications Using the Time Form of the 'Time of Acknowledgment' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.5 - Successful Alarm Acknowledgment of Unconfirmed Event Notifications Using the Sequence Number Form of the 'Time of Acknowledgment' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.6 - Successful Alarm Acknowledgment of Unconfirmed Event Notifications Using the Date Time Form of the 'Time of Acknowledgment' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.8 - Successful Alarm Acknowledgment of Confirmed Event Notifications Using an Unknown 'Acknowledging Process Identifier' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.9 - Successful Alarm Acknowledgment of Unconfirmed Event Notifications Using an Unknown 'Acknowledging Process Identifier' Parameter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.1.2.1 - Unsuccessful Alarm Acknowledgment of Confirmed Event Notifications Because the 'Time Stamp' is Too Old		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	The test should be run multiple times varying the timestamp each time. When selecting a timestamp, the following are considered good choices:

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		A timestamp from a previous transition of the same type (if acknowledging a To-Normal transition, choose a timestamp from a previous To-Normal transition.) A timestamp that differs only in one of the time fields (hundredths, seconds, minutes, or hours.)
135.1-2019 - 9.1.2.3 - Unsuccessful Alarm Acknowledgment of Confirmed Event Notifications Because the 'Event Object Identifier' is Invalid		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test multiple times, with the 'Event Object Identifier' specifying an object that does not support or is not configured for alarming, again for an object which does not exist, and if the device can be configured with an object where Event_Detection_Enable is equal to FALSE, at least once for an object with Event_Detection_Enable equal to FALSE.
	Testing Hints	
135.1-2019 - 9.1.2.4 - Unsuccessful Alarm Acknowledgment of Confirmed Event Notifications Because the 'Event State Acknowledged' is Invalid		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.1.2.5 - Unsuccessful Alarm Acknowledgment of Unconfirmed Event Notifications Because the 'Time Stamp' is Too Old		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.2.6 - Unsuccessful Alarm Acknowledgment of Unconfirmed Event Notifications Because the 'Event Object Identifier' Is Invalid		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.2.7 - Unsuccessful Alarm Acknowledgment of Unconfirmed Event Notifications Because the 'Event State Acknowledged' is Invalid		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.1.1.14 - Successful Alarm Acknowledgment of Confirmed Event Notifications when 'To State' is either High-Limit or Low-Limit, Revision 5 or higher Only		
	Test Conditionality	If the IUT supports LOW_LIMIT or HIGH_LIMIT transitions this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.1.1.10 - Successful Alarm Re-Acknowledgment of Confirmed Event Notifications		
	Test Conditionality	If the IUT supports revision 7 or higher this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.1.1.11 - Successful Alarm Re-Acknowledgment of Unconfirmed Event Notifications		
	Test Conditionality	If the IUT supports revision 7 or higher this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.11.1 - Acked_Transitions Test		
	Test Conditionality	If the IUT only supports event generating objects which latch their event state and require an acknowledgement before unlatching, this test shall be skipped. Only life safety objects are allowed to latch in this manner.

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	Test Directives	
	Testing Hints	
BTL - 7.3.1.11.2 - Acked_Transitions Test for Latching Objects		
	Test Conditionality	If the IUT does not support event generating objects which latch their event state and require an acknowledgement before unlatching, this test shall be skipped. Only life safety objects are allowed to latch in this manner.
	Test Directives	Apply the test for each supported transition.
	Testing Hints	
135.1-2019 - 7.3.1.19.3 - Event_Algorithm_Inhibit Acknowledgement Test		
	Test Conditionality	If the IUT has no object in which the Event_Algorithm_Inhibit property is present or has no object in which Event_Detection_Enable can be made TRUE, this test shall be skipped. If the IUT cannot be configured to contain any object with an unacknowledged event, then this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
135.1-2019 - 9.1.1.15 - Unsupported Message Text Character Set Acknowledge Alarm Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	Repeat for every unsupported character set. Use at least one ConfirmedEventNotification and one UnconfirmedEventNotification.
	Testing Hints	

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5.6 Alarm and Event Management - Alarm Summary - A

5.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.6.1 - Basic GetAlarmSummary Service Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.7 Alarm and Event Management - Alarm Summary - B

5.7.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.6.1 - Alarm Summaries with no Active Alarms		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.6.2 - Alarm Summaries with One Active Alarm		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.6.3 - Alarm Summaries with Multiple Active Alarms		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.8 Alarm and Event Management - Enrollment Summary - A

5.8.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.7.1 - Acknowledgment Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.8.2 Generates Requests with an Enrollment Filter

The IUT can generate GetEnrollmentSummary requests that contain an Enrollment filter.

135.1-2019 - 8.7.2 - Enrollment Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.8.3 Generates Requests with an Event State Filter

The IUT can generate GetEnrollmentSummary requests that contain an Event State filter.

135.1-2019 - 8.7.3 - Event State Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.8.4 Generates Requests with an Event Type Filter

The IUT can generate GetEnrollmentSummary requests that contain an Event Type filter.

135.1-2019 - 8.7.4 - Event Type Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.8.5 Generates Requests with a Priority Filter

The IUT can generate GetEnrollmentSummary requests that contain a Priority filter.

135.1-2019 - 8.7.5 - Priority Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.8.6 Generates Requests with a Notification Class Filter

The IUT can generate GetEnrollmentSummary requests that contain a Notification Class filter.

135.1-2019 - 8.7.6 - Notification Class Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.8.7 Generates Requests with Multiple Filters

The IUT can generate GetEnrollmentSummary requests that contain multiple filters.

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135.1-2019 - 8.7.7 - Multiple Filters		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.9 Alarm and Event Management - Enrollment Summary - B

5.9.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.7.1.1 - Enrollment Summary with Zero Summaries		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.1.2 - ACKED		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.1.3 - NOT_ACKED		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.1.4 - All		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.2.1 - Enrollment Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	It is advisable that the pre-tester: - repeat this test with a (BACnet Recipient Process, Process Identifier) pair that the IUT is not configured with. - repeat this test with a BACnetRecipient of the BACnetObjectIdentifier form, and again with a BACnetRecipient of the BACnetAddress form.
135.1-2019 - 9.7.2.2 - Event State Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.2.3 - Event Type Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.2.4 - Priority Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.2.5 - Notification Class Filter		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.7.2.6 - A Combination of Filters		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Each enrollment filter is applied individually. Only those objects that match each and every filter in the GetEnrollmentSummary-Request shall be returned.

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		Given that any combination of filters can be chosen by the BTL Tester, it is advisable that the pre-tester test numerous, if not all, combinations.

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5.10 Alarm and Event Management - Information - A

5.10.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.8.1 - Without Chaining		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.8.2 - With Chaining		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.11 Alarm and Event Management - Information - B

5.11.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.8.1 - Event Information with no Active Events		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.8.2 - Event Information with one Active Event		
	Test Conditionality	If the IUT cannot be configured to contain any object with an active event, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.8.3 - Event Information with Multiple Active Events		
	Test Conditionality	Must be executed for devices that contain more than one object that can detect alarms. If the IUT cannot be configured to contain multiple active events which can be transmitted in a single GetEventInformation service response without 'More Events' = TRUE, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.8.4 - Event Information Based on Event_State		
	Test Conditionality	If the IUT cannot be configured to contain any object with an active event, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.8.6 - Chaining Test		
	Test Conditionality	Must be executed for devices that contain more than one object that can detect alarms. If the IUT cannot be configured to contain enough active events to trigger chaining, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.19.2 - Event_Algorithm_Inhibit Summarization Test		
	Test Conditionality	If the IUT has no object in which the Event_Algorithm_Inhibit property is present or has no object in which Event_Detection_Enable can be made TRUE, this test shall be skipped. If the IUT cannot be configured to contain any object with an active event, then this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	

5.11.2 Supports AE-ACK-B

The IUT initiates EventNotifications with service parameter AckRequired = True.

135.1-2019 - 9.8.5 - Event Information Based on Acknowledged_Transitions		
	Test Conditionality	If the IUT cannot be configured to contain any object with an unacknowledged event, then this test shall be skipped.
	Test Directives	
	Testing Hints	

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5.12 Alarm and Event Management - Event Log View - A

5.12.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed
	Test Directives	The information conveyed to the user shall at minimum be as described in the AE-ELV-A BIBB or as described in AE-VN-A. Any other information conveyed to the user shall be consistent with the data contained in the notification.
	Testing Hints	

5.12.2 Initiates ReadRange

The IUT is able to initiate the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Initiates ReadRange in the Checklist.
	Testing Hints	

5.12.3 Supports Reading Items by Time with a Positive Count

The IUT can initiate one or more ReadRange requests that specify the Time form and a Positive 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Time form of the ReadRange service, with a Positive 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

5.12.4 Supports Reading Items by Time with a Negative Count

The IUT can initiate one or more ReadRange requests that specify the Time form and a Negative 'Count' that access a tester-specified portion of log records

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Time form of the ReadRange service, with a Negative 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

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5.12.5 Supports Reading Items by Position with a Positive Count

The IUT can initiate one or more ReadRange requests that specify the Position form and a Positive 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Position form of the ReadRange service, with a Positive 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

5.12.6 Supports Reading Items by Position with a Negative Count

The IUT can initiate one or more ReadRange requests that specify the Position form and a Negative 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Position form of the ReadRange service, with a Negative 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

5.12.7 Supports Reading Items by Sequence Number with a Positive Count

The IUT can initiate one or more ReadRange requests that specify the Sequence Number form and a Positive 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Sequence Number form of the ReadRange service, with a Positive 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

5.12.8 Supports Reading Items by Sequence Number with a Negative Count

The IUT can initiate one or more ReadRange requests that specify the Sequence Number form and a Negative 'Count' that access a tester-specified portion of log records.

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135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Sequence Number form of the ReadRange service, with a Negative 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

5.12.9 Supports Reading Items with no Range

The IUT can initiate one or more ReadRange requests that specify no range that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
	Testing Hints	The 'Range' value in Steps 2 and 4 must specify no range The set of records in this test shall contain at least one log-status entry.

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5.13 Alarm and Event Management - Event Log View and Modify - A

5.13.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed
	Test Directives	Repeat the test for each of the properties listed in the table in the BIBB definition.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the properties listed in the table in the BIBB definition.
	Testing Hints	Repeat the test for a variety of values that cover the range of values required by the BIBB.

5.13.2 Supports AE-ELV-A

The IUT shall support AE-ELV-A in order to display log data from Event Log objects to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-ELV-A.
	Testing Hints	

5.13.3 Supports DS-RP-A

The IUT shall support DS-RP-A in order to display Event Log property values to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.13.4 Supports DS-WP-A

The IUT shall support DS-WP-A in order to configure Event Log property values modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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5.14 Alarm and Event Management - Event Log - Internal - B

5.14.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.21.1.1 - Reading All Items in the List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.1 - Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.6.1 - Stop_When_Full TRUE Test		
	Test Conditionality	This shall be executed only if the property is configurable or equal to TRUE
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.6.2 - Stop_When_Full FALSE Test		
	Test Conditionality	Only applicable if this property is writable.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.7 - Buffer_Size Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.8 - Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.9 - Total_Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.13 - Log-Status Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.25.1 - Internal Logging of Notifications		
	Test Conditionality	Must be executed.
	Test Directives	REPEAT for both Confirmed and UnconfirmedEventNotifications.
	Testing Hints	REPEAT for events with optional message text present, and with message text not present if the device supports both.
BTL - 7.3.2.24.X10 - Buffer_Size Write Test		
	Test Conditionality	If a write to the Buffer_Size does not delete all records in the log, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.14.2 Supports All Forms of ReadRange

The IUT can accept any of the ReadRange options and respond appropriately.

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BTL - 9.21.1.2 - Reading Items by Position with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.3 - Reading Items by Position with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.4 - Reading Items by Time		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.7 - Reading a Range of Items that do not Exist (by Sequence)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.8 - Reading a Range of Items that do not Exist (by Time)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.X6 - Reading a Range of Items that do not Exist (by Position)		
	Test Conditionality	If IUT claims Protocol_Revision less than 18, then this test shall be skipped.
	Test Directives	Repeat the test for 'Reference Index' = 0, 'Reference Index' > Buffer_Size and 'Reference Index' between Record_Count and Buffer_Size.
	Testing Hints	

5.14.3 Executes ReadRange

The IUT is able to execute the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Executes ReadRange in the Checklist.
	Testing Hints	

5.14.4 Supports logging of ACK_NOTIFICATION

The IUT can be made to log event notifications with AckRequired, From State, and Event Values absent.

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BTL - 7.3.2.25.3 - Internal Logging of ACK_NOTIFICATIONs		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.14.5 Supports Start_Time and Stop_Time Properties

The IUT can be made to start and stop logging using these properties.

These properties are required to be present and writable in Event Log objects, if either is present.

135.1-2019 - 7.3.2.24.2 - Start_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.3 - Stop_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.2.X6 - DateTime Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Start_Time and again to the Stop_Time properties in an Event Log object.
	Testing Hints	
BTL - 9.23.2.X11 - DateTime Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Start_Time and again to the Stop_Time properties in an Event Log object.
	Testing Hints	

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5.15 Alarm and Event Management - Event Log - External - B

5.15.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.21.1.1 - Reading All Items in the List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.1 - Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.6.1 - Stop_When_Full TRUE Test		
	Test Conditionality	Only applicable if this property is writable.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.6.2 - Stop_When_Full FALSE Test		
	Test Conditionality	Only applicable if this property is writable.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.7 - Buffer_Size Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.8 - Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.9 - Total_Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.13 - Log-Status Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.X10 - Buffer_Size Write Test		
	Test Conditionality	If a write to the Buffer_Size does not delete all records in the log, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.15.2 Supports All Forms of ReadRange

The IUT can accept any of the ReadRange options and respond appropriately.

BTL - 9.21.1.2 - Reading Items by Position with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 9.21.1.3 - Reading Items by Position with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.4 - Reading Items by Time		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.7 - Reading a Range of Items that do not Exist (by Sequence)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.8 - Reading a Range of Items that do not Exist (by Time)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.X6 - Reading a Range of Items that do not Exist (by Position)		
	Test Conditionality	If IUT claims Protocol_Revision less than 18, then this test shall be skipped.
	Test Directives	Repeat the test for 'Reference Index' = 0, 'Reference Index' > Buffer_Size and 'Reference Index' between Record_Count and Buffer_Size.
	Testing Hints	

5.15.3 Executes ReadRange

The IUT is able to execute the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Executes ReadRange in the Checklist.
	Testing Hints	

5.15.4 Supports Logging all Notifications

The IUT can be made to log all Notifications. After a notification is sent to the device, it is required to be present in an Event Log object, and to represent the Notification completely and accurately.

BTL - 7.3.2.25.2 - Remote Logging of Notifications		
	Test Conditionality	Must be executed.

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	Test Directives	REPEAT for both Confirmed and UnconfirmedEventNotifications. REPEAT for events which contain the optional message text parameter and for those which don't. REPEAT for all BACnetEventTypes up to the Protocol_Revision claimed by the IUT. TRANSMIT EventNotifications of a size that the IUT is capable of logging.
	Testing Hints	This does include CHANGE_OF_LIFE_SAFETY, BUFFER_READY, and complex event types.
BTL - 7.3.2.25.4 - Remote Logging of ACK_NOTIFICATIONs		
	Test Conditionality	Must be executed.
	Test Directives	TRANSMIT EventNotifications of a size that the IUT is capable of logging.
	Testing Hints	

5.15.5Supports Start_Time and Stop_Time Properties

The IUT can be made to start and stop logging using these properties.

These properties are required to be present and writable in Event Log objects, if either is present.

135.1-2019 - 7.3.2.24.2 - Start_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.3 - Stop_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.16 Alarm and Event Management - View Notifications - A

5.16.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.5 - ConfirmedEventNotification Simple Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. Execute at least once with a Message_Text 32 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.1 - UnconfirmedEventNotification Simple Presentation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. Execute at least once with a Message_Text 32 or more characters in length.

5.16.2 Supports AE-N-A

The IUT shall support AE-N-A in order to receive notification for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-A.
	Testing Hints	

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5.17 Alarm and Event Management - View Modify - A

5.17.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed. If the IUT also claims support for AE-AVM-A, this test may be omitted.
	Test Directives	Repeat for each standard property, in each standard object type, which represent parameters to an event or fault algorithm, listed in tables K-15 and K-16 of the BACnet standard.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each standard property, in each standard object type, which represent parameters to an event or fault algorithm, listed in tables K-15 and K-16 of the BACnet standard. For each parameter, exercise the full range requirements as defined by table K-6.
	Testing Hints	

5.17.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to receive alarm parameters for presentation to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.17.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update alarm parameters modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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5.18 Alarm and Event Management - Advanced View Notifications - A

5.18.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.6 - ConfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. For notifications using the CHOICE format of EXTENDED, the presentation must show all the fields which were in the notification. Execute at least once with a Message_Text 256 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.2 - UnconfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. For notifications using the CHOICE format of EXTENDED, the presentation must show all the fields which were in the notification. Execute at least once with a Message_Text 256 or more characters in length.

5.18.2 Supports AE-VN-A

The IUT shall support AE-VN-A in order to receive notification for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-VN-A.
	Testing Hints	

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5.19 Alarm and Event Management - Advanced View Modify - A

5.19.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each standard property, in each standard object type, which represent parameters, or references to parameters, of event and/or fault algorithms, excluding ACCESS_EVENT, BUFFER_READY, CHANGE_OF_LIFE_SAFETY, and FAULT_LIFE_SAFETY.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each standard property, in each standard object type, which represent parameters, or references to parameters, of event and/or fault algorithms, excluding ACCESS_EVENT, BUFFER_READY, CHANGE_OF_LIFE_SAFETY, and FAULT_LIFE_SAFETY. Repeat for each standard property for Notification class and Notification Forwarder objects that is not mandated as read-only by the standard.
	Testing Hints	

5.19.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to receive alarm parameters for presentation to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.19.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update alarm parameters modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

5.19.4 Supports DM-OCD-A

The IUT shall support DS-OCD-A in order to allow the user to create Event Enrollment and Notification Class objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that it claims the ability to create and delete Event Enrollment, Notification Class, and Notification Forwarder objects.
	Testing Hints	

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5.20 Alarm and Event Management - Alarm Summary View - A

5.20.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.6.2 - Updating Alarm Summary Information with GetAlarmSummary		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.8.3 - Updating Alarm Summary Information with GetEventInformation Without Chaining		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.8.4 - Updating Alarm Summary Information with GetEventInformation With Chaining		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.20.2 Supports Initiation of GetEventInformation Service

The IUT shall support GetEventInformation service in order to receive alarm parameters for presentation to the user.

135.1-2019 - 8.8.1 - Without Chaining		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.8.2 - With Chaining		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.20.3 Supports Initiation of GetAlarmSummary Service

The IUT shall support AE-ASUM-A in order to update alarm parameters modified by the user.

135.1-2019 - 8.6.1 - Basic GetAlarmSummary Service Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.21 Alarm and Event Management - LifeSafety - A

5.21.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.7 - Unsupported Message Text Character Set ConfirmedEventNotification Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.5.3 - Unsupported Message Text Character Set UnconfirmedEventNotification Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.21.2 Initiates LifeSafetyOperation Requests Targeting a Single Object

The IUT is capable of initiating LifeSafetyOperation Requests to a single object.

135.1-2019 - 8.9.1 - LifeSafetyOperation Service Initiation Tests to an Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.21.3 Initiates LifeSafetyOperation Requests Targeting All Life Safety Objects in a Device

The IUT is capable of initiating LifeSafetyOperation Requests Targeting all objects in the device.

135.1-2019 - 8.9.2 - LifeSafetyOperation Service Initiation Tests to all Objects in a Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.21.4 Executes ConfirmedEventNotifications

The IUT is capable of executing ConfirmedEventNotifications. This functionality will be covered by the testing of the individual algorithms.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT's EPICS claims that it supports the ConfirmedEventNotification service.
	Testing Hints	

5.21.5 Executes UnconfirmedEventNotifications

The IUT is capable of executing UnconfirmedEventNotifications. There are currently no tests defined for this functional item.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT's EPICS claims that it supports the UnconfirmedEventNotification service.
	Testing Hints	

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5.21.6 Processes Intrinsically Generated Notifications

The IUT is capable of executing ConfirmedEventNotifications that reference an object type other than Event Enrollment.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Object Identifier referencing a BACnet object other than an Event Enrollment object.
	Test Directives	
	Testing Hints	

5.21.7 Processes Algorithmically Generated Notifications

The IUT is capable of executing ConfirmedEventNotifications that reference an Event Enrollment object.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	At least one of the tests must be executed with the Event Object Identifier referencing an Event Enrollment object.
	Test Directives	
	Testing Hints	

5.21.8 Processes Event Notifications with Timestamps of the BACnetDateTime Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the BACnetDateTime form.

135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.21.9 Processes Event Notifications with Timestamps of the Time Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the Time form.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Message Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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5.21.10 Processes Event Notifications with Timestamps of the Sequence Number Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the Sequence Number form.

135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Message Text		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.21.11 Supports AE-ACK-A

The IUT must support AE-ACK-A if it claims support for AE-LS-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-ACK-A in the Checklist.
	Testing Hints	

5.21.12 Supports AE-AS-A

The IUT must support AE-AS-A if it claims support for AE-LS-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AS-A in the Checklist.
	Testing Hints	

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5.22 Alarm and Event Management - LifeSafety - B

5.22.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.3.1.10.1 - Event_Enable Test for TO_OFFNORMAL and TO_NORMAL, and TO_FAULT		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	If Event Enrollment objects are supported, ensure this functionality is tested on Event Enrollment objects.
	Testing Hints	The BTL will apply this to a single object. The pretester should apply it to all objects that support alarm generation.
135.1-2019 - 7.3.1.12 - Notify_Type Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	If Event Enrollment objects are supported, ensure this functionality is tested on Event Enrollment objects.
	Testing Hints	
135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Must be executed. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.5 - UnconfirmedEventNotification Service Initiation Tests		
	Test Conditionality	Must be executed. Any of the 8.5 tests can be used to ensure that the IUT properly generates UnconfirmedEventNotification requests. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using UnconfirmedEventNotifications, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.22.1 - Event_Detection_Enable Inhibits Event Generation		
	Test Conditionality	If Protocol_Revision < 13, then this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
135.1-2019 - 7.3.1.22.2 - Event_Detection_Enable Inhibits FAULT		
	Test Conditionality	If Protocol_Revision < 13 or if the IUT doesn't contain any event generating objects which support fault detection, then this test shall be skipped.
	Test Directives	The objects selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 7.3.1.19.1 - Event_Algorithm_Inhibit Test		

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	Test Conditionality	If the IUT has no object which generates CHANGE_OF_LIFE_SAFETY notifications in which the Event_Algorithm_Inhibit property is present and does not support the Event_Algorithm_Inhibit_Ref property or where the Event_Algorithm_Inhibit_Ref property is not initialized, then this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 7.3.1.20.1 - Event_Algorithm_Inhibit_Ref Test		
	Test Conditionality	If the IUT has no object in which the Event_Algorithm_Inhibit_Ref property is present or has no object in which Event_Detection_Enable can be made TRUE, this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 7.3.1.20.2 - Event_Algorithm_Inhibit Writable Test		
	Test Conditionality	If the IUT has no object in which the Event_Algorithm_Inhibit_Ref property is absent or can be made uninitialized or has no object in which Event_Detection_Enable can be made TRUE, this test shall be skipped.
	Test Directives	The object types selected by the tester should include all variants that differ in the set of supported alarming properties, or the writability of any of those properties. At least one instance of each variant should be selected.
	Testing Hints	
BTL - 9.9.1.1 - Reset Single Object Execution Tests		
	Test Conditionality	This test shall be skipped if the IUT does not support a life safety object which latches.
	Test Directives	
	Testing Hints	
BTL - 9.9.1.2 - Reset Multiple Object Execution Tests		
	Test Conditionality	This test shall be skipped if the IUT does not support a life safety object which latches.
	Test Directives	
	Testing Hints	
BTL - 9.9.1.3 - Silencing/Unsilencing Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.9.2.1 - LifeSafetyOperation for an Object Which Does Not Exist		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.9.2.2 - LifeSafetyOperation which is Invalid given the Object's Current State		
	Test Conditionality	If there is no life safety object which will reject a LifeSafetyOperation because of its current state, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.9.2.3 - LifeSafetyOperation On An Object Which Does Not Support It		

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	Test Conditionality	If the IUT claims Protocol_Revision 20 or lower, this test shall be skipped. If there is no object in the IUT which does not support LifeSafetyOperation requests, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.9.2.4 - LifeSafetyOperation on an Object which does not support the operation specified in the 'Request' parameter.		
	Test Conditionality	If the IUT claims Protocol_Revision 20 or lower, this test shall be skipped. If all Life Safety objects in the IUT support all LifeSafetyOperation request parameter values, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.22.2 Supports the Notification Class Object

The IUT supports the Notification Class object in order to send notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Notification Class Object in the Checklist.
	Testing Hints	

5.22.3 Supports AE-INFO-B

The IUT must support AE-INFO-B if it claims support for AE-LS-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-INFO-B in the Checklist.
	Testing Hints	

5.22.4 Implements Intrinsic Alarming

The IUT contains, or can be made to contain, an object other than an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications.

Verify Test Selection		
	Test Conditionality	Must be executed.
	Test Directives	Ensure this functionality is tested on non-Event Enrollment objects by the clause 8.4 or 8.5 algorithm tests listed later in this section.
	Testing Hints	

5.22.5 Supports the Event Enrollment Object Using the CHANGE_OF_LIFE_SAFETY Algorithm

The IUT contains, or can be made to contain an Event Enrollment object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications for the CHANGE_OF_LIFE_SAFETY algorithm..

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for CHANGE_OF_LIFE_SAFETY in the EventEnrollment Objects in AE-N-I-B.
	Testing Hints	

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5.22.6 Supports AE-ACK-B

The IUT initiates EventNotifications with service parameter AckRequired = True.

135.1-2019 - 9.8.5 - Event Information Based on Acknowledged_Transitions		
	Test Conditionality	If the IUT cannot be configured to contain any object with an unacknowledged event, then this test shall be skipped.
	Test Directives	
	Testing Hints	

5.22.7 Generates Event Notifications with Timestamps of the BACnetDateTime Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the BACnetDateTime form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the BACnetDateTime form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the BACnetDateTime form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

5.22.8 Generates Event Notifications with Timestamps of the Time Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the Time form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Time form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Time form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

5.22.9 Generates Event Notifications with Timestamps of the Sequence Number Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the Sequence Number form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Sequence

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		Number form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Sequence Number form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

5.22.10 Supports Mode Transition when Event State is Maintained

IUT supports the mode transition when Event State is maintained.

BTL - 8.4.8.7 - Mode Transition Tests when Event State is Maintained		
	Test Conditionality	If the IUT does not support Mode changes which result in the object maintainting its current Event_State, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.22.11 Supports Event_Message_Texts Property

The IUT contains one or more objects that support the Event_Message_Texts property.

BTL - 7.3.1.17 - Event_Message_Texts Tests		
	Test Conditionality	Must be executed.
	Test Directives	Repeat test once for each object type in the IUT that contains an Event_Message_Texts property.
	Testing Hints	

5.22.12 Supports Event_Message_Texts_Config Property

The IUT contains one or more objects that support the Event_Message_Texts_Config property.

135.1-2019 - 7.3.1.18 - Event_Message_Texts_Config Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each supported transition type (TO_OFFNORMAL, TO_FAULT, TO_NORMAL). Different objects may be selected for different transitions.
	Testing Hints	

5.22.13 Supports Re-alerting CHANGE_OF_LIFE_SAFETY Events

The IUT supports re-alerting OFFNORMAL or LIFE_SAFETY_ALARM events states for the CHANGE_OF_LIFE_SAFETY algorithm.

BTL - 8.4.8.X1 - Re-alerting CHANGE_OF_LIFE_SAFETY Transitions		
	Test Conditionality	Must be executed.
	Test Directives	Apply for either OFFNORMAL or LIFE_SAFETY_ALARM state for a single event generating object type, as supported by the IUT.
	Testing Hints	

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5.23 Alarm and Event Management - Notification Forwarder - B

5.23.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 7.3.2.30.2 - Recipient_List Forwarding Test		
	Test Conditionality	Must be executed with Local_Forwarding_Only = FALSE.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.3 - Subscribed_Recipients Forwarding Test		
	Test Conditionality	Must be executed with Local_Forwarding_Only = FALSE.
	Test Directives	Perform this using base Setup 2.
	Testing Hints	
135.1-2019 - 7.3.2.30.7.1 - Destination Date Filtering Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.7.2 - Destination Time Filtering Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
BTL - 7.3.2.30.7.3 - Process Identifier Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.7.4 - Destination Transition Filtering Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.11.2 - Forwards Locally and Remotely When False		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.5 - Character Encoding Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.12.1 - Local Broadcast To Receiving Port Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.12.2 - Globally Broadcast Event Notification Received Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.12.3 - Forwarding As Global Broadcast Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.12.4 - Directed Broadcast Received Forwarding To BACnetAddress Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.

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	Testing Hints	
135.1-2019 - 7.3.2.30.12.5 - Directed Broadcast Received Forwarding To Object Identifier Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.12.6 - Port Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.23.2 Supports Forwarding of Events Received From the Local Device

The IUT contains or can be made to contain the Local_Forwarding_Only property set to TRUE.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB AE-NF-I-B.
	Testing Hints	

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5.24 Alarm and Event Management - Notification Forwarder - Internal - B

5.24.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 7.3.2.30.2 - Recipient_List Forwarding Test		
	Test Conditionality	Must be executed with Local_Forwarding_Only = TRUE
	Test Directives	REPEAT this test with SRC_CONF_DEV equal to the IUT, and for both settings of DEST_CONF_NOTIF TRUE/FALSE (confirmed/unconfirmed).
	Testing Hints	
135.1-2019 - 7.3.2.30.3 - Subscribed_Recipients Forwarding Test		
	Test Conditionality	Must be executed with Local_Forwarding_Only = TRUE.
	Test Directives	Perform this using base Setup 2.
	Testing Hints	REPEAT this test with SRC_CONF_DEV equal to the IUT, and for both settings of DEST_CONF_NOTIF TRUE/FALSE (confirmed/unconfirmed).
135.1-2019 - 7.3.2.30.5 - Character Encoding Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.12.1 - Local Broadcast To Receiving Port Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.12.2 - Globally Broadcast Event Notification Received Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.12.3 - Forwarding As Global Broadcast Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.12.4 - Directed Broadcast Received Forwarding To BACnetAddress Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.12.5 - Directed Broadcast Received Forwarding To Object Identifier Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 1.
	Testing Hints	
135.1-2019 - 7.3.2.30.12.6 - Port Restriction Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for initiation of both UnconfirmedEventNotification and ConfirmedEventNotification services.
	Testing Hints	
135.1-2019 - 7.3.2.30.11.1 - Only Forwards Locally When True		
	Test Conditionality	Must be executed.

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	Test Directives	Perform this using base Setup 1.
	Testing Hints	

5.24.2 Supports Forwarding of Events Received From an External Device

The IUT contains, or can be made to contain, a Local_Forwarding_Only property which can be set to FALSE.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-NF-B.
	Testing Hints	

5.24.3 Supports Non-configurable Process_Identifier_Filter Property

The IUT contains a read-only version of the required property Process_Identifier_Filter.

135.1-2019 - 7.3.2.30.9.5 - Fixed Process_Identifier_Filter Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

5.24.4 Supports Configurable Process_Identifier_Filter Property

The one or more Notification Forwarder objects in the IUT contain a configurable Process_Identifier_Filter property

135.1-2019 - 7.3.2.30.9.1 - NULL and Unsigned32 Choice Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.30.9.3 - Zero Unfiltered Process Identifier Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform this using base Setup 2.
	Testing Hints	

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5.25 Alarm and Event Management - Configurable Recipient Lists - B

5.25.1 Base Requirements

There are no base requirements tests for this section. Existing tests for Notification Class object ensure Recipient_List supports writing all forms.

5.25.2 Supports DS-WP-B

The IUT supports the Write Property service for its Recipient_List in Notification Class or Notification Forwarder objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B option 'contains writable list properties'
	Testing Hints	
Verify Test Selection		
	Test Conditionality	Must be executed.
	Test Directives	Verify that for Test Plan section 4.6.5, test BTL - 9.22.1.X2 - Writing to Properties Based on Data Type, is applied to Recipient_List properties in each supported notification object type (Notification Forwarder and Notification Class object types).
	Testing Hints	

5.25.3 Supports DM-DDB-A

The IUT supports DM-DDB-A. The IUT must be able to use the DM-DDB-A functionality to locate alarm recipients.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-DDB-A in the Checklist.
	Testing Hints	

5.25.4 Supports Writable Recipient_List Property in Notification Class Objects

The IUT must support a writable Recipient_List property in its Notification Class objects to claim this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the 'Supports Writable Recipient_List Property' is checked in the Notification Class Object section.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the device supports 1 or more Notification class objects.
	Testing Hints	

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5.25.5 Supports Writable Recipient_List Property in Notification Forwarder Objects

The IUT must support a writable Recipient_List property in its Notification Forwarder objects to claim this BIBB.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the Recpient_List property of each Notification Forwarder is marked as writable in the EPICS.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify device contains 1 or more Notification Forwarder objects.
	Testing Hints	

5.25.6 Supports DM-LM-B for Recipient_List Property

If the IUT supports AddListElement and RemoveListElement services for the Recipient_List property this item must be checked.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	~~Verify DM-LM-B support for both Notification Forwarder and Notification Class objects.~~ Verify DM-LM-B is supported by both Notification Forwarder and Notification Class objects, if supported, and at least one of those objects is supported.
	Testing Hints	

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5.26 Alarm and Event Management - Temporary Event Subscription - A

5.26.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the EPICS claims execute support for ConfirmedEventNotification AND UnconfirmedEventNotification services.
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the EPICS contains 1 or more Notification Forwarder objects.
	Testing Hints	

5.26.2 Supports DM-LM-A for Subscribed_Recipients Property

The IUT must support the DM-LM-A services for the Subscribed_Recipients property of the Notification Forwarder object.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify the IUT claims support for the DM-LM-A option "Supports adding and removing Notification Forwarder / Subscribed_Recipients entries".
	Testing Hints	

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5.27 Alarm and Event Management - Life Safety View Notifications - A

5.27.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.5 - ConfirmedEventNotification Simple Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for CHANGE_OF_LIFE_SAFETY, and each of the transitions defined for that event type. Repeat the test for FAULT_LIFE_SAFETY. Execute at least once with a Message_Text 32 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.1 - UnconfirmedEventNotification Simple Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for CHANGE_OF_LIFE_SAFETY, and each of the transitions defined for that event type. Repeat the test for FAULT_LIFE_SAFETY. Execute at least once with a Message_Text 32 or more characters in length.
	Testing Hints	

5.27.2 Supports AE-N-A

The IUT shall support AE-N-A in order to receive and display event notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-A.
	Testing Hints	

5.27.3 Supports AE-LS-A

The IUT shall support AE-LS-A in order to silence / unsilened life safety objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-LS-A.
	Testing Hints	

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5.28 Alarm and Event Management - Life Safety Advanced View Notifications - A

5.28.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.6 - ConfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for CHANGE_OF_LIFE_SAFETY, and each of the transitions defined for that event type. Repeat the test for FAULT_LIFE_SAFETY. Execute at least once with a Message_Text 256 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.2 - UnconfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for CHANGE_OF_LIFE_SAFETY, and each of the transitions defined for that event type. Repeat the test for FAULT_LIFE_SAFETY. Execute at least once with a Message_Text 256 or more characters in length.

5.28.2 Supports AE-AVN-A

The IUT shall support AE-AVN-A in order to receive and display standard event notifications for most standard object types.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AVN-A.
	Testing Hints	

5.28.3 Supports AE-LS-A

The IUT shall support AE-LS-A in order to silence / silenced life safety objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-LS-A.
	Testing Hints	

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5.29 Alarm and Event Management - Life Safety View and Modify - A

5.29.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if AE-LSAVM-A is not supported.
	Test Directives	Repeat the test for each standard object capable of generating CHANGE_OF_LIFE_SAFETY events, reading and displaying the pAlarmValues and pLifeSafetyAlarmValues properties. Repeat the test for each standard object capable of using the FAULT_LIFE_SAFETY algorithm, reading and displaying the pFaultValues property.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed if AE-LSAVM-A is not supported.
	Test Directives	Repeat the test for each standard object capable of generating CHANGE_OF_LIFE_SAFETY events, reading and displaying the pAlarmValues and pLifeSafetyAlarmValues properties. Repeat the test for each standard object capable of using the FAULT_LIFE_SAFETY algorithm, reading and displaying the pFaultValues property.
	Testing Hints	

5.29.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.29.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

5.29.4 Supports AE-VM-A

The IUT shall support AE-VM-A in order to facilitate configuration of alarm parameters by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-VM-A.
	Testing Hints	

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5.30 Alarm and Event Management - Life Safety Advanced View and Modify - A

5.30.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for each standard event generating object type which can generate CHANGE_OF_LIFE_SAFETY event notifications, or use the FAULT_LIFE_SAFETY algorithm.
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for each standard event generating object type which can generate CHANGE_OF_LIFE_SAFETY event notifications, or use the FAULT_LIFE_SAFETY algorithm.

5.30.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.30.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

5.30.4 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to facilitate creation and deletion of life safety objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that all object types required by DS-LSAVM-A are claimed within DM-OCD-A.
	Testing Hints	

5.30.5 Supports AE-AVM-A

The IUT shall support AE-AVM-A in order to facilitate configuration of alarm parameters by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AVM-A.
	Testing Hints	

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5.31 Alarm and Event Management - Access Control - A

5.31.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.7 - Unsupported Message Text Character Set ConfirmedEventNotification Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.5.3 - Unsupported Message Text Character Set UnconfirmedEventNotification Test		
	Test Conditionality	If the IUT supports all character sets, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.31.2 Executes ConfirmedEventNotifications

The IUT is capable of executing ConfirmedEventNotifications with an Event Type of ACCESS_EVENT. This functionality will be covered by the testing of the individual algorithms.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT's EPICS claims that it supports the ConfirmedEventNotification service.
	Testing Hints	

5.31.3 Executes UnconfirmedEventNotifications

The IUT is capable of executing UnconfirmedEventNotifications with an Event Type of ACCESS_EVENT. There are currently no tests defined for this functional item.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT's EPICS claims that it supports the UnconfirmedEventNotification service.
	Testing Hints	

5.31.4 Processes Intrinsically Generated Notifications

The IUT is capable of executing ConfirmedEventNotifications with an Event Type of ACCESS_EVENT that reference an object type other than Event Enrollment.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Text Message, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Text Message, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Text Message		
	Test Conditionality	At least one of the tests must be executed with the Event Object Identifier referencing a BACnet object other than an Event Enrollment object.
	Test Directives	Execute using an event type of ACCESS_EVENT.
	Testing Hints	

5.31.5 Processes Algorithmically Generated Notifications

The IUT is capable of executing ConfirmedEventNotifications with an Event Type of ACCESS_EVENT that reference an Event Enrollment object.

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135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Text Message, 135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Text Message, or 135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Text Message		
	Test Conditionality	At least one of the tests must be executed with the Event Object Identifier referencing an Event Enrollment object.
	Test Directives	Execute using an event type of ACCESS_EVENT.
	Testing Hints	

5.31.6 Processes Event Notifications with Timestamps of the BACnetDateTime Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the BACnetDateTime form.

135.1-2019 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Text Message		
	Test Conditionality	Must be executed.
	Test Directives	Execute using an event type of ACCESS_EVENT.
	Testing Hints	

5.31.7 Processes Event Notifications with Timestamps of the Time Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the Time form.

135.1-2019 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Text Message		
	Test Conditionality	Must be executed.
	Test Directives	Execute using an event type of ACCESS_EVENT.
	Testing Hints	

5.31.8 Processes Event Notifications with Timestamps of the Sequence Number Form

The IUT is capable of executing ConfirmedEventNotifications that contain a timestamp of the Sequence Number form.

135.1-2019 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Text Message		
	Test Conditionality	Must be executed.
	Test Directives	Execute using an event type of ACCESS_EVENT.
	Testing Hints	

5.31.9 Supports AE-ACK-A

The IUT must support AE-ACK-A if it claims support for AE-AC-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-ACK-A in the Checklist.
	Testing Hints	
BTL - 8.1 - AcknowledgeAlarm Service Initiation Tests		
	Test Conditionality	Must be executed.
	Test Directives	Execute using an event type of ACCESS_EVENT.

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		Execute once to acknowledge a ConfirmedEventNotification, and again to acknowledge an UnconfirmedEventNotification.
	Testing Hints	

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5.32 Alarm and Event Management - Access Control - B

5.32.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT supports Access Point objects.
	Testing Hints	
135.1-2019 - 7.3.1.10.2 - Event_Enable Tests for TO_NORMAL only Algorithms		
	Test Conditionality	Must be executed.
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications.
	Testing Hints	
135.1-2019 - 7.3.1.12 - Notify_Type Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications.
	Testing Hints	
BTL - 7.3.1.22.1 - Event_Detection_Enable Inhibits Event Generation		
	Test Conditionality	If Protocol_Revision < 13, then this test shall be skipped.
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications.
	Testing Hints	
135.1-2019 - 7.3.1.22.2 - Event_Detection_Enable Inhibits FAULT		
	Test Conditionality	If Protocol_Revision < 13, then this test shall be skipped.
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications.
	Testing Hints	
BTL - 7.3.1.19.1 - Event_Algorithm_Inhibit Test		
	Test Conditionality	If the IUT has no object which generates ACCESS_EVENT notifications in which the Event_Algorithm_Inhibit property is present and does not support the Event_Algorithm_Inhibit_Ref property or where the Event_Algorithm_Inhibit_Ref property is not initialized, then this test shall be skipped..
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications.
	Testing Hints	
BTL - 7.3.1.20.1 - Event_Algorithm_Inhibit_Ref Test		
	Test Conditionality	If the IUT has no object which generates ACCESS_EVENT notifications in which the Event_Algorithm_Inhibit_Ref property is present, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.20.2 - Event_Algorithm_Inhibit Writable Test		
	Test Conditionality	If the IUT has no object which generates ACCESS_EVENT notifications in which the Event_Algorithm_Inhibit_Ref property is absent or can be made uninitialized, this test shall be skipped.
	Test Directives	
	Testing Hints	

5.32.2 Supports AE-INFO-B

The IUT must support AE-INFO-B if it claims support for AE-AC-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-INFO-B in the Checklist.

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	Testing Hints	

5.32.3 Supports the Notification Class Object

The IUT supports the Notification Class object in order to send notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Notification Class Object in the Checklist.
	Testing Hints	

5.32.4 Supports AE-ACK-B

The IUT supports AE-ACK-B in order to execute the AcknowledgeAlarm Service Service if the IUT is able to send event-notifications with service parameter AckRequired = True.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-ACK-B in the Checklist.
	Testing Hints	

5.32.5 Implements Intrinsic Alarming

The IUT contains, or can be made to contain, an Access Point object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications.

BTL - 8.4.X11 - ACCESS_EVENT Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed unless IUT only supports read-only Recipient_List properties and does not claim Notification Forwarder objects.
	Test Directives	Apply to an Access Point object.
	Testing Hints	
BTL - 8.5.X11 - ACCESS_EVENT Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Apply to an Access Point object.
	Testing Hints	

5.32.6 Supports the Event Enrollment Object

The IUT contains, or can be made to contain an Event Enrollment object that can generate ACCESS_EVENT notifications.

BTL - 8.4.X11 - ACCESS_EVENT Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed unless IUT only supports read-only Recipient_List properties and does not claim Notification Forwarder objects.
	Test Directives	Apply to an Event Enrollment object.
	Testing Hints	
BTL - 8.5.X11 - ACCESS_EVENT Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Apply to an Event Enrollment object.
	Testing Hints	

5.32.7 Generates Event Notifications with Timestamps of the BacnetDateTime Form

The IUT generates ACCESS_EVENT notifications with the Time Stamp parameter taking the BACnetDateTime form.

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BTL - 8.4.X11 - ACCESS_EVENT Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test with the IUT configured to generate ACCESS_EVENT notifications with timestamps of the BACnetDateTime form.
	Testing Hints	
BTL - 8.5.X11 - ACCESS_EVENT Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test with the IUT configured to generate ACCESS_EVENT notifications with timestamps of the BACnetDateTime form.
	Testing Hints	

5.32.8 Generates Event Notifications with Timestamps of the Time Form

The IUT generates ACCESS_EVENT notifications with the Time Stamp parameter taking the Time form.

BTL - 8.4.X11 - ACCESS_EVENT Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test with the IUT configured to generate ACCESS_EVENT notifications with timestamps of the Time form.
	Testing Hints	
BTL - 8.5.X11 - ACCESS_EVENT Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test with the IUT configured to generate ACCESS_EVENT notifications with timestamps of the Time form.
	Testing Hints	

5.32.9 Generates Event Notifications with Timestamps of the Sequence Number Form

The IUT generates ACCESS_EVENT notifications with the Time Stamp parameter taking the Sequence Number form.

BTL - 8.4.X11 - ACCESS_EVENT Test (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test with the IUT configured to generate ACCESS_EVENT notifications with timestamps of the Sequence Number form.
	Testing Hints	
BTL - 8.5.X11 - ACCESS_EVENT Test (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test with the IUT configured to generate ACCESS_EVENT notifications with timestamps of the Sequence Number form.
	Testing Hints	

5.32.10 Supports Event_Message_Texts Property

The IUT supports Access Point objects that support the Event_Message_Texts property.

BTL - 7.3.1.17 - Event_Message_Texts Tests		
	Test Conditionality	Must be executed.
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications that contains an Event_Message_Texts property.
	Testing Hints	

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5.32.11 Supports Event_Message_Texts_Config Property

The IUT supports Access Point objects that support the Event_Message_Texts_Config property.

135.1-2019 - 7.3.1.18 - Event_Message_Texts_Config Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply to an object which generates ACCESS_EVENT notifications. Repeat for each supported transition type (TO_OFFNORMAL, TO_FAULT, TO_NORMAL). Different objects may be selected for different transitions.
	Testing Hints	

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5.33 Alarm and Event Management - Access Control Advanced View Notifications - A

5.33.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.6 - ConfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for ACCESS_EVENT, and each of the transitions defined for that event type. Execute at least once with a Message_Text 256 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.2 - UnconfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for ACCESS_EVENT, and each of the transitions defined for that event type. Execute at least once with a Message_Text 256 or more characters in length.

5.33.2 Supports AE-AVN-A

The IUT must support AE-AVN-A in order to receive and display standard event notifications for most standard object types.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AVN-A in the Checklist.
	Testing Hints	

5.33.3 Supports AE-AC-A

The IUT must support AE-AC-A if it claims support for AE-ACAVN-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AC-A in the Checklist.
	Testing Hints	

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5.34 Alarm and Event Management - Access Control View and Modify - A

5.34.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if AE-ACAVM-A is not supported.
	Test Directives	
	Testing Hints	Repeat the test for each standard object capable of generating ACCESS_EVENT events, reading and displaying the pAccessEvents and pAccessEventTime properties.
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed if AE-ACAVM-A is not supported.
	Test Directives	
	Testing Hints	Repeat the test for each standard object capable of generating ACCESS_EVENT events, reading and displaying the pAccessEvents and pAccessEventTime properties.

5.34.2 Supports AE-VM-A

The IUT shall support AE-VM-A in order to facilitate configuration of alarm parameters by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-VM-A.
	Testing Hints	

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5.35 Alarm and Event Management - Access Control Advanced View and Modify - A

5.35.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for each standard event generating object type which can generate ACCESS_EVENT event notifications.
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for each standard event generating object type which can generate ACCESS_EVENT event notifications.

5.35.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.35.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

5.35.4 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to facilitate creation and deletion of life safety objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that all object types required by DS-ACAVM-A are claimed within DM-OCD-A.
	Testing Hints	

5.35.5 Supports AE-AVM-A

The IUT shall support AE-AVM-A in order to facilitate configuration of alarm parameters by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AVM-A.
	Testing Hints	

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5.36 Alarm and Event Management - Elevator View Notifications - A

5.36.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.5 - ConfirmedEventNotification Simple Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for FAULT_LISTED. Execute at least once with a Message_Text 32 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.1 - UnconfirmedEventNotification Simple Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for FAULT_LISTED. Execute at least once with a Message_Text 32 or more characters in length.
	Testing Hints	

5.36.2 Supports AE-N-A

The IUT shall support AE-N-A in order to receive and display event notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-N-A.
	Testing Hints	

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5.37 Alarm and Event Management - Elevator Advanced View Notifications - A

5.37.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.4.6 - ConfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for FAULT_LISTED. Execute at least once with a Message_Text 256 or more characters in length.
	Testing Hints	
135.1-2019 - 9.5.2 - UnconfirmedEventNotification Full Presentation		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for FAULT_LISTED. Execute at least once with a Message_Text 256 or more characters in length.
	Testing Hints	

5.37.2 Supports AE-AVN-A

The IUT shall support AE-AVN-A in order to receive and display event notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AVN-A.
	Testing Hints	

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5.38 Alarm and Event Management - Elevator View and Modify - A

5.38.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed if AE-EAVM-A is not supported.
	Test Directives	Repeat the test for each standard object type related to elevators capable of using the FAULT_LISTED algorithm, reading and displaying the pMonitoredList property.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed if AE-EAVM-A is not supported.
	Test Directives	Repeat the test for each standard object type related to elevators capable of using the FAULT_LISTED algorithm, reading and displaying the pMonitoredList property.
	Testing Hints	

5.38.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.38.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

5.38.4 Supports AE-VM-A

The IUT shall support AE-VM-A in order to facilitate configuration of alarm parameters by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-VM-A.
	Testing Hints	

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5.39 Alarm and Event Management - Elevator Advanced View and Modify - A

5.39.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each standard object type related to elevators capable of using the FAULT_LISTED algorithm, reading and displaying the pMonitoredList property.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each standard object type related to elevators capable of using the FAULT_LISTED algorithm, reading and displaying the pMonitoredList property.
	Testing Hints	

5.39.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

5.39.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

5.39.4 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to facilitate creation and deletion of elevator.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-OCD-A.
	Testing Hints	

5.39.5 Supports AE-AVM-A

The IUT shall support AE-AVM-A in order to facilitate configuration of alarm parameters by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for AE-AVM-A.
	Testing Hints	

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6 Scheduling BIBBs

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6.1 Scheduling - Advanced View Modify - A

6.1.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard object types, except Timer object for devices claiming Protocol_Revision 16 and below, and associated properties specified in Table K-20 in the 135 standard. The reference schedule used during this test should include an Exception_Schedule that contains 255 entries and contain 12 BACnetTimeValue tuples per entry. The reference schedule should also contain a Weekly_Schedule which contains 6 BACnetTimeValue tuples per day. The Calendar Date_List used in this test should contain 32 calendar entries.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for each of the standard object types, except Timer object for devices claiming Protocol_Revision 16 and below, and associated properties specified in Table K-20 in the 135 standard. The reference schedule used during this test should include an Exception_Schedule that contains 255 entries and contain 12 BACnetTimeValue tuples per entry. The reference schedule should also contain a Weekly_Schedule which contains 6 BACnetTimeValue tuples per day. The Calendar Date_List used in this test should contain 32 calendar entries.
	Testing Hints	
135.1-2019 - 13.10.6 - Modify a Self-inconsistent Schedule to be Consistent		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	The IUT is not required to present the self-inconsistent schedule, only that the IUT write out a consistent schedule after the modification. Ideally, the IUT should involve the user in the process of modifying the schedule to be consistent, presenting the full data of the schedule and allowing the user to edit the data to correct the inconsistencies. If the IUT modifies the schedule automatically to make it consistent, it should at least notify the user that the schedule has been modified. It is not acceptable for the IUT to modify the schedule without any indication to the user that this was done.
135.1-2019 - 13.10.7 - Change the Datatype that a Schedule Object Schedules		
	Test Conditionality	Must be executed.
	Test Directives	Change the datatype of the Schedule to each schedule datatype required by the BIBB, as well as any additional which are supported by the IUT.
	Testing Hints	
BTL - 13.10.X8 - Modify a Self-inconsistent Timer to be Consistent		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	
	Testing Hints	The IUT is not required to present the self-inconsistent timer, only that the IUT write out a consistent timer after the modification. Ideally, the IUT should involve the user in the process of modifying the timer to be consistent, presenting the full data of the timer and

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		allowing the user to edit the data to correct the inconsistencies. If the IUT modifies the timer automatically to make it consistent, it should at least notify the user that the timer has been modified. It is not acceptable for the IUT to modify the timer without any indication to the user that this was done.
BTL - 13.10.X9 - Change the Datatype that a Timer Object References		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Change the datatype of the Timer to each timer datatype required by the BIBB, as well as any additional which are supported by the IUT.
	Testing Hints	

6.1.2 Supports SCHED-VM-A

The IUT supports SCHED-VM-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB SCHED-VM-A.
	Testing Hints	

6.1.3 Supports DM-OCD-A

The IUT supports DM-OCD-A for the Timer, Calendar and Schedule objects.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that creation and deletion of Calendar and Schedule objects is claimed. If the IUT claims Protocol_Revision 17 or higher, verify that the creation and deletion of Timer objects is also claimed.
	Testing Hints	

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6.2 Scheduling - View Modify - A

6.2.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed unless the IUT also claims support for SCHED-AVM-A.
	Test Directives	Repeat the test for each of the standard object types, defined in the claimed Protocol_Revision, and associated properties specified by SCHED-VM-A. The reference schedule used during this test should include an Exception_Schedule that contains 255 entries and contain 12 BACnetTimeValue tuples per entry. The reference schedule should also contain a Weekly_Schedule which contains 6 BACnetTimeValue tuples per day. The Calendar Date_List used in this test should contain 32 calendar entries.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed unless the IUT also claims support for SCHED-AVM-A.
	Test Directives	Repeat the test for each of the standard object types, defined in the claimed Protocol_Revision, and associated properties specified by SCHED-VM-A. The reference schedule used during this test should include an Exception_Schedule that contains 255 entries and contain 12 BACnetTimeValue tuples per entry. The reference schedule should also contain a Weekly_Schedule which contains 6 BACnetTimeValue tuples per day. The Calendar Date_List used in this test should contain 32 calendar entries.
	Testing Hints	

6.2.2 Supports DS-RP-A

The IUT supports DS-RP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB DS-RP-A.
	Testing Hints	

6.2.3 Supports DS-WP-A

The IUT supports DS-WP-A

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB DS-WP-A.
	Testing Hints	

6.2.4 Is able to Schedule any B-Side Device regardless of the claimed Protocol_Revision in the B-side device

The IUT is able to schedule any server device that supports schedules regardless of the BACnet revision claimed by either device.

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135.1-2019 - 13.10 - Workstation Scheduling Tests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	A reference device with schedules supporting Protocol_Revision = 3 and a reference device with schedules supporting Protocol_Revision >= 4 should be used. Any of the tests in this section may be executed.

6.2.5 Is able to Present and Modify Schedules that do not include the Exception_Schedule Property

The IUT is able to present and modify a schedule object that does not include the Exception_Schedule property.

135.1-2019 - 13.10.2.2 - Modify a Weekly_Schedule by Changing the Value of a BACnetTimeValue		
	Test Conditionality	Must be executed.
	Test Directives	Schedule in the reference server (S2) shall not include the Exception_Schedule property.
	Testing Hints	Must be executed, but using reference schedule S2 which does not include the Exception_Schedule property.

6.2.6 Is able to Present and Modify a Calendar Object

135.1-2019 - 13.10.5.1 - Modify a Calendar Object by deleting a BACnetCalendarEntry from the Date_List		
	Test Conditionality	
	Test Directives	
	Testing Hints	
135.1-2019 - 13.10.5.2 - Modify a Calendar Object by adding a BACnetCalendarEntry of choice Date to the Date_List		
	Test Conditionality	
	Test Directives	
	Testing Hints	The tester should try different Date representations that leave one or more of each of the following fields unspecified: year, month, dayOfMonth, dayOfWeek. If the IUT supports devices with Protocol_Revision >= 4, the tester should test with the special values for month of 13 (all odd) and 14 (all even), and the special value of 32 (last day) for the dayOfMonth.
135.1-2019 - 13.10.5.3 - Modify a Calendar Object by adding a BACnetCalendarEntry of choice DateRange to the Date_List		
	Test Conditionality	
	Test Directives	
	Testing Hints	
BTL - 13.10.5.4 - Modify a Calendar by Adding a BACnetCalendarEntry of Choice WeekNDay to the Date_List		
	Test Conditionality	
	Test Directives	
	Testing Hints	The tester shall use different WeekNDay representations that leave one or more of each of the following fields unspecified: month, weekOfMonth, dayOfWeek. If the IUT supports devices with Protocol_Revision >= 4, the tester should run this test using the special values for month of 13 (all odd) and 14 (all even).

6.2.7 Is able to Present and Modify Schedules of Enumerated Type

The IUT can read, present and modify schedules that contain time value pairs of the type Enumerated.

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135.1-2019 - 13.10.1 - Read and Present a Weekly_Schedule		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.10.2.1 - Modify a Weekly_Schedule by Changing the Time of a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change the reference schedule by selecting several of the existing BACnetTimeValue pairs and modifying the time only.
135.1-2019 - 13.10.2.2 - Modify a Weekly_Schedule by Changing the Value of a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change the reference schedule by selecting several of the existing BACnetTimeValue pairs and modifying the value only. The tester should try Enumerated type as well as NULL data type values.
135.1-2019 - 13.10.2.3 - Modify a Weekly_Schedule by Deleting a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.10.2.4 - Modify a Weekly_Schedule by Adding a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add a BACnetTimeValue which contains a value of NULL, as well as other Enumerated values.
135.1-2019 - 13.10.3 - Read and Present a Complex Schedule		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.10.4.1 - Modify an Exception_Schedule by changing the time of a BACnetTimeValue in the listofTimeValues of a BACnetSpecialEvent with Period of Choice calendarEntry		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change an existing BACnetTimeValue pair in the reference schedule such that the time is different.
135.1-2019 - 13.10.4.2 - Modify an Exception_Schedule by changing the value of a BACnetTimeValue in the listofTimeValues of a BACnetSpecialEvent with period of choice calendarEntry		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change an existing BACnetTimeValue pair in the reference schedule such that the value is different.
135.1-2019 - 13.10.4.3 - Modify an Exception_Schedule by deleting a BACnetTimeValue from the listofTimeValues of a BACnetSpecialEvent with period of choice calendarEntry		

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	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to delete an existing BACnetTimeValue pair in the reference schedule.
135.1-2019 - 13.10.4.4 - Modify an Exception_Schedule by adding a BACnetTimeValue to the listOfTimeValues of a BACnetSpecialEvent with period of choice calendarEntry		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add a BACnetTimeValue pair to the reference schedule.
135.1-2019 - 13.10.4.5 - Modify an Exception_Schedule by changing the eventPriority of a BACnetSpecialEvent with period of choice calendarEntry		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change the eventPriority of an existing BACnetSpecialEvent in the reference schedule.
135.1-2019 - 13.10.4.6 - Modify an Exception_Schedule by deleting a BACnetSpecialEvent with period of choice calendarEntry		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to delete an entire BACnetSpecialEvent from the reference schedule.
135.1-2019 - 13.10.4.7 - Modify an Exception_Schedule by adding a BACnetSpecialEvent with period of choice calendarEntry of choice Date		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add an entire BACnetSpecialEvent of choice Date to the reference schedule.
135.1-2019 - 13.10.4.8 - Modify an Exception_Schedule by adding a BACnetSpecialEvent with period of choice calendarEntry of choice DateRange		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add an entire BACnetSpecialEvent of choice DateRange to the reference schedule.
BTL - 13.10.4.9 - Modify an Exception_Schedule by Adding a BACnetSpecialEvent with Period of Choice calendarEntry of Choice WeekNDay		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add an entire BACnetSpecialEvent of choice WeekNDay to the reference schedule.
135.1-2019 - 13.10.4.10 - Modify an Exception_Schedule by adding a BACnetSpecialEvent with period of choice calendarReference		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add an entire BACnetSpecialEvent of choice calendarReference to the reference schedule.

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135.1-2019 - 13.10.4.11 - Modify an Exception_Schedule by changing the time of a BACnetTimeValue in the listofTimeValues of a BACnetSpecialEvent with period of choice calendarReference		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change an existing BACnetTimeValue pair in the reference schedule such that the time is different.
135.1-2019 - 13.10.4.12 - Modify an Exception_Schedule by changing the value of a BACnetTimeValue in the listofTimeValues of a BACnetSpecialEvent with period of choice calendarReference		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change an existing BACnetTimeValue pair in the reference schedule such that the value is different.
135.1-2019 - 13.10.4.13 - Modify an Exception_Schedule by deleting a BACnetTimeValue from the listofTimeValues of a BACnetSpecialEvent with period of choice calendarReference		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to delete an existing BACnetTimeValue pair in the reference schedule.
135.1-2019 - 13.10.4.14 - Modify an Exception_Schedule by adding a BACnetTimeValue to the listofTimeValues of a BACnetSpecialEvent with period of choice calendarReference		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add a BACnetTimeValue pair to the reference schedule.
135.1-2019 - 13.10.4.15 - Modify an Exception_Schedule by deleting a BACnetSpecialEvent with period of choice calendarReference		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to delete an entire BACnetSpecialEvent from the reference schedule.

6.2.8 Is able to Present and Modify Schedules of REAL Type

The IUT can read, present and modify schedules that contain time value pairs of the type REAL.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type REAL.

6.2.9 Is able to Present and Modify Schedules of Unsigned32 Type

The IUT can read, present and modify schedules that contain time value pairs of the type Unsigned32.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Unsigned32.

6.2.10 Is able to Present and Modify Schedules of BOOLEAN Type

The IUT can read, present and modify schedules that contain time value pairs of the type BOOLEAN.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type BOOLEAN.

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6.2.11 Is able to Present and Modify Schedules of INTEGER (Signed) Type

The IUT can read, present and modify schedules that contain time value pairs of the type INTEGER.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type INTEGER.

6.2.12 Is able to Present and Modify Schedules of Double Type

The IUT can read, present and modify schedules that contain time value pairs of the type Double.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Double.

6.2.13 Is able to Present and Modify Schedules of Octet String Type

The IUT can read, present and modify schedules that contain time value pairs of the type Octet String.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Octet String.

6.2.14 Is able to Present and Modify Schedules of Character String Type

The IUT can read, present and modify schedules that contain time value pairs of the type Character String.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Character String.

6.2.15 Is able to Present and Modify Schedules of Bit String Type

The IUT can read, present and modify schedules that contain time value pairs of the type Bit String.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Bit String.

6.2.16 Is able to Present and Modify Schedules of Date Type

The IUT can read, present and modify schedules that contain time value pairs of the type Date.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Date.

6.2.17 Is able to Present and Modify Schedules of Time Type

The IUT can read, present and modify schedules that contain time value pairs of the type Time.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type Time.

6.2.18 Is able to Present and Modify Schedules of BACnetObjectIdentifier Type

The IUT can read, present and modify schedules that contain time value pairs of the type BACnetObjectIdentifier.

Execute all of the tests in section 6.2.7 above, but with the scheduled datatype changed to be type BACnetObjectIdentifier.

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6.3 Scheduling - Weekly Schedule - A

6.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Verify for Weekly_Schedule and Schedule_Default properties.
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Verify for Weekly_Schedule and Schedule_Default properties.

6.3.2 Supports DS-RP-A

The IUT supports DS-RP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB DS-RP-A.
	Testing Hints	

6.3.3 Supports DS-WP-A

The IUT supports DS-WP-A

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the BIBB DS-WP-A.
	Testing Hints	

6.3.4 Is able to Schedule any B-Side Device with a Protocol_Revision Less Than or Equal to its Own Protocol_Revision

The IUT is able to schedule any server device that supports schedules from the same or previous revisions of BACnet.

135.1-2019 - 13.10 - Workstation Scheduling Tests		
	Test Conditionality	Must be executed.
	Test Directives	At least one test from 13.10.1 or 13.10.2 shall be executed against a TD with Protocol_Revision 3.
	Testing Hints	

6.3.5 Is able to Present and Modify Weekly_Schedule of Enumerated Type

The IUT can read, present and modify schedules that contain time value pairs of the type Enumerated.

135.1-2019 - 13.10.1 - Read and Present a Weekly_Schedule		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.10.2.1 - Modify a Weekly_Schedule by Changing the Time of a BACnetTimeValue		

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	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change the reference schedule by selecting several of the existing BACnetTimeValue pairs and modifying the time only.
135.1-2019 - 13.10.2.2 - Modify a Weekly_Schedule by Changing the Value of a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to change the reference schedule by selecting several of the existing BACnetTimeValue pairs and modifying the value only. The tester should try Enumerated type as well as NULL data type values.
135.1-2019 - 13.10.2.3 - Modify a Weekly_Schedule by Deleting a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValues of type Enumerated.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.10.2.4 - Modify a Weekly_Schedule by Adding a BACnetTimeValue		
	Test Conditionality	The reference server schedule (S1) shall contain BACnetTimeValue of type Enumerated.
	Test Directives	
	Testing Hints	The tester should attempt to add a BACnetTimeValue which contains a value of NULL, as well as other Enumerated values.

6.3.6 Is able to Present and Modify Weekly_Schedule of REAL Type

The IUT can read, present and modify schedules that contain time value pairs of the type REAL.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type REAL.

6.3.7 Is able to Present and Modify Weekly_Schedule of BOOLEAN Type

The IUT can read, present and modify schedules that contain time value pairs of the type BOOLEAN.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type BOOLEAN.

6.3.8 Is able to Present and Modify Weekly_Schedule of Unsigned Type

The IUT can read, present and modify schedules that contain time value pairs of the type Unsigned.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Unsigned.

6.3.9 Is able to Present and Modify Weekly_Schedule of INTEGER (Signed) Type

The IUT can read, present and modify schedules that contain time value pairs of the type INTEGER.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type INTEGER.

6.3.10 Is able to Present and Modify Weekly_Schedule of Double Type

The IUT can read, present and modify schedules that contain time value pairs of the type Double.

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Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Double.

6.3.11 Is able to Present and Modify Weekly_Schedule of Octet String Type

The IUT can read, present and modify schedules that contain time value pairs of the type Octet String.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Octet String.

6.3.12 Is able to Present and Modify Weekly_Schedule of Character String Type

The IUT can read, present and modify schedules that contain time value pairs of the type Character String.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Character String.

6.3.13 Is able to Present and Modify Weekly_Schedule of Bit String Type

The IUT can read, present and modify schedules that contain time value pairs of the type Bit String.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Bit String.

6.3.14 Is able to Present and Modify Weekly_Schedule of Date Type

The IUT can read, present and modify schedules that contain time value pairs of the type Date.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Date.

6.3.15 Is able to Present and Modify Weekly_Schedule of Time Type

The IUT can read, present and modify schedules that contain time value pairs of the type Time.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type Time.

6.3.16 Is able to Present and Modify Weekly_Schedule of BACnetObjectIdentifier Type

The IUT can read, present and modify schedules that contain time value pairs of the type BACnetObjectIdentifier.

Execute all of the tests in section 6.3.5 above, but with the scheduled datatype changed to be type BACnetObjectIdentifier.

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6.4 Scheduling - Internal - B

6.4.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. (The BIBB requires, among other things, support for either TimeSynchronization-Request or UTCTimeSynchronization-Request execution; these are tested by the Device Management tests.)

135.1-2019 - 7.3.2.23.2 - Weekly_Schedule Property Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.2 - Revision 4 Weekly_Schedule Property Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.6 - Weekly_Schedule Restoration Test		
	Test Conditionality	The IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.8 - Event Priority Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.10.3.8 - Revision 4 Event Priority Test		
	Test Conditionality	If the IUT does not support enough exception schedule entries to execute this test, the test shall be skipped, otherwise the test shall be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.9 - List of BACnetTimeValue Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.9 - Revision 4 List of BACnetTimeValue Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.5 - Exception_Schedule Restoration Test		

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	Test Conditionality	The IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.2 - Calendar Entry Date Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.2 - Revision 4 Calendar Entry Date Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.3 - Calendar Entry DateRange Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.3 - Revision 4 Calendar Entry DateRange Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.4 - Calendar Entry WeekNDay Month Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.4 - Revision 4 Calendar Entry WeekNDay Month Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.5 - Calendar Entry WeekNDay Week Of Month Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.5 - Revision 4 Calendar Entry WeekNDay Week Of Month Test		

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	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.6 - Calendar Entry WeekNDay Last Week Of Month Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.10.3.6 - Revision 4 Calendar Entry WeekNDay Special Week Of Month Test		
	Test Conditionality	If the IUT is Protocol_Revision 4 or higher, must be executed.
	Test Directives	Tester shall use the special WeekOfMonth value of 6. If the IUT is Protocol_Revision 18 or higher, this test shall be run an additional 3 times. Once for each of the special WeekOfMonth values introduced in Protocol_Revision 18. [7,8,9]
	Testing Hints	
135.1-2019 - 7.3.2.23.3.7 - Calendar Entry WeekNDay Day Of Week Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.10.3.7 - Revision 4 Calendar Entry WeekNDay Day Of Week Test		
	Test Conditionality	If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.10 - Revision 4 Calendar Entry WeekNDay Odd-Numbered Month Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.11 - Revision 4 Calendar Entry WeekNDay Even-Numbered Month Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.12 - Revision 4 Lower Event Priority Change Test		
	Test Conditionality	If the IUT does not support enough exception schedule entries to execute this test, the test shall be skipped, otherwise the test shall be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.13 - Revision 4 Schedule_Default Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required

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		to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.12 - Revision 4 Midnight Evaluation Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.2.X1 - Date Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to BACnetCalendarEntry in the Exception_Schedule property in the BACnet Date form.
	Testing Hints	
BTL - 7.2.X5 - Time Non-Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to the time portion of BACnetTimeValues in the Exception_Schedule property, then apply to the time portion of BACnetTimeValues in the Weekly_Schedule property.
	Testing Hints	
BTL - 7.2.X7 - BACnetDateRange Non-Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to BACnetCalendarEntry in the Exception_Schedule property in the BACnetDateRange form.
	Testing Hints	
BTL - 7.2.X8 - BACnetDateRange Open-Ended Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to BACnetCalendarEntry in the Exception_Schedule property in the BACnetDateRange form.
	Testing Hints	
BTL - 9.23.2.X10 - Time Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the time portion of BACnetTimeValues in the Exception_Schedule property, then apply to the time portion of BACnetTimeValues in the Weekly_Schedule property.
	Testing Hints	
BTL - 9.23.2.X12 - BACnetDateRange Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to BACnetCalendarEntry in the Exception_Schedule property in the BACnetDateRange form.
	Testing Hints	
135.1-2019 - 7.3.2.23.13 - Forbid Duplicate Time Values		
	Test Conditionality	If Protocol_Revision < 16, then this test shall be skipped.

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	Test Directives	Apply to a writable Weekly_Schedule and then to an Exception_Schedule property of a schedule object
	Testing Hints	

6.4.2 Supports Concurrent Weekly and Exception Schedules

The IUT supports Schedule objects that support both Weekly and Exception Schedules concurrently, as is required for a BTL Listing.

135.1-2019 - 7.3.2.23.4 - Weekly_Schedule and Exception_Schedule Interaction Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.4 - Revision 4 Weekly_Schedule and Exception_Schedule Interaction Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	

6.4.3 Supports Reference to Calendar Object

The IUT supports Schedule objects that support references to Calendar objects, as required for a BTL listing.

135.1-2019 - 7.3.2.23.3.1 - Calendar Reference Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.1 - Revision 4 Calendar Reference Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	

6.4.4 Supports Configurable Effective_Period

The IUT supports the Effective_Period property and it is configurable.

135.1-2019 - 7.3.2.23.1 - Effective_Period Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.1 - Revision 4 Effective_Period Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required

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		to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.2.X7 - BACnetDateRange Non-Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to the Effective_Period property.
	Testing Hints	
BTL - 7.2.X8 - BACnetDateRange Open-Ended Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to the Effective_Period property.
	Testing Hints	
BTL - 9.23.2.X12 - BACnetDateRange Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Effective_Period property.
	Testing Hints	

6.4.5 Is Able to Schedule Values of Different Datatypes (not Simultaneously)

The IUT supports Schedule objects that are capable of being configured to schedule values of different datatypes. An example would be a Schedule object that was originally configured to write values of datatype REAL to an Analog Value object's Present_Value property, but is later reconfigured to write Enumerated values to a Binary Value object's Present_Value.

Such a reconfiguration involves changing the List_Of_Object_Property_References property to refer to properties of a specific datatype, and changing the 'value' members of the BACnetTimeValue pairs in the Weekly_Schedule and Exception_Schedule properties to have values in the same datatype as the properties referenced by the List_Of_Object_Property_References property.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	Select a single Schedule object that supports multiple datatypes, and run the test multiple times on that one Schedule object. Change the datatype by vendor described means, before running the test, and repeat for at least two different datatypes.
	Testing Hints	
135.1-2019 - 7.3.2.23.11.2 - Internally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed.
	Test Directives	Select a single Schedule object that supports multiple datatypes, and run the test multiple times on that one Schedule object. Change the datatype by vendor described means, before running the test, and repeat for at least two different datatypes.
	Testing Hints	

6.4.6 Supports Non-Empty List_Of_Object_Property_References Property

The IUT supports a non-empty List_Of_Object_Property_Reference property.

135.1-2019 - 7.3.2.23.7 - List_Of_Object_Property_Reference Internal Test

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	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.7 - Revision 4 List_Of_Object_Property_Reference Internal Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or later. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	

6.4.7 Is Able to Schedule NULL Values

The IUT supports a Schedule object that is able to schedule (write) NULL with a priority.

135.1-2019 - 7.3.2.23.11.2 - Internally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.8 Is Able to Schedule BOOLEAN Values

The IUT supports a Schedule object that is able to schedule (write) BOOLEAN values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.9 Is Able to Schedule Unsigned Values

The IUT supports a Schedule object that is able to schedule (write) Unsigned values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.10 Is Able to Schedule INTEGER (Signed) Values

The IUT supports a Schedule object that is able to schedule (write) INTEGER values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.11 Is Able to Schedule REAL Values

The IUT supports a Schedule object that is able to schedule (write) REAL values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	

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	Testing Hints	

6.4.12 Is Able to Schedule Double Values

The IUT supports a Schedule object that able to schedule (write) Double values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.13 Is Able to Schedule Octet String Values

The IUT supports a Schedule object that is able to schedule (write) Octet String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.14 Is Able to Schedule Character String Values

The IUT supports a Schedule object that is able to schedule (write) Character String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.15 Is Able to Schedule Bit String Values

The IUT supports a Schedule object that is able to schedule (write) Bit String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.16 Is Able to Schedule Enumerated Values

The IUT supports a Schedule object that is able to schedule (write) Enumerated values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.17 Is Able to Schedule Date Values

The IUT supports a Schedule object that is able to schedule (write) Date values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.18 Is Able to Schedule Time Values

The IUT supports a Schedule object that is able to write schedule (write) Time values.

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BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.19 Is Able to Schedule BACnetObjectIdentifier Values

The IUT supports a Schedule object that is able to schedule (write) BACnetObjectIdentifier values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.4.20 Supports DM-TS-B

The IUT supports DM-TS-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-TS-B.
	Testing Hints	

6.4.21 Supports DM-UTC-B

The IUT supports DM-UTC-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-UTC-B.
	Testing Hints	

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6.5 Scheduling - External - B

6.5.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

All SCHED-I-B tests must also be executed.

Base requirements must be met by any IUT claiming conformance to this BIBB. (The BIBB requires, among other things, support for either TimeSynchronization-Request or UTCTimeSynchronization-Request execution; these are tested by the Device Management tests. This BIBB also requires support for the SCHED-I-B BIBB.)

135.1-2019 - 7.3.2.23.8 - List_Of_Object_Property_Reference External Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.8 - Revision 4 List_Of_Object_Property_Reference External Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct Protocol_Revision, the IUT is required to be configurable such that this test can be run. This test may not be skipped.
	Test Directives	
	Testing Hints	

6.5.2 Supports DS-WP-A

The IUT supports DS-WP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

6.5.3 Supports SCHED-I-B

The IUT supports SCHED-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for SCHED-I-B.
	Testing Hints	

6.5.4 Supports Writable List_Of_Object_Property_References Property

The IUT supports a writable List_Of_Object_Property_Reference property.

Verify EPICS		
	Test Conditionality	
	Test Directives	Verify that the EPICS declares that this property is writable.
	Testing Hints	

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6.5.5 Is Able to Schedule NULL Values

The IUT supports a Schedule object that is able to schedule (write) NULL with a priority.

135.1-2019 - 7.3.2.23.11.4 - Externally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.6 Is Able to Schedule BOOLEAN Values

The IUT supports a Schedule object that is able to schedule (write) BOOLEAN values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.7 Is Able to Schedule Unsigned Values

The IUT supports a Schedule object that is able to schedule (write) Unsigned values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.8 Is Able to Schedule REAL Values

The IUT supports a Schedule object that is able to schedule (write) REAL values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.9 Is Able to Schedule Enumerated Values

The IUT supports a Schedule object that is able to schedule (write) Enumerated values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.10 Is Able to Schedule Values of Different Datatypes (Not Simultaneously)

The IUT supports Schedule objects that are capable of being configured to schedule values of different datatypes. An example would be a Schedule object that was originally configured to write values of datatype REAL to an Analog Value object's Present_Value property, but is later reconfigured to write Enumerated values to a Binary Value object's Present_Value.

Such a reconfiguration involves changing the List_Of_Object_Property_References property to refer to properties of a specific datatype, and changing the 'value' members of the BACnetTimeValue pairs in the Weekly_Schedule and Exception_Schedule properties to have values in the same datatype as the properties referenced by the List_Of_Object_Property_References property.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values

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	Test Conditionality	Must be executed.
	Test Directives	Select a single Schedule object that supports multiple datatypes, and run the test multiple times on that one Schedule object. Change the datatype by vendor described means, before running the test, and repeat for at least two different datatypes.
	Testing Hints	
135.1-2019 - 7.3.2.23.11.4 - Externally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed.
	Test Directives	Select a single Schedule object that supports multiple datatypes, and run the test multiple times on that one Schedule object. Change the datatype by vendor described means, before running the test, and repeat for at least two different datatypes.
	Testing Hints	

6.5.11 Is Able to Schedule INTEGER (Signed) Values

The IUT supports a Schedule object that is able to schedule (write) INTEGER values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.12 Is Able to Schedule Double Values

The IUT supports a Schedule object that able to schedule (write) Double values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.13 Is Able to Schedule Character String Values

The IUT supports a Schedule object that is able to schedule (write) Character String values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.14 Is Able to Schedule Bit String Values

The IUT supports a Schedule object that is able to schedule (write) Bit String values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.15 Is Able to Schedule Octet String Values

The IUT supports a Schedule object that is able to schedule (write) Octet String values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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6.5.16 Is Able to Schedule Date Values

The IUT supports a Schedule object that is able to schedule (write) Date values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.17 Is Able to Schedule Time Values

The IUT supports a Schedule object that is able to write schedule (write) Time values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

6.5.18 Is Able to Schedule BACnetObjectIdentifier Values

The IUT supports a Schedule object that is able to schedule (write) BACnetObjectIdentifier values.

135.1-2019 - 7.3.2.23.11.3 - Externally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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6.6 Scheduling - Weekly Schedule - Internal - B

6.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 7.3.2.23.2 - Weekly_Schedule Property Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.2 - Revision 4 Weekly_Schedule Property Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.6 - Weekly_Schedule Restoration Test		
	Test Conditionality	If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.7 - Revision 4 List_Of_Object_Property_Reference Internal Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher and if the object has or can be made to have a non-empty List_Of_Object_PropertyReference property. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.13 - Revision 4 Schedule_Default Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.12 - Revision 4 Midnight Evaluation Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the BIBB SCHED-I-B is not claimed in the checklist.
	Testing Hints	
135.1-2019 - 7.3.2.23.13 - Forbid Duplicate Time Values		
	Test Conditionality	If Protocol_Revision < 16, then this test shall be skipped.
	Test Directives	Apply to a writable Weekly_Schedule property of a schedule object
	Testing Hints	

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6.6.2 Supports Writable Priority_For_Writing

The Priority_For_Writing property in the schedule object shall be writable.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the Priority_For_Writing property is writable in the IUT.
	Testing Hints	

6.6.3 Contains No Object Where Exception_Schedule Property Is Present

The IUT must not contain the Exception_Schedule property

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT does not contain the Exception_Schedule property.
	Testing Hints	

6.6.4 Supports DM-TS-B

The IUT supports DM-TS-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-TS-B.
	Testing Hints	

6.6.5 Supports DM-UTC-B

The IUT supports DM-UTC-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-UTC-B.
	Testing Hints	

6.6.6 Supports Configurable Effective_Period

The IUT supports the Effective_Period property and it is configurable.

135.1-2019 - 7.3.2.23.1 - Effective_Period Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If the IUT is of the correct protocol revision and the vendor has selected this optional functionality, this test may not be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.1 - Revision 4 Effective_Period Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If the IUT is of the correct protocol revision and the vendor has selected this optional functionality, this test may not be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.2.X7 - BACnetDateRange Non-Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.

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	Test Directives	Apply to the Effective_Period property.
	Testing Hints	
BTL - 7.2.X8 - BACnetDateRange Open-Ended Pattern Properties Test		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher.
	Test Directives	Apply to the Effective_Period property.
	Testing Hints	
BTL - 9.23.2.X12 - BACnetDateRange Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Effective_Period property.
	Testing Hints	

6.6.7 Is Able to Schedule Values of Different Datatypes (not simultaneously)

The IUT supports Schedule objects that are capable of being configured to schedule values of different datatypes. An example would be a Schedule object that was originally configured to write values of datatype REAL to an Analog Value object's Present_Value property, but is later reconfigured to write Enumerated values to a Binary Value object's Present_Value.

Such a reconfiguration involves changing the List_Of_Object_Property_References property to refer to properties of a specific datatype, and changing the 'value' members of the BACnetTimeValue pairs in the Weekly_Schedule and Exception_Schedule properties to have values in the same datatype as the properties referenced by the List_Of_Object_Property_References property.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.11.2 - Internally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.8 Is Able to Schedule NULL Values

The IUT supports a Schedule object that is able to schedule (write) NULL with a priority.

135.1-2019 - 7.3.2.23.11.2 - Internally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.9 Is Able to Schedule BOOLEAN Values

The IUT supports a Schedule object that is able to schedule (write) BOOLEAN values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	

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	Testing Hints	

6.6.10 Is Able to Schedule Unsigned Values

The IUT supports a Schedule object that is able to schedule (write) Unsigned values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.11 Is Able to Schedule INTEGER (Signed) Values

The IUT supports a Schedule object that is able to schedule (write) INTEGER values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.12 Is Able to Schedule REAL Values

The IUT supports a Schedule object that is able to schedule (write) REAL values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.13 Is Able to Schedule Double Values

The IUT supports a Schedule object that able to schedule (write) Double values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.14 Is Able to Schedule Octet String Values

The IUT supports a Schedule object that is able to schedule (write) Octet String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.15 Is Able to Schedule Character String Values

The IUT supports a Schedule object that is able to schedule (write) Character String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.

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	Test Directives	
	Testing Hints	

6.6.16 Is Able to Schedule Bit String Values

The IUT supports a Schedule object that is able to schedule (write) Bit String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.17 Is Able to Schedule Enumerated Values

The IUT supports a Schedule object that is able to schedule (write) Enumerated values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.18 Is Able to Schedule Date Values

The IUT supports a Schedule object that is able to schedule (write) Date values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.19 Is Able to Schedule Time Values

The IUT supports a Schedule object that is able to write schedule (write) Time values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.6.20 Is Able to Schedule BACnetObjectIdentifier Values

The IUT supports a Schedule object that is able to schedule (write) BACnetObjectIdentifier values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

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6.7 Scheduling - Readonly - B

6.7.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 7.3.2.23.1 - Effective_Period Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.1 - Revision 4 Effective_Period Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.7 - List_Of_Object_Property_Reference Internal Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.7 - Revision 4 List_Of_Object_Property_Reference Internal Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.13 - Revision 4 Schedule_Default Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.12 - Revision 4 Midnight Evaluation Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT does not claim Weekly_Schedule or Exception_Schedule properties are writable in the EPICS.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the BIBB SCHED-I-B is not claimed in the checklist.
	Testing Hints	

6.7.2 Supports DM-TS-B

The IUT supports DM-TS-B.

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Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-TS-B.
	Testing Hints	

6.7.3 Supports DM-UTC-B

The IUT supports DM-UTC-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-UTC-B.
	Testing Hints	

6.7.4 Can Be Made to Contain a Schedule That Schedules BOOLEAN Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) BOOLEAN values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.5 Can Be Made to Contain a Schedule That Schedules Unsigned Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Unsigned values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.6 Can Be Made to Contain a Schedule that Schedules INTEGER (signed) Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) INTEGER (signed) values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.7 Can Be Made to Contain a Schedule that Schedules Real Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Real values.

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BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.8 Can Be Made to Contain a Schedule that Schedules Double Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Double values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.9 Can Be Made to Contain a Schedule that Schedules Octet String Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Octet String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.10 Can Be Made to Contain a Schedule That Schedules Character String Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Character String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.11 Can Be Made to Contain a Schedule That Schedules Bit String Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Bit String values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

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6.7.12 Can Be Made to Contain a Schedule That Schedules Enumerated Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Enumerated values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.13 Can Be Made to Contain a Schedule That Schedules Date Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Date values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.14 Can Be Made to Contain a Schedule That Schedules Time Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) Time values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.15 Can Be Made to Contain a Schedule That Schedules BACnetObjectIdentifier Values

The IUT can be configured to contain a Schedule object that is able to schedule (write) BACnetObjectIdentifer values.

BTL - 7.3.2.23.11.1 - Internally Written Datatypes Test, non-NULL values		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.16 Can Be Made to Contain a Non-empty Weekly_Schedule Property

The IUT can be configured to contain a Schedule object that has a non-empty Weekly_Schedule property.

135.1-2019 - 7.3.2.23.2 - Weekly_Schedule Property Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.2 - Revision 4 Weekly_Schedule Property Test		

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	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.6 - Weekly_Schedule Restoration Test		
	Test Conditionality	If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.17 Can Be Made to Contain a Non-empty Exception_Schedule

The IUT can be configured to contain a Schedule object that contains a non-empty Exception_Schedule property.

135.1-2019 - 7.3.2.23.3.9 - List of BACnetTimeValue Test		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.9 - Revision 4 List of BACnetTimeValue Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.5 - Exception_Schedule Restoration Test		
	Test Conditionality	If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.12 - Revision 4 Lower Event Priority Change Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.18 Can Be Made to Contain an Exception_Schedule Property with a Calendar Reference

The IUT can be configured to contain a Schedule object that has an Exception_Schedule that contains a calendar reference.

135.1-2019 - 7.3.2.23.3.1 - Calendar Reference Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.1 - Revision 4 Calendar Reference Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.

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	Test Directives	
	Testing Hints	

6.7.19 Can Be Made to Contain an Exception_Schedule Property with a WeekNDay

The IUT can be configured to contain a Schedule object that has an Exception_Schedule that contains a calendar entry that uses a WeekNDay.

135.1-2019 - 7.3.2.23.3.4 - Calendar Entry WeekNDay Month Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.4 - Revision 4 Calendar Entry WeekNDay Month Test		
	Test Conditionality	Must be executed (see clause **7.3.2.22.X.3**) if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.5 - Calendar Entry WeekNDay Week Of Month Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.5 - Revision 4 Calendar Entry WeekNDay Week Of Month Test		
	Test Conditionality	Must be executed (see clause **7.3.2.22.X.3**) if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.3.6 - Calendar Entry WeekNDay Last Week Of Month Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.10.3.6 - Revision 4 Calendar Entry WeekNDay Special Week Of Month Test		
	Test Conditionality	If the IUT is Protocol_Revision 4 or higher, must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	The tester shall select the special WeekOfMonth value of [6]. In addition, if the IUT supports Protocol_Revision 18 or higher, the tester shall select the special WeekOfMonth values of [7,8,9].
	Testing Hints	
135.1-2019 - 7.3.2.23.3.7 - Calendar Entry WeekNDay Day Of Week Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.10.3.7 - Revision 4 Calendar Entry WeekNDay Day Of Week Test		

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	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.10 - Revision 4 Calendar Entry WeekNDay Odd-Numbered Month Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.11 - Revision 4 Calendar Entry WeekNDay Even-Numbered Month Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.20 Can Be Made to Contain an Exception_Schedule Property with a DateRange

The IUT can be configured to contain a Schedule object that has an Exception_Schedule that contains a calendar entry that uses a DateRange.

135.1-2019 - 7.3.2.23.3.3 - Calendar Entry DateRange Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.3 - Revision 4 Calendar Entry DateRange Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.21 Can Be Made to Contain an Exception_Schedule Property with a Date

The IUT can be configured to contain a Schedule object that has an Exception_Schedule that contains a Calendar entry that uses a Date.

135.1-2019 - 7.3.2.23.3.2 - Calendar Entry Date Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.3.2 - Revision 4 Calendar Entry Date Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

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6.7.22 Can Be Made to Contain a Schedule That Schedules NULL Values

The IUT can be configured to contain a Schedule object that schedules NULL values.

135.1-2019 - 7.3.2.23.11.2 - Internally Written Datatypes Test, NULL values and Priority_Arrays		
	Test Conditionality	Must be executed. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.23 Can Be Made to Contain an Exception_Schedule Property with Two or More BACnetSpecialEvents Entries

The IUT can be configured to contain an Exception_Schedule that contains 2 or more BACnetSpecialEvent entries.

135.1-2019 - 7.3.2.23.3.8 - Event Priority Test		
	Test Conditionality	Must be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.23.10.3.8 - Revision 4 Event Priority Test		
	Test Conditionality	Must be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

6.7.24 Supports Concurrent Weekly and Exception Schedules

The IUT supports Schedule objects that support both Weekly and Exception Schedules concurrently.

135.1-2019 - 7.3.2.23.4 - Weekly_Schedule and Exception_Schedule Interaction Test		
	Test Conditionality	This test shall be executed if and only if the IUT is prior to protocol revision 4. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.23.10.4 - Revision 4 Weekly_Schedule and Exception_Schedule Interaction Test		
	Test Conditionality	This test shall be executed if and only if the IUT is protocol revision 4 or higher. If it is impossible to configure the IUT in the manner specified by this test, the test shall be omitted.
	Test Directives	
	Testing Hints	

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6.8 Scheduling - Schedule - A

6.8.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

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6.9 Scheduling - Timer - Internal - B

6.9.1 Base Requirements

There are no Base Requirements for this BIBB.

6.9.2 Supports Writable Priority_For_Writing Property

The IUT supports a writable Priority_For_Writing property in Timer objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Timer object option 'Supports Priority_For_Writing'.
	Testing Hints	

6.9.3 Supports Writable Default_Timeout Property

The IUT supports a writable Default_Timeout property in Timer objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Timer object option 'Supports Default_Timeout'.
	Testing Hints	

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6.10 Scheduling - Timer - External - B

6.10.1 Base Requirements

There are no Base Requirements for this BIBB.

6.10.2 Supports SCHED-TMR-I-B

The IUT supports SCHED-TMR-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for SCHED-TMR-I-B.
	Testing Hints	

6.10.3 Supports DS-WP-A

The IUT supports DS-WP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

6.10.4 Supports Writable List_Of_Object_Property_References Property

The IUT supports a writable List_Of_Object_Property_References property.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Timer object option 'Supports writable Priority_For_Writing and List_Of_Object_Property_References'
	Testing Hints	

6.10.5 Supports References to Objects in External Devices

The IUT supports a non-empty List_Of_Object_Property_References property which can contain references to objects in external devices.

BTL - 7.3.2.X63.1.9 - Timer supports writing an External Device		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with a Timer object that is capable of being configured to monitor a property in a device other than the IUT.
	Testing Hints	

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7 Trending BIBBs

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7.1 Trending - View - A

7.1.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

7.1.2 Initiates ReadRange

The IUT is able to initiate the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Initiates ReadRange in the Checklist.
	Testing Hints	

7.1.3 Interoperates with Trend Logs

The IUT can interoperate with Trend Log objects.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device containing a Trend Log object. Repeat the test for Real, INTEGER, BOOLEAN, Bit-String, Enumerated, and NULL datatypes.
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

7.1.4 Interoperates with Trend Log Multiple Objects

The IUT can interoperate with Trend Log Multiple objects in devices claiming Protocol_Revision 7 or higher.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device containing a Trend Log Multiple object claiming Protocol_Revision 7 or higher. Execute test against Trend Log Multiple that contains all required datatypes (Boolean, Real, Enumerated, Unsigned32, Integer32, Bit String, and NULL).
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.

7.1.5 Supports Reading Items by Time with a Positive Count

The IUT can initiate one or more ReadRange requests that specify the Time form and a Positive 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log

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		object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Time form of the ReadRange service, with a Positive 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

7.1.6 Supports Reading Items by Time with a Negative Count

The IUT can initiate one or more ReadRange requests that specify the Time form and a Negative 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Time form of the ReadRange service, with a Negative 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

7.1.7 Supports Reading Items by Position with a Positive Count

The IUT can initiate one or more ReadRange requests that specify the Position form and a Positive 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Position form of the ReadRange service, with a Positive 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

7.1.8 Supports Reading Items by Position with a Negative Count

The IUT can initiate one or more ReadRange requests that specify the Position form and a Negative 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.

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	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Position form of the ReadRange service, with a Negative 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

7.1.9 Supports Reading Items by Sequence Number with a Positive Count

The IUT can initiate one or more ReadRange requests that specify the Sequence Number form and a Positive 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Sequence Number form of the ReadRange service, with a Positive 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

7.1.10 Supports Reading Items by Sequence Number with a Negative Count

The IUT can initiate one or more ReadRange requests that specify the Sequence Number form and a Negative 'Count' that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.
	Testing Hints	The 'Range' value in Steps 2 and 4 must include at least one occurrence of the Sequence Number form of the ReadRange service, with a Negative 'Count'. The IUT shall be capable of presenting any portion of records selected by the tester. The set of records in this test shall contain at least one log-status entry.

7.1.11 Supports Reading Items with no Range

The IUT can initiate one or more ReadRange requests that specify no range that access a tester-specified portion of log records.

135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher for Trend Logs and Protocol_Revision 7 or higher for Trend Log Multiple. Perform the test on the Trend Log

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		object and repeat on Trend Log Multiple object if Protocol_Revision 7 or higher is supported.
	Testing Hints	The 'Range' value in Steps 2 and 4 specify no range The set of records in this test shall contain at least one log-status entry.

7.1.12 Is able to present Double datatypes in trend logging objects

The IUT can present optional datatypes.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
	Test Directives	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher. For Protocol_Revision 3 or higher, perform the test using Double datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a Double datatype.
	Testing Hints	

7.1.13 Is able to present Octet String datatypes in trend logging objects

The IUT can present optional datatypes.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
	Test Directives	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher. For Protocol_Revision 3 or higher, perform the test using Octet String datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a Octet String datatype.
	Testing Hints	

7.1.14 Is able to present Character String datatypes in trend logging objects

The IUT can present optional datatypes.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
	Test Directives	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher. For Protocol_Revision 3 or higher, perform the test using Character String datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a Character String datatype.
	Testing Hints	

7.1.15 Is able to present Date datatypes in trend logging objects

The IUT can present optional datatypes.

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BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
	Test Directives	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher. For Protocol_Revision 3 or higher, perform the test using Date datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a Date datatype.
	Testing Hints	

7.1.16 Is able to present Time datatypes in trend logging objects

The IUT can present optional datatypes.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
	Test Directives	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher. For Protocol_Revision 3 or higher, perform the test using Time datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a Time datatype.
	Testing Hints	

7.1.17 Is able to present BACnetObjectIdentifier datatypes in trend logging objects

The IUT can present optional datatypes.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
	Test Directives	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher. For Protocol_Revision 3 or higher, perform the test using BACnet Object Identifier datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a BACnet Object Identifier datatype.
	Testing Hints	

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7.2 Trending - Advanced View and Modify - A

7.2.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.21.9 - Presents Log Records		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher. Repeat the test for BOOLEAN, Real, Enumerated, Unsigned32, Integer23, Bit String, and Null datatypes
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object are standard properties that should accept a written NULL.
135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	Repeat the test for a Trend Log, Trend Log Multiple, Event Enrollment, and Notification Class object. Repeat the test for each of the properties listed in the table in the BIBB definition.
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test for a Trend Log, Trend Log Multiple, Event Enrollment, and Notification Class object. Repeat the test for each of the properties listed in the table in the BIBB definition. Repeat the test for a variety of values that cover the range of values required by the BIBB.

7.2.2 Supports T-V-A

The IUT shall support T-V-A in order to display Trend Log and Trend Log Multiple objects to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-V-A.
	Testing Hints	

7.2.3 Supports DS-RP-A

The IUT shall support DS-RP-A in order to display Trend Log, Trend Log Multiple, Event Enrollment, and Notification Class property values to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

7.2.4 Supports DS-WP-A

The IUT shall support DS-WP-A in order to configure Trend Log, Trend Log Multiple, Event Enrollment, and NotificationClass property values modified by the user.

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Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

7.2.5 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to create Trend Log, Trend Log Multiple, Event Enrollment, and Notification Class objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that it claims the ability to create and delete Trend Log, Trend Log Multiple, Event Enrollment, and Notification Class objects.
	Testing Hints	

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7.3 Trending - Viewing and Modifying Trends - Internal - B

7.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.21.1.1 - Reading All Items in the List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.1 - Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.6.1 - Stop_When_Full TRUE Test		
	Test Conditionality	Only applicable if the Stop_When_Full property is configurable or equal to TRUE.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.6.2 - Stop_When_Full FALSE Test		
	Test Conditionality	Only applicable if the Stop_When_Full property is configurable or equal to FALSE.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.7 - Buffer_Size Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.8 - Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.9 - Total_Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.13 - Log-Status Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.14 - Time_Change Test		
	Test Conditionality	If the Device does not support Local_Time property this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.X10 - Buffer_Size Write Test		
	Test Conditionality	If a write to the Buffer_Size does not delete all records in the log, this test shall be skipped.
	Test Directives	
	Testing Hints	

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7.3.2 Supports all forms of ReadRange

The IUT can accept any of the ReadRange options and respond appropriately.

BTL - 9.21.1.2 - Reading Items by Position with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.3 - Reading Items by Position with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.4 - Reading Items by Time		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.7 - Reading a Range of Items that do not Exist (by Sequence)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.8 - Reading a Range of Items that do not Exist (by Time)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.13 - Reading Items with Negative Count and MOREITEMS		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.X6 - Reading a Range of Items that do not Exist (by Position)		
	Test Conditionality	If IUT claims Protocol_Revision less than 18, then this test shall be skipped.
	Test Directives	Repeat the test for 'Reference Index' = 0, 'Reference Index' > Buffer_Size and 'Reference Index' between Record_Count and Buffer_Size.
	Testing Hints	

7.3.3 Executes ReadRange

The IUT is able to execute the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.

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	Test Directives	Verify that the IUT claims support Executes ReadRange in the Checklist.
	Testing Hints	

7.3.4 Supports Periodic Logging (Polling)

The IUT can be made to gather trend data at a rate specified by the Log_Interval property.

BTL - 7.3.2.24.4 - Log_Interval Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.3.5 Supports COV Logging of Local Properties

The IUT can be made to gather trend data based change of value of the local property.

BTL - 7.3.2.24.15 - COV-Sampling Verification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.3.6 Supports Triggered Logging

The IUT can be made to gather trend data using the Trigger property.

BTL - 7.3.2.24.19 - Trigger Verification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.3.7 Supports Start_Time and Stop_Time Properties

The IUT can be made to start and stop logging using these properties.

These properties are required to be present and writable in trend log objects that are trending a BACnet property.

135.1-2019 - 7.3.2.24.2 - Start_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.3 - Stop_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.2.X6 - DateTime Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Start_Time and again to the Stop_Time properties in a Trend Log object.
	Testing Hints	
BTL - 9.23.2.X11 - DateTime Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Start_Time and again to the Stop_Time properties in a Trend Log object.
	Testing Hints	

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7.3.8 Supports Clock-aligned Logging

The IUT can be made to gather trend data with clock-aligned Timestamps.

BTL - 7.3.2.24.X8 - Clock-Aligned Logging		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.X9 - Logging Interval_Offset		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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7.4 Trending - Viewing and Modifying Trends - External - B

7.4.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

This BIBB requires support of T-VMT-I-B, DS-RP-A.

This BIBB requires that the Log_DeviceObjectProperty and Log_Interval properties must be present and writable.

Verify Checklist		
	Test Conditionality	Must be executed
	Test Directives	Verify that the IUT claims support for T-VMT-I-B in the Checklist.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed
	Test Directives	Verify that the IUT claims support for DS-RP-A in the Checklist.
	Testing Hints	
BTL - 7.3.2.24.X1 - Status/Failure Logging		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Tester may want to try other error conditions.
135.1-2019 - 7.3.2.24.16 - Interval Gathering of External Trends Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.4.2 Is Able to Trend REAL Values

The IUT can be made to trend REAL type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of REAL. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.3 Is Able to Trend Unsigned Values

The IUT can be made to trend Unsigned type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of UNSIGNED. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.4 Is Able to Trend INTEGER (Signed) Values

The IUT can be made to trend Integer type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of INTEGER.

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		Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.5 Is Able to Trend BOOLEAN Values

The IUT can be made to trend BOOLEAN type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of BOOLEAN. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.6 Is Able to Trend Bit String Values

The IUT can be made to trend Bit String type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Bit String. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.7 Is Able to Trend Enumerated Values

The IUT can be made to trend Enumerated type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Enumerated. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.8 Is Able to Trend NULL Values

The IUT can be made to trend any type property that may change to a value of NULL.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of NULL value. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	The best way to do this is to trend an entry in a priority array. Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object, are standard properties that should accept a written NULL.

7.4.9 Is Able to Trend Double Values

The IUT can be made to trend Double type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Double.

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		Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.10 Is Able to Trend Character String Values

The IUT can be made to trend Character String type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Character String. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.11 Is Able to Trend Octet String Values

The IUT can be made to trend Octet String type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Octet String. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.12 Is Able to Trend Date Values

The IUT can be made to trend Date type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Date. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.13 Is Able to Trend Time Values

The IUT can be made to trend Time type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of Time. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

7.4.14 Is Able to Trend BACnetObjectIdentifier Values

The IUT can be made to trend BACneObjectIdentifier type properties.

135.1-2019 - 9.21.1 - Positive ReadRange Service Execution Tests		
	Test Conditionality	Must be executed.
	Test Directives	Configure the log object referencing a property of BACnetObjectIdentifier. Apply one of the following tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.1, 9.21.1.9 and 9.21.1.10
	Testing Hints	

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7.4.15 Supports COV Logging of Remote Property Values

The IUT can be made to use COV logging.

Requires that COV_Resubscription_Interval be present.

BTL - 7.3.1.7.X1 - COV_Resubscription_Interval Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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7.5 Trending - Automated Trend Retrieval - A

7.5.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.21.6 - Reading a Range of Items Using Any Valid Range in Response to ConfirmedEventNotifications of the Buffer_Ready Event Type		
	Test Conditionality	Must be executed
	Test Directives	Repeat the test for each form of the 'Time Stamp' parameter - BACnetDateTime, Time, and Sequence Number. For each test, the values in Steps 2 and 7 shall take the appropriate form.
	Testing Hints	

7.5.2 Initiates ReadRange

The IUT is able to initiate the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Initiates ReadRange in the Checklist.
	Testing Hints	

7.5.3 Processes BUFFER_READY Event Notifications from Devices Claiming Protocol_Revision 3 or Higher

The IUT can process BUFFER_READY event notifications from devices claiming Protocol_Revision 3 or higher.

No Specific Test		
	Test Conditionality	
	Test Directives	This functionality will be verified by the other tests in this section.
	Testing Hints	

7.5.4 Processes ConfirmedEventNotification of BUFFER_READY Events

The IUT can process ConfirmedEventNotification messages indicating an 'Event Type' of Buffer_Ready, and respond with a series of ReadRange requests that access records from the Trend Log referenced in the notifications.

135.1-2019 - 8.21.6 - Reading a Range of Items Using Any Valid Range in Response to ConfirmedEventNotifications of the Buffer_Ready Event Type		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher.
	Testing Hints	

7.5.5 Processes UnconfirmedEventNotification of BUFFER_READY Events

The IUT can process UnconfirmedEventNotification messages indicating an 'Event Type' of Buffer_Ready, and respond with a series of ReadRange requests that access records from the Trend Log referenced in the notifications.

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135.1-2019 - 8.21.7 - Reading a Range of Items Using Any Valid Range in Response to UnconfirmedEventNotifications of the Buffer_Ready Event Type		
	Test Conditionality	Must be executed
	Test Directives	This test shall be executed with a reference server device claiming Protocol Revision 3 or higher.
	Testing Hints	

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7.6 Trending - Automated Trend Retrieval - B

7.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

7.6.2 Supports T-VMT-I-B

The IUT supports T-VMT-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-VMT-I-B in the Checklist.
	Testing Hints	

7.6.3 Supports the Notification Class Object

The IUT supports the Notification Class Object in order to send Buffer_Ready notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Notification Class Object in the Checklist.
	Testing Hints	

7.6.4 Implements Intrinsic Alarming

The IUT contains, or can be made to contain, a Trend Log object that can generate BUFFER_READY notifications.

Each Trend Log object must include all of the Trend Log properties required for intrinsic reporting, i.e. Notification_Threshold, Records_Since_Notification, Last_Notify_Record, Notification_Class, Event_Enable, Acked_Transitions, Notify_Type, & Event_Time_Stamps.

135.1-2019 - 7.3.1.10.2 - Event_Enable Tests for TO_NORMAL only Algorithms		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.12 - Notify_Type Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.10 - Notification_Threshold Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.17 - Last_Notify_Record Test		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.18 - Records_Since_Notification Test		

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	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.4.7 - BUFFER_READY Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be a Trend Log object contained in the IUT.
	Testing Hints	
135.1-2019 - 8.5.7 - BUFFER_READY Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be a Trend Log object contained in the IUT.
	Testing Hints	

7.6.5 Implements Algorithmic Alarming

The IUT contains, or can be made to contain an Event Enrollment object that can generate a Buffer_Ready ConfirmedEventNotification.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Event Enrollment object in the checklist.
	Testing Hints	
135.1-2019 - 8.4.7 - BUFFER_READY Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be an Event Enrollment object contained in the IUT.
	Testing Hints	
135.1-2019 - 8.5.7 - BUFFER_READY Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be an Event Enrollment object contained in the IUT.
	Testing Hints	

7.6.6 Generates Event Notifications with Timestamps of the BACnetDateTime Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the BACnetDateTime form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the BACnetDateTime form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the BACnetDateTime form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

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7.6.7 Generates Event Notifications with Timestamps of the Time Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the Time form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Time form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Time form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

7.6.8 Generates Event Notifications with Timestamps of the Sequence Number Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the Sequence Number form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Sequence Number form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Sequence Number form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

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7.7 Trending - Viewing and Modifying Multiple Values - Internal - B

7.7.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.21.1.1 - Reading All Items in the List		
	Test Conditionality	Must be executed.
	Test Directives	This test shall be executed with a reference server device claiming Protocol_Revision 3 or higher.
	Testing Hints	
135.1-2019 - 7.3.2.24.1 - Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	The test must be repeated using all supported logging types.
	Testing Hints	
BTL - 7.3.2.24.6.1 - Stop_When_Full TRUE Test		
	Test Conditionality	Only applicable if this property is writable.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.6.2 - Stop_When_Full FALSE Test		
	Test Conditionality	Only applicable if this property is writable.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.7 - Buffer_Size Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.8 - Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.9 - Total_Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.13 - Log-Status Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.14 - Time_Change Test		
	Test Conditionality	If the Device does not support Local_Time property this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.X10 - Buffer_Size Write Test		
	Test Conditionality	If a write to the Buffer_Size does not delete all records in the log, this test shall be skipped.
	Test Directives	
	Testing Hints	

7.7.2 Supports all forms of ReadRange

The IUT can accept any of the ReadRange options and respond appropriately.

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BTL - 9.21.1.2 - Reading Items by Position with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.3 - Reading Items by Position with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.4 - Reading Items by Time		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.7 - Reading a Range of Items that do not Exist (by Sequence)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.8 - Reading a Range of Items that do not Exist (by Time)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.2.X6 - Reading a Range of Items that do not Exist (by Position)		
	Test Conditionality	If IUT claims Protocol_Revision less than 18, then this test shall be skipped.
	Test Directives	Repeat the test for 'Reference Index' = 0, 'Reference Index' > Buffer_Size and 'Reference Index' between Record_Count and Buffer_Size.
	Testing Hints	

7.7.3 Executes ReadRange

The IUT is able to execute the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Executes ReadRange in the Checklist.
	Testing Hints	

7.7.4 Supports Periodic Logging (Polling)

The IUT can be made to gather trend data at a rate specified by the Log_Interval property.

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BTL - 7.3.2.24.4 - Log_Interval Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.7.5 Supports Triggered Logging

The IUT can be made to gather trend data using the Trigger property.

BTL - 7.3.2.24.19 - Trigger Verification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.7.6 Supports Clock-aligned Logging

The IUT can be made to gather trend data with clock-aligned Timestamps.

BTL - 7.3.2.24.X8 - Clock-Aligned Logging		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.X9 - Logging Interval_Offset		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.7.7 Supports Start_Time and Stop_Time Properties

The IUT can be made to start and stop logging using these properties.

If present these properties are required to be writable.

135.1-2019 - 7.3.2.24.2 - Start_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.3 - Stop_Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.2.X6 - DateTime Non-Pattern Properties Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 11 or greater.
	Test Directives	Apply to the Start_Time and again to the Stop_Time properties in a Trend Log object.
	Testing Hints	
BTL - 9.23.2.X11 - DateTime Non-Pattern Properties Test using WritePropertyMultiple Service		
	Test Conditionality	This test shall only be applied to devices claiming Protocol_Revision 11 or higher and which supports execution of WritePropertyMultiple.
	Test Directives	Apply to the Start_Time and again to the Stop_Time properties in a Trend Log object.
	Testing Hints	

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7.7.8 Is Able to Trend REAL Datatypes

The IUT is able to trend REAL data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or 135.1-2019 - 9.21.1.4 - Reading Items by Time, or BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain REAL data types. The TLM object may contain other data types as well.
	Testing Hints	

7.7.9 Is Able to Trend Unsigned Datatypes

The IUT is able to trend Unsigned data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or 135.1-2019 - 9.21.1.4 - Reading Items by Time, or BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain Unsigned data types. The TLM object may contain other data types as well.
	Testing Hints	

7.7.10 Is Able to Trend INTEGER Datatypes

The IUT is able to trend INTEGER data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or 135.1-2019 - 9.21.1.4 - Reading Items by Time, or BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain INTEGER data types. The TLM object may contain other data types as well.
	Testing Hints	

7.7.11 Is Able to Trend BOOLEAN Datatypes

The IUT is able to trend BOOLEAN data type in a Trend Log Multiple Object.

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BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain BOOLEAN data types. The TLM object may contain other data types as well.
	Testing Hints	

7.7.12 Is Able to Trend Bit String Datatypes

The IUT is able to trend Bit String data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain Bit String data types. The TLM object may contain other data types as well.
	Testing Hints	

7.7.13 Is Able to Trend Enumerated Datatypes

The IUT is able to trend Enumerated data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain Enumerated data types. The TLM object may contain other data types as well.
	Testing Hints	

7.7.14 Is Able to Trend NULL Datatypes

The IUT is able to trend NULL data type in a Trend Log Multiple Object.

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BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain NULL data types. The TLM object may contain other data types as well.
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object, are standard properties that should accept a written NULL.

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7.8 Trending - Viewing and Modifying Multiple Values - External - B

7.8.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

This BIBB requires support of T-VMMV-I-B, DS-RPM-A.

This BIBB requires that the Log_DeviceObjectProperty and Log_Interval properties must be present and writable.

Verify Checklist		
	Test Conditionality	Must be executed
	Test Directives	Verify that the IUT claims support for DS-RPM-A in the Checklist.
	Testing Hints	
BTL - 7.3.2.24.X1 - Status/Failure Logging		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Tester may want to try other error conditions.
135.1-2019 - 7.3.2.24.16 - Interval Gathering of External Trends Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

7.8.2 Supports T-VMMV-I-B

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-VMMV-I-B.
	Testing Hints	

7.8.3 Is Able to Trend REAL Datatypes

The IUT is able to trend REAL data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain REAL data types. The TLM object may contain other data types as well.
	Testing Hints	

7.8.4 Is Able to Trend Unsigned Datatypes

The IUT is able to trend Unsigned data type in a Trend Log Multiple Object.

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BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain Unsigned data types. The TLM object may contain other data types as well.
	Testing Hints	

7.8.5 Is Able to Trend INTEGER Datatypes

The IUT is able to trend INTEGER data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain INTEGER data types. The TLM object may contain other data types as well.
	Testing Hints	

7.8.6 Is Able to Trend BOOLEAN Datatypes

The IUT is able to trend BOOLEAN data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain BOOLEAN data types. The TLM object may contain other data types as well.
	Testing Hints	

7.8.7 Is Able to Trend Bit String Datatypes

The IUT is able to trend Bit String data type in a Trend Log Multiple Object.

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BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain Bit String data types. The TLM object may contain other data types as well.
	Testing Hints	

7.8.8 Is Able to Trend Enumerated Datatypes

The IUT is able to trend Enumerated data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain Bit String data types. The TLM object may contain other data types as well.
	Testing Hints	

7.8.9 Is Able to Trend NULL Datatypes

The IUT is able to trend NULL data type in a Trend Log Multiple Object.

BTL - 9.21.1.1 - Reading All Items in the List, or **BTL - 9.21.1.2 - Reading Items by Position with Positive Count, or** **BTL - 9.21.1.3 - Reading Items by Position with Negative Count, or** **135.1-2019 - 9.21.1.4 - Reading Items by Time, or** **BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count, or** **BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count, or** **BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count.**		
	Test Conditionality	At least one of the tests listed above shall be run.
	Test Directives	As per test description. The Trend Log Multiple object used for this test shall contain NULL data types. The TLM object may contain other data types as well.
	Testing Hints	Schedule_Default and Present_Value of the Schedule Object, Alarm_Values and Fault_Values of the CharacterString Value Object and Low_Diff_Limit in the Loop Object, are standard properties that should accept a written NULL.

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7.9 Trending - Automated Multiple Value Retrieval - A

7.9.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.21.6 - Reading a Range of Items Using Any Valid Range in Response to ConfirmedEventNotifications of the Buffer_Ready Event Type		
	Test Conditionality	Must be executed
	Test Directives	Repeat the test for each form of the 'Time Stamp' parameter - BACnetDateTime, Time, and Sequence Number. For each test, the values in Steps 2 and 7 shall take the appropriate form.
	Testing Hints	

7.9.2 Initiates ReadRange

The IUT is able to initiate the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Initiates ReadRange in the Checklist.
	Testing Hints	

7.9.3 Processes ConfirmedEventNotification of BUFFER_READY Events

The IUT can process ConfirmedEventNotification messages indicating an 'Event Type' of Buffer_Ready, and respond with a series of ReadRange requests that access records from the Trend Log Multiple referenced in the notifications.

135.1-2019 - 8.21.6 - Reading a Range of Items Using Any Valid Range in Response to ConfirmedEventNotifications of the Buffer_Ready Event Type		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

7.9.4 Processes UnconfirmedEventNotification of BUFFER_READY Events

The IUT can process UnconfirmedEventNotification messages indicating an 'Event Type' of Buffer_Ready, and respond with a series of ReadRange requests that access records from the Trend Log Multiple referenced in the notifications.

135.1-2019 - 8.21.7 - Reading a Range of Items Using Any Valid Range in Response to UnconfirmedEventNotifications of the Buffer_Ready Event Type		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

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7.10 Trending - Automated Multiple Value Retrieval - B

7.10.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

7.10.2 Supports T-VMMV-I-B

The IUT supports T-VMMV-I-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-VMMV-I-B in the Checklist.
	Testing Hints	

7.10.3 Supports the Notification Class Object

The IUT supports the Notification Class Object in order to send Buffer_Ready notifications.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Notification Class Object in the Checklist.
	Testing Hints	

7.10.4 Implements Intrinsic Alarming

The IUT contains, or can be made to contain, a Trend Log Multiple object that can generate BUFFER_READY notifications.

Each Trend Log Multiple object must include all of the properties required for intrinsic reporting, i.e. Notification_Threshold, Records_Since_Notification, Last_Notify_Record, Notification_Class, Event_Enable, Acked_Transitions, Notify_Type, & Event_Time_Stamps.

135.1-2019 - 7.3.1.10.2 - Event_Enable Tests for TO_NORMAL only Algorithms		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.1.12 - Notify_Type Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.10 - Notification_Threshold Test		
	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.17 - Last_Notify_Record Test		
	Test Conditionality	If the IUT cannot be configured to meet the configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.18 - Records_Since_Notification Test		

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	Test Conditionality	If the IUT cannot be configured to meet the 135.1-2019 configuration requirements then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.4.7 - BUFFER_READY Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be a Trend Log Multiple object contained in the IUT.
	Testing Hints	
135.1-2019 - 8.5.7 - BUFFER_READY Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be a Trend Log Multiple object contained in the IUT.
	Testing Hints	

7.10.5 Implements Algorithmic Alarming

The IUT contains, or can be made to contain an Event Enrollment object that can generate a Buffer_Ready ConfirmedEventNotification.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for the Event Enrollment object in the checklist.
	Testing Hints	
135.1-2019 - 8.4.7 - BUFFER_READY Tests (ConfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be an Event Enrollment object contained in the IUT.
	Testing Hints	
135.1-2019 - 8.5.7 - BUFFER_READY Tests (UnconfirmedEventNotification)		
	Test Conditionality	Must be executed.
	Test Directives	The 'Event Object Identifier' in this test must be an Event Enrollment object contained in the IUT.
	Testing Hints	

7.10.6 Generates Event Notifications with Timestamps of the BACnetDateTime Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the BACnetDateTime form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the BACnetDateTime form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the BACnetDateTime form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

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7.10.7 Generates Event Notifications with Timestamps of the Time Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the Time form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Time form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Time form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

7.10.8 Generates Event Notifications with Timestamps of the Sequence Number Form

The IUT generates, or can be made to generate, ConfirmedEventNotifications with the Time Stamp parameter taking the Sequence Number form.

135.1-2019 - 8.4 - ConfirmedEventNotification Service Initiation Tests		
	Test Conditionality	If the IUT supports AE-N-I-B, these tests may be skipped. Any of the 8.4 tests can be used to ensure that the IUT properly generates ConfirmedEventNotification requests using the Sequence Number form. The specific tests that can be executed are detailed under the test cases for the specific algorithms. As long as one of the tests is executed using ConfirmedEventNotifications and the notification that is generated contains a timestamp of the Sequence Number form, then this test case shall be satisfied.
	Test Directives	
	Testing Hints	

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7.11 Trending - Archival - A

7.11.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

Verify Non-Volatile Storage and Retrieval		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT store trend data in a non-volatile method and the data can be retrieved electronically.
	Testing Hints	

7.11.2 Supports T-ATR-A

The IUT supports T-ATR-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-ATR-A in the Checklist.
	Testing Hints	

7.11.3 Supports T-AMVR-A

The IUT supports T-AMVR-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for T-AMVR-A in the Checklist.
	Testing Hints	

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7.12 Trending - Viewing and Modifying Trends - A

7.12.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives **Testing Hints**	Verify that the IUT claims support for T-V-A in the Checklist

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7.13 Trending - Viewing and Modifying Multiple Values - A

7.13.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives **Testing Hints**	Verify that the IUT claims support for T-V-A in the Checklist

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8 Device Management BIBBs

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8.1 Device Management - Dynamic Device Binding - A

8.1.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.1.2 Initiates Who-Is Service Request with Range Parameters

The BTL requires support for initiating Who-Is service requests with range parameters, even though SSPC 135 does not. This is because the use of Who-Is service requests with no range parameters can cause I-Am "broadcast storms", which can adversely affect network performance.

The IUT can initiate a Who-Is Service Request with device instance range parameters.

BTL - 8.34.2 - Who-Is Request with a Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.1.3 Initiates Unicast Who-Is Service Request with no Range Parameters

The IUT can initiate a unicast Who-Is Service Request with no device instance range parameters.

135.1-2019 - 8.34.3 - Who-Is Request with no Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.1.4 Initiates Broadcast Who-Is Service Request with no Range Parameters

The IUT can initiate a directed or global broadcast Who-Is Service Request with no device instance range parameters.

135.1-2019 - 8.34.1 - Who-Is Request with no Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.2 Device Management - Dynamic Device Binding - B

8.2.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.33.1.1 - Local Broadcast, General Inquiry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.33.1.2 - Global Broadcast, General Inquiry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.33.1.3 - Local Broadcast, Specific Device Inquiry with IUT Outside of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.33.1.4 - Local Broadcast, Specific Device Inquiry with IUT Device Instance Equal to Low Limit of Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.33.1.5 - Local Broadcast, Specific Device Inquiry with IUT Device Instance Equal to High Limit of Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.33.1.6 - Local Broadcast, Specific Device Inquiry with IUT Inside of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.33.2.1 - General Inquiry, Global Broadcast from a Remote Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.33.2.2 - General Inquiry, Remote Broadcast		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.33.2.3 - General Inquiry, Directed to a Remote Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.3 Device Management - Dynamic Object Binding - A

8.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.3.2 Initiates Who-Has Service Request with Object Identifier Parameter and no Range Parameters

The IUT can initiate a Who-Has service request with an ObjectID and No Range Parameters.

BTL - 8.32.1 - Object Identifier Selection with no Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.3.3 Initiates Who-Has Service Request with Object Identifier Parameter with Range Parameters

The IUT can initiate a Who-Has service request with an ObjectID and Range Parameters.

BTL - 8.32.3 - Object Identifier Selection with a Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.3.4 Initiates Who-Has Service Request with Object Name Parameter and no Range Parameters

The IUT can initiate a Who-Has service request with an Object Name and No Range Parameters.

BTL - 8.32.2 - Object Name Selection with no Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.3.5 Initiates Who-Has Service Request with Object Name Parameter with Range Parameters

The IUT can initiate a Who-Has service request with an Object Name and Range Parameters.

BTL - 8.32.4 - Object Name Selection with a Device Instance Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.4 Device Management - Dynamic Object Binding - B

8.4.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.32.1.1 - Object ID Version with No Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.2 - Object Name Version with no Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.3 - Object ID Version with IUT Inside of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.4 - Object ID Version with IUT Outside of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.5 - Object Name Version with IUT Inside of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.32.1.6 - Object Name Version with IUT Outside of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.7 - Object ID Version with IUT Device Instance Equal to the High Limit of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.8 - Object ID Version with IUT Device Instance Equal to the Low Limit of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.9 - Object Name Version with IUT Device Instance Equal to the High Limit of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.10 - Object Name Version with IUT Device Instance Equal to the Low Limit of the Device Range		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.11 - Object Name Version, Directed to a Specific MAC Address		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 9.32.2.1 - Object ID Version, Global Broadcast from a Remote Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.2.2 - Object ID Version, Remote Broadcast		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.12 - Who-Has After Object_Name Changed		
	Test Conditionality	If the IUT contains an object whose Object_Name can be changed, then this test shall be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.1.13 - Who-Has After Object_Identifier Changed		
	Test Conditionality	If the IUT contains an object whose Object_Identifier can be changed, then this test shall be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.2.X3 - Who-Has for Non-existent Object_Name		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.32.2.X5 - Who-Has for Non-existent Object_Identifier		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.5 Device Management - Automatic Device Mapping - A

8.5.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 13.7 - Automatic Device Mapping		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	4 types of reference servers to test against are: • S1 supports ReadProperty, supports segmentation, and contains an Object_List property that can be returned in a segmented APDU. • S2 supports ReadProperty, does not support segmentation, and contains an Object_List property that cannot be returned in a single APDU. • S3 supports ReadProperty and ReadPropertyMultiple, supports segmentation, and contains an Object_List property that can be returned in a segmented APDU. • S4 supports ReadProperty and ReadPropertyMultiple, does not support segmentation, and contains an Object_List property that cannot be returned in a single APDU. The server device shall be configured to contain a collection of standard and proprietary objects. Server supports segmentation but contains an object-list that cannot be returned in the number of segments supported by the server or client. Configuring reference servers with MaxAPDUs that do not match the underlying datalink size may provide more test benefit.

8.5.2 Supports DS-RP-A

The IUT supports DS-RP-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A in the checklist.
	Testing Hints	

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8.6 Device Management - Automatic Network Mapping - A

8.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 13.6 - Automatic Network Mapping		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.6.2 Supports DM-DDB-A

The IUT supports DM-DDB-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-DDB-A in the checklist.
	Testing Hints	

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8.7 Device Management - Time Synchronization - A

8.7.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.30 - TimeSynchronization Service Initiation Tests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.7.2 Supports DM-UTC-A

The IUT supports DM-UTC-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-UTC-A in the Checklist.
	Testing Hints	

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8.8 Device Management - Time Synchronization - B

8.8.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.30.1.1 - TimeSynchronization Local Broadcast		
	Test Conditionality	Must be executed.
	Test Directives	Ensure to test with the following date values: Feb 28, Feb 29, Mar 1 Dec 31, Jan 1 of the following year 28-Feb-2100 if IUT supports Dates in the year 2100
	Testing Hints	
BTL - 9.30.1.2 - TimeSynchronization Directed to the IUT		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.9 Device Management - UTC Time Synchronization - A

8.9.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.31 - UTCTimeSynchronization Service Initiation Tests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.9.2 Supports DM-TS-A

The IUT supports DM-TS-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-TS-A in the Checklist.
	Testing Hints	

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8.10 Device Management - UTC Time Synchronization - B

8.10.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.31.1.1 - Local Broadcast		
	Test Conditionality	Must be executed.
	Test Directives	Values tested in the UTCTimeSynchronization-Request should include at least one which, in combination with the UTC_Offset, shall cause the result to cross midnight so that the resulting date is different from the date in the UTCTimeSynchronization-Request. Ensure to test with the following date values: Feb 28, Feb 29, Mar 1 Dec 31, Jan 1 of the following year 28-Feb-2100 if IUT supports Dates in the year 2100
	Testing Hints	
135.1-2019 - 9.31.1.2 - Directed to the IUT		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.11 Device Management - Automatic Time Synchronization - A

8.11.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 13.2.1 - TimeSynchronization Recipients Test, Protocol_Revision < 7		
	Test Conditionality	If Protocol_Revision >= 7, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.2.2 - TimeSynchronization Recipients Test, Protocol_Revision >= 7		
	Test Conditionality	If Protocol_Revision < 7, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.2.3 - UTCTimeSynchronization Recipients Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.2.4 - TimeSynchronization Interval Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.2.5 - UTCTimeSynchronization Interval Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.2.6 - Align_Intervals and Interval_Offset TimeSynchronization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.2.7 - Align_Intervals and Interval_Offset UTCTimeSynchronization Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.12 Device Management - Manual Time Synchronization - A

8.12.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.30 - TimeSynchronization Service Initiation Tests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.31 - UTCTimeSynchronization Service Initiation Tests		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.13 Device Management - Device Communication Control - A

8.13.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.13.2 Supports Sending a DeviceCommunicationControl Service Request with an Arbitrary Password

The IUT is capable of initiating a DeviceCommunicationControl service request with an arbitrary password. The IUT must allow the user to specify the password. The IUT must not modify the password in any way, such as forcing the password to uppercase or to lowercase.

BTL - 8.24.3 - Time Duration, Disable, Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.24.4 - Enable, Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.13.3 Supports Sending a DeviceCommunicationControl Service Request with a Finite Timeout

The IUT is capable of initiating DeviceCommunicationControl service requests with finite Timeout parameter values.

BTL - 8.24.3 - Time Duration, Disable, Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.13.4 Supports DM-RD-A

The IUT supports DM-RD-A.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-RD-A in the Checklist.
	Testing Hints	

8.13.5 Supports Sending a DeviceCommunicationControl Service Request with no Password

The IUT is capable of initiating a DeviceCommunicationControl service request with no password parameter.

BTL - 8.24.6 - Time Duration, Disable, No Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.24.5 - Enable, No Password		
	Test Conditionality	Must be executed.
	Test Directives	

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	Testing Hints	

8.13.6 Supports Sending a DeviceCommunicationControl Service Request with an Infinite Timeout

The IUT is capable of initiating a DeviceCommunicationControl service request with an infinite timeout.

BTL - 8.24.2 - Indefinite Duration, Disable, Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.14 Device Management - Device Communication Control - B

8.14.1 Base Requirements

BTL - 9.24.1.11 - Ensure that DISABLE option is not supported by IUT claiming PR >= 20		
	Test Conditionality	If the IUT claims Protocol_Revision < 20, this test shall be skipped.
	Test Directives	If the IUT does not support an internal clock this test shall be tested with indefinite time duration.
	Testing Hints	

8.14.2 Supports Receiving a DeviceCommunicationControl Service Request with a Password

The IUT requires, or can be made to require, a valid password parameter in a DeviceCommunicationControl service request.

BTL - 9.24.2.1 - Invalid Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.24.2.2 - Missing Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.14.3 Supports Receiving a DeviceCommunicationControl Service Request with no Password

The IUT does not require, or can be made to not require, a password parameter in a DeviceCommunicationControl service request.

135.1-2019 - 9.24.1.8 - Finite Time Duration, Disable Initiation		
	Test Conditionality	If the IUT does not support an internal clock this test shall be skipped
	Test Directives	The service request shall not contain a password.
	Testing Hints	
135.1-2019 - 9.24.1.6 - Indefinite Time Duration, Disable-Initiation, Restored by DeviceCommunicationControl		
	Test Conditionality	If the IUT does not support indefinite time duration, this test shall be skipped.
	Test Directives	The service request shall not contain a password.
	Testing Hints	

8.14.4 Supports Receiving a DeviceCommunicationControl Service Request with a Finite Duration

The IUT will accept, or can be made to accept, a DeviceCommunicationControl Service request with a Time Duration parameter.

135.1-2019 - 9.24.1.3 - Finite Time Duration		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.24.1.4 - Finite Time Duration Restored by DeviceCommunicationControl		

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	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.24.1.8 - Finite Time Duration, Disable Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.14.5 Supports Receiving a DeviceCommunicationControl Service Request with an Indefinite Duration

The IUT will accept, or can be made to accept, a DeviceCommunicationControl Service request with no Time Duration parameter.

135.1-2019 - 9.24.1.1 - Indefinite Time Duration Restored by DeviceCommunicationControl		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.24.1.6 - Indefinite Time Duration, Disable-Initiation, Restored by DeviceCommunicationControl		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.14.6 Supports DM-RD-B

The IUT also supports the DM-RD-B BIBB.

135.1-2019 - 9.24.1.2 - Indefinite Time Duration Restored by ReinitializeDevice		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped. If the IUT does not support indefinite Time Duration, this test may be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.24.1.5 - Finite Time Duration Restored by ReinitializeDevice		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped. If the IUT does not support an internal clock, this test may be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.24.1.7 - Indefinite Time Duration, Disable-Initiation, Restored by ReinitializeDevice		
	Test Conditionality	If the IUT does not support indefinite Time Duration, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.24.1.12 - Disable of Service Initiation Restored by ReinitializeDevice		
	Test Conditionality	If the IUT does not support an internal clock, this test shall be skipped. If the IUT does not initate any services other than an I-Am in response to a who-Is, then this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.24.2.3 - Restore by ReinitializeDevice with Invalid 'Reinitialized State of Device'		
	Test Conditionality	If the IUT claims Protocol_Revision >= 20, this test shall be skipped.
	Test Directives	If the IUT does not support an internal clock this test shall be tested with indefinite time duration.

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	Testing Hints	

8.14.7 Supports Receiving a DeviceCommunicationControl Service Request Specifying DISABLE_INITIATION

The IUT will accept the value of DISABLE_INITIATION in the enable-disable parameter of the service request.

135.1-2019 - 9.24.1.9 - Disable of Service Initiation Restored by Time Duration		
	Test Conditionality	If the IUT cannot be made to initiate any service, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.24.1.10 - Disable of Service Initiation Restored by DeviceCommunicationControl		
	Test Conditionality	If the IUT cannot be made to initiate any service, this test shall be skipped.
	Test Directives	
	Testing Hints	

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8.15 Device Management - Reinitialize Device - A

8.15.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

8.15.2 Supports Sending a ReinitializeDevice Service request with an Arbitrary Password

The IUT is capable of initiating a ReinitializeDevice request that contains a password.

BTL - 8.27.2 - COLDSTART with a Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.27.4 - WARMSTART with a Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.15.3 Supports Sending a ReinitializeDevice Service Request with No Password

The IUT is capable of initiating a ReinitializeDevice request that does not contain a password. This functionality is optional because servers that do not require passwords are obliged to ignore any password that is provided in a request. Therefore interoperability is not hampered if a client is unable to leave out the password parameter from the service.

135.1-2019 - 8.27.1 - COLDSTART with no Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.27.3 - WARMSTART with no Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.16 Device Management - Reinitialize Device - B

8.16.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 9.27.2.X Rejects Unsupported Reinitialize Types		
	Test Conditionality	If the IUT supports all values for the 'Reinitialized State of Device' parameters, this test shall be skipped.
	Test Directives	If the device does not support DM-BR-B, then all values related to Backup and Restore shall be tested. If the device does not support activation of Network Port changes, ACTIVATE_CHANGES shall be tested.
	Testing Hints	

8.16.2 Implements ReinitializeDevice WARMSTART with a Password

The IUT can deny, or can be made to deny, a ReinitializeDevice WARMSTART service request that does not contain a valid password.

135.1-2019 - 9.27.1.4 - WARMSTART with a Correct Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.27.2.4 - WARMSTART with Missing or Invalid Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.16.3 Implements ReinitializeDevice WARMSTART with no Password

The IUT accepts, or can be made to accept, a ReinitializeDevice WARMSTART service request that does not contain a valid password.

135.1-2019 - 9.27.1.3 - WARMSTART with no Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.16.4 Implements ReinitializeDevice COLDSTART with a Password

The IUT can deny, or can be made to deny, a ReinitializeDevice COLDSTART service request that does not contain a valid password.

135.1-2019 - 9.27.1.2 - COLDSTART with a Correct Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.27.2.3 - COLDSTART with Missing or Invalid Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.16.5Implements ReinitializeDevice COLDSTART with no Password

The IUT accepts, or can be made to accept, a ReinitializeDevice COLDSTART service request that does not contain a valid password.

135.1-2019 - 9.27.1.1 - COLDSTART with no Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.17 Device Management - Backup and Restore - A

8.17.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 13.8.2.1 - Initiate a Full Backup and Restore		
	Test Conditionality	This test should be repeated in order to cover all of the TD characteristics listed in the definition of the test.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.8.2.2 - Can Abort Backup if Error Received from TD		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 13.8.2.3 - Can Abort Restore if Error Received from TD		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.17.2 Supports User Initiated Abort Backup

The IUT supports a user initiated abort of the backup procedure.

135.1-2019 - 13.8.2.4 - Initiate an Abort Backup		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.17.3 Supports User Initiated Abort Restore

The IUT supports the user initiating an abort of the restore procedure.

135.1-2019 - 13.8.2.5 - Initiate an Abort Restore		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.18 Device Management - Backup and Restore - B

8.18.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 13.8.1.1 - Execution of Full Backup and Restore Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.8.1.2 - Attempting a Backup Procedure While Already Performing a Backup Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.8.1.3 - Attempting a Backup Procedure While Already Performing a Restore Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.8.1.4 - Attempting a Restore Procedure While Already Performing a Backup Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.8.1.5 - Attempting a Restore Procedure While Already Performing a Restore Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.8.1.6 - Ending Backup and Restore Procedures via Timeout		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.8.1.7 - Ending Backup and Restore Procedures via Abort		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.18.2 Supports Password Protected Backup

The IUT denies, or can be made to deny, a ReinitializeDevice <STARTBACKUP > service request that does not contain a valid password.

BTL - 13.8.1.8 - Attempting a Backup Procedure with an Invalid Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.18.3 Supports Non-Password Protected Backup

The IUT does not require, or can be made to not require, a password for a ReinitializeDevice <STARTBACKUP> service request.

BTL - 13.8.1.10 - Starting and Ending a Backup Procedure when a Password is not Required		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.18.4 Supports Password Protected Restore

The IUT denies, or can be made to deny, a ReinitializeDevice <STARTRESTORE > service request that does not contain a valid password.

BTL - 13.8.1.9 - Attempting a Restore Procedure with an Invalid Password		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.18.5 Supports Non-Password Protected Restore

The IUT does not require, or can be made to not require, a password for a ReinitializeDevice <STARTRESTORE> service request.

BTL - 13.8.1.11 - Starting and Ending a Restore Procedure when a Password is not Required		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.18.6 Changes Operational Behavior during a Backup Procedure

The IUT changes its operational behavior during a Backup Procedure.

BTL - 13.8.1.12 - System_Status during a Backup Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.18.7 Changes Operational Behavior during a Restore Procedure

The IUT changes its operational behavior during a Restore Procedure.

BTL - 13.8.1.13 - System_Status during a Restore Procedure		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.19 Device Management - Restart - A

8.19.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 9.3.1 - Device Restart Notifications		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test with unicast and broadcast notifications.

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8.20 Device Management - Restart - B

8.20.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 8.3.10 - Device Restart Notifications		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Repeat the test with unicast and broadcast recipients. Repeat the test with each of the restart methods that the device supports and which can be performed at will (warm start, cold start, power cycle, power lost, etc).

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8.21 Device Management - Object Creation and Deletion - A

8.21.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.21.2 Can Create Objects using Object_Identifier with No Initial Values

The IUT can create the specified object using Object_Identifier and no initial values

No Specific Test		
	Test Conditionality	
	Test Directives	
	Testing Hints	This functionality will be tested under the specific object section below.

8.21.3 Can Create Objects using Object_Type with no Initial Values

The IUT can create the specified object using Object_Type and no initial values.

135.1-2019 - 8.16.2 - Creating Objects by Specifying the Object Type with no Initial Values		
	Test Conditionality	
	Test Directives	The tester should execute this test using one of the object types claimed by the vendor in this section.
	Testing Hints	None

8.21.4 Can Create Objects by Object_Identifier with Initial Values which Includes Object_Name

The IUT can create objects by specifying the Object_Name and 0 or more additional object properties as initial values.

135.1-2019 - 8.16.3 - Creating Objects by Specifying the Object Identifier and Providing Initial Values		
	Test Conditionality	Must be Executed.
	Test Directives	
	Testing Hints	Object_Name has to be included in the list of initial values.

8.21.5 Can Create Objects by Object_Type with Initial Values which Includes Object_Name

The IUT can create objects by specifying the Object_Name and 0 or more additional object properties as initial values.

135.1-2019 - 8.16.4 - Creating Objects by Specifying the Object Type and Providing Initial Values		
	Test Conditionality	Must be Executed.
	Test Directives	
	Testing Hints	Object_Name has to be included in the list of initial values.

8.21.6 Can Create and Delete Accumulator Objects

The IUT can create and delete Accumulator objects. The IUT shall not restrict the instance number which can be used to create the Accumulator object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Accumulator Object

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	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Accumulator Object
	Test Directives	
	Testing Hints	

8.21.7 Can Create and Delete Analog Input Objects

The IUT can create and delete Analog Input objects. The IUT shall not restrict the instance number which can be used to create the Analog Input object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Analog Input Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Analog Input Object
	Test Directives	
	Testing Hints	

8.21.8 Can Create and Delete Analog Output Objects

The IUT can create and delete Analog Output objects. The IUT shall not restrict the instance number which can be used to create the Analog Output object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Analog Output Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Analog Output Object
	Test Directives	
	Testing Hints	

8.21.9 Can Create and Delete Analog Value Objects

The IUT can create and delete Analog Value objects. The IUT shall not restrict the instance number which can be used to create the Analog Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Analog Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Analog Value Object
	Test Directives	
	Testing Hints	

8.21.10 Can Create and Delete Averaging Objects

The IUT can create and delete Averaging objects. The IUT shall not restrict the instance number which can be used to create the Averaging object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Averaging Object
	Test Directives	

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	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Averaging Object
	Test Directives	
	Testing Hints	

8.21.11 Can Create and Delete Binary Input Objects

The IUT can create and delete Binary Input objects. The IUT shall not restrict the instance number which can be used to create the Binary Input object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Binary Input Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Binary Input Object
	Test Directives	
	Testing Hints	

8.21.12 Can Create and Delete Binary Output Objects

The IUT can create and delete Binary Output objects. The IUT shall not restrict the instance number which can be used to create the Binary Output object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Binary Output Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Binary Output Object
	Test Directives	
	Testing Hints	

8.21.13 Can Create and Delete Binary Value Objects

The IUT can create and delete Binary Value objects. The IUT shall not restrict the instance number which can be used to create the Binary Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Binary Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Binary Value Object
	Test Directives	
	Testing Hints	

8.21.14 Can Create and Delete Calendar Objects

The IUT can create and delete Calendar objects. The IUT shall not restrict the instance number which can be used to create the Calendar object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Calendar Object
	Test Directives	
	Testing Hints	

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135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Calendar Object
	Test Directives	
	Testing Hints	

8.21.15 Can Create and Delete Command Objects

The IUT can create and delete Command objects. The IUT shall not restrict the instance number which can be used to create the Command object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Command Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Command Object
	Test Directives	
	Testing Hints	

8.21.16 Can Create and Delete Event Enrollment Objects

The IUT can create and delete Event Enrollment objects. The IUT shall not restrict the instance number which can be used to create the Event Enrollment object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Event Enrollment Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Event Enrollment Object
	Test Directives	
	Testing Hints	

8.21.17 Can Create and Delete File Objects

The IUT can create and delete File objects. The IUT shall not restrict the instance number which can be used to create the File object. This option shall not be selected if the only way the IUT can create File objects is upon the initiation of the device restore procedure.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the File Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the File Object
	Test Directives	
	Testing Hints	

8.21.18 Can Create and Delete Group Objects

The IUT can create and delete Group objects. The IUT shall not restrict the instance number which can be used to create the Group object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Group Object
	Test Directives	
	Testing Hints	

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135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Group Object
	Test Directives	
	Testing Hints	

8.21.19 Can Create and Delete Life Safety Point Objects

The IUT can create and delete Life Safety Point objects. The IUT shall not restrict the instance number which can be used to create the Life Safety Point object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Life Safety Point Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Life Safety Point Object
	Test Directives	
	Testing Hints	

8.21.20 Can Create and Delete Life Safety Zone Objects

The IUT can create and delete Life Safety Zone objects. The IUT shall not restrict the instance number which can be used to create the Life Safety Zone object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Life Safety Zone Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Life Safety Zone Object
	Test Directives	
	Testing Hints	

8.21.21 Can Create and Delete Loop Objects

The IUT can create and delete Loop objects. The IUT shall not restrict the instance number which can be used to create the Loop object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Loop Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Loop Object
	Test Directives	
	Testing Hints	

8.21.22 Can Create and Delete Multi State Input Objects

The IUT can create and delete Multi State Input objects. The IUT shall not restrict the instance number which can be used to create the Multi State Input object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Multi State Input Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		

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	Test Conditionality	Must be tested on the Multi State Input Object
	Test Directives	
	Testing Hints	

8.21.23 Can Create and Delete Multi State Output Objects

The IUT can create and delete Multi State Output objects. The IUT shall not restrict the instance number which can be used to create the Multi State Output object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Multi State Output Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Multi State Output Object
	Test Directives	
	Testing Hints	

8.21.24 Can Create and Delete Multi State Value Objects

The IUT can create and delete Multi State Value objects. The IUT shall not restrict the instance number which can be used to create the Multi State Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Multi State Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Multi State Value Object
	Test Directives	
	Testing Hints	

8.21.25 Can Create and Delete Notification Class Objects

The IUT can create and delete Notification Class objects. The IUT shall not restrict the instance number which can be used to create the Notification Class object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Notification Class Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Notification Class Object
	Test Directives	
	Testing Hints	

8.21.26 Can Create and Delete Program Objects

The IUT can create and delete Program objects. The IUT shall not restrict the instance number which can be used to create the Program object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Program Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Program Object

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	Test Directives	
	Testing Hints	

8.21.27 Can Create and Delete Pulse Converter Objects

The IUT can create and delete Pulse Converter objects. The IUT shall not restrict the instance number which can be used to create the Pulse Converter object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Pulse Converter Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Pulse Converter Object
	Test Directives	
	Testing Hints	

8.21.28 Can Create and Delete Schedule Objects

The IUT can create and delete Schedule objects. The IUT shall not restrict the instance number which can be used to create the Schedule object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Schedule Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Schedule Object
	Test Directives	
	Testing Hints	

8.21.29 Can Create and Delete Trend Log Objects

The IUT can create and delete Trend Log objects. The IUT shall not restrict the instance number which can be used to create the Trend Log object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Trend Log Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Trend Log Object
	Test Directives	
	Testing Hints	

8.21.30 Can Create and Delete Structured View Objects

The IUT can create and delete Structured View objects. The IUT shall not restrict the instance number which can be used to create the Structured View object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Structured View Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Structured View Object
	Test Directives	

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	Testing Hints	

8.21.31 Can Create and Delete Load Control Objects

The IUT can create and delete Load Control objects. The IUT shall not restrict the instance number which can be used to create the Load Control object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Load Control Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Load Control Object
	Test Directives	
	Testing Hints	

8.21.32 Can Create and Delete Access Door Objects

The IUT can create and delete Access Door objects. The IUT shall not restrict the instance number which can be used to create the Access Door object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Access Door Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Access Door Object
	Test Directives	
	Testing Hints	

8.21.33 Can Create and Delete Proprietary Objects

The IUT can create and delete Proprietary objects. The IUT shall not restrict the instance number which can be used to create Proprietary objects.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on Proprietary Objects
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on a Proprietary Object
	Test Directives	
	Testing Hints	

8.21.34 Can Create and Delete Event Log Objects

The IUT can create and delete Event Log objects. The IUT shall not restrict the instance number which can be used to create the Event Log object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Event Log Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Event Log Object
	Test Directives	
	Testing Hints	

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8.21.35 Can Create and Delete Trend Log Multiple Objects

The IUT can create and delete Trend Log Multiple objects. The IUT shall not restrict the instance number which can be used to create the Trend Log Multiple object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Trend Log Multiple Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Trend Log Multiple Object
	Test Directives	
	Testing Hints	

8.21.36 Can Create and Delete CharacterString Value Objects

The IUT can create and delete CharacterString Value objects. The IUT shall not restrict the instance number which can be used to create the CharacterString Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the CharacterString Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the CharacterString Value Object
	Test Directives	
	Testing Hints	

8.21.37 Can Create and Delete DateTime Value Objects

The IUT can create and delete DateTime Value objects. The IUT shall not restrict the instance number which can be used to create the DateTime Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the DateTime Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the DateTime Value Object
	Test Directives	
	Testing Hints	

8.21.38 Can Create and Delete Large Analog Value Objects

The IUT can create and delete Large Analog Value objects. The IUT shall not restrict the instance number which can be used to create the Large Analog Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Large Analog Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Large Analog Value Object
	Test Directives	
	Testing Hints	

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8.21.39 Can Create and Delete BitString Value Objects

The IUT can create and delete BitString Value objects. The IUT shall not restrict the instance number which can be used to create the BitString Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the BitString Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the BitString Value Object
	Test Directives	
	Testing Hints	

8.21.40 Can Create and Delete OctetString Value Objects

The IUT can create and delete OctetString Value objects. The IUT shall not restrict the instance number which can be used to create the OctetString Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the OctetString Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the OctetString Value Object
	Test Directives	
	Testing Hints	

8.21.41 Can Create and Delete Time Value Objects

The IUT can create and delete Time Value objects. The IUT shall not restrict the instance number which can be used to create the Time Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Time Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Time Value Object
	Test Directives	
	Testing Hints	

8.21.42 Can Create and Delete Integer Value Objects

The IUT can create and delete Integer Value objects. The IUT shall not restrict the instance number which can be used to create the Integer Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Integer Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Integer Value Object
	Test Directives	
	Testing Hints	

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8.21.43 Can Create and Delete Positive Integer Value Objects

The IUT can create and delete Positive Integer Value objects. The IUT shall not restrict the instance number which can be used to create the Positive Integer Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Positive Integer Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Positive Integer Value Object
	Test Directives	
	Testing Hints	

8.21.44 Can Create and Delete Date Value Objects

The IUT can create and delete Date Value objects. The IUT shall not restrict the instance number which can be used to create the Date Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Date Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Date Value Object
	Test Directives	
	Testing Hints	

8.21.45 Can Create and Delete DateTime Pattern Value Objects

The IUT can create and delete DateTime Pattern Value objects. The IUT shall not restrict the instance number which can be used to create the DateTime Pattern Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the DateTime Pattern Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the DateTime Pattern Value Object
	Test Directives	
	Testing Hints	

8.21.46 Can Create and Delete Time Pattern Value Objects

The IUT can create and delete Time Pattern Value objects. The IUT shall not restrict the instance number which can be used to create the Time Pattern Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Time Pattern Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Time Pattern Value Object
	Test Directives	
	Testing Hints	

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8.21.47 Can Create and Delete Date Pattern Value Objects

The IUT can create and delete Date Pattern Value objects. The IUT shall not restrict the instance number which can be used to create the Date Pattern Value object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Date Pattern Value Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Date Pattern Value Object
	Test Directives	
	Testing Hints	

8.21.48 Can Create and Delete Network Security Objects

The IUT can create and delete Network Security objects. The IUT shall not restrict the instance number which can be used to create the Network Security object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Network Security Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Network Security Object
	Test Directives	
	Testing Hints	

8.21.49 Can Create and Delete Global Group Objects

The IUT can create and delete Global Group objects. The IUT shall not restrict the instance number which can be used to create the Global Group object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Global Group Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Global Group Object
	Test Directives	
	Testing Hints	

8.21.50 Can Create and Delete Access Point Objects

The IUT can create and delete Access Point objects. The IUT shall not restrict the instance number which can be used to create the Access Point object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Access Point Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Access Point Object
	Test Directives	
	Testing Hints	

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8.21.51 Can Create and Delete Access Zone Objects

The IUT can create and delete Access Zone objects. The IUT shall not restrict the instance number which can be used to create the Access Zone object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Access Zone Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Access Zone Object
	Test Directives	
	Testing Hints	

8.21.52 Can Create and Delete Access User Objects

The IUT can create and delete Access User objects. The IUT shall not restrict the instance number which can be used to create the Access User object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Access User Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Access User Object
	Test Directives	
	Testing Hints	

8.21.53 Can Create and Delete Access Rights Objects

The IUT can create and delete Access Rights objects. The IUT shall not restrict the instance number which can be used to create the Access Rights object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Access Rights Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Access Rights Object
	Test Directives	
	Testing Hints	

8.21.54 Can Create and Delete Access Credential Objects

The IUT can create and delete Access Credential objects. The IUT shall not restrict the instance number which can be used to create the Access Credential object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Access Credential Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Access Credential Object
	Test Directives	

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	Testing Hints	

8.21.55 Can Create and Delete Credential Data Objects

The IUT can create and delete Credential Data objects. The IUT shall not restrict the instance number which can be used to create the Credential Data object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Credential Data Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Credential Data Object
	Test Directives	
	Testing Hints	

8.21.56 Can Create and Delete Notification Forwarder Objects

The IUT can create and delete Notification Forwarder objects. The IUT shall not restrict the instance number which can be used to create the Notification Forwarder object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Notification Forwarder Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Notification Forwarder Object
	Test Directives	
	Testing Hints	

8.21.57 Can Create and Delete Alert Enrollment Objects

The IUT can create and delete Alert Enrollment objects. The IUT shall not restrict the instance number which can be used to create the Alert Enrollment object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Alert Enrollment Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Alert Enrollment Object
	Test Directives	
	Testing Hints	

8.21.58 Can Create and Delete Channel Objects

The IUT can create and delete Channel objects. The IUT shall not restrict the instance number which can be used to create the Channel object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Channel Object
	Test Directives	
	Testing Hints	

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135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Channel Object
	Test Directives	
	Testing Hints	

8.21.59 Can Create and Delete Lighting Output Objects

The IUT can create and delete Lighting Output objects. The IUT shall not restrict the instance number which can be used to create the Lighting Output object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Lighting Output Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Lighting Output Object
	Test Directives	
	Testing Hints	

8.21.60 Can Create and Delete Binary Lighting Output Objects

The IUT can create and delete Binary Lighting Output objects. The IUT shall not restrict the instance number which can be used to create the Binary Lighting Output object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Binary Lighting Output Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Binary Lighting Output Object
	Test Directives	
	Testing Hints	

8.21.61 Can Create and Delete Network Port Objects

The IUT can create and delete Network Port objects. The IUT shall not restrict the instance number which can be used to create the Network Port object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Network Port Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Network Port Object
	Test Directives	
	Testing Hints	

8.21.62 Can Create and Delete Timer Objects

The IUT can create and delete Timer objects. The IUT shall not restrict the instance number which can be used to create the Timer object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values

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	Test Conditionality	Must be tested on the Timer Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Timer Object
	Test Directives	
	Testing Hints	

8.21.63 Can Create and Delete Elevator Group Objects

The IUT can create and delete Elevator Group objects. The IUT shall not restrict the instance number which can be used to create the Elevator Group object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Elevator Group Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Elevator Group Object
	Test Directives	
	Testing Hints	

8.21.64 Can Create and Delete Lift Objects

The IUT can create and delete Lift objects. The IUT shall not restrict the instance number which can be used to create the Lift object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Lift Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Lift Object
	Test Directives	
	Testing Hints	

8.21.65 Can Create and Delete Escalator Objects

The IUT can create and delete Escalator objects. The IUT shall not restrict the instance number which can be used to create the Escalator object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Escalator Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Escalator Object
	Test Directives	
	Testing Hints	

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8.21.66 Can Create and Delete Staging Objects

The IUT can create and delete Staging objects. The IUT shall not restrict the instance number which can be used to create the Staging object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Staging Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Staging Object
	Test Directives	
	Testing Hints	

8.21.67 Can Create and Delete Audit Reporter Objects

The IUT can create and delete Audit Reporter objects. The IUT shall not restrict the instance number which can be used to create the Audit Reporter object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Audit Reporter Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Audit Reporter Object
	Test Directives	
	Testing Hints	

8.21.68 Can Create and Delete Audit Log Objects

The IUT can create and delete Audit Log objects. The IUT shall not restrict the instance number which can be used to create the Audit Log object.

135.1-2019 - 8.16.1 - Creating Objects by Specifying the Object Identifier with no Initial Values		
	Test Conditionality	Must be tested on the Audit Log Object
	Test Directives	
	Testing Hints	
135.1-2019 - 8.17 - Delete Object Service		
	Test Conditionality	Must be tested on the Audit Log Object
	Test Directives	
	Testing Hints	

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8.22 Device Management - Object Creation and Deletion - B

8.22.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that for each object the IUT claims object creation and deletion for in the checklist that there is a corresponding claim in the EPICS 'Standard Types Supported' section.
	Testing Hints	

8.22.2 Supports Object Creation Using Object_Type

The IUT can create the specified object using Object Type with or without specifying initial values. The IUT accepts any valid initial values for modifiable properties. A valid value is any value in the range for the property as defined by the EPICS.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	This functionality will be tested in the specific object sections below.
135.1-2019 - 9.16.1.3 - Creating Objects by Specifying the Object Type and Providing Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	The IUT accepts any valid initial values for modifiable properties.
135.1-2019 - 9.16.2.3 - Attempting to Create an Object with an Object Identifier That is Not Creatable by Specifying Object Identifier		
	Test Conditionality	This test shall be executed if the device does not support creating objects by object identifier.
	Test Directives	
	Testing Hints	
BTL - 9.16.2.4 - Attempting to Create an Object with an Object Type Specifier and an Error in the Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.16.2.X1 - Attempting to Create a non-Supported Object Type (by Object Type)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.22.3 Supports Object Creation Using Object_Identifier

The IUT can create the specified object using Object_Identifier with or without specifying any initial values. When creating with initial values any valid properties for the object may be used.

BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	This functionality will be tested in the specific object sections below.
BTL - 9.16.1.4 - Creating Objects by Specifying the Object Identifier and Providing Initial Values		
	Test Conditionality	Must be executed.

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	Test Directives	
	Testing Hints	
135.1-2019 - 9.16.2.1 - Attempting to Create an Object That Does Not Have a Unique Object Identifier		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.16.2.2 - Attempting to Create an Object with an Object Type That is Not Creatable by Specifying Object Type		
	Test Conditionality	If Object Type creation is not supported this test shall be run.
	Test Directives	
	Testing Hints	
BTL - 9.16.2.5 - Attempting to Create an Object with an Object Identifier and an Error in the Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.16.2.X2 - Attempting to Create a non-Supported Object Type (by Object Identifier)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.22.4 Supports Object Deletion for each Object Type that it Supports Creation Of

The IUT can delete an object.

135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	This functionality will be tested in the specific object sections below.
135.1-2019 - 9.17.2.2 - Attempting to Delete an Object That Does Not Exist		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.17.2.1 - Attempting to Delete an Object That is Not Deletable		
	Test Conditionality	Must be executed.
	Test Directives	Apply this test once specifying the Device object. If there are any other objects which are not deleteable, then also apply the test one or more times to other object types.
	Testing Hints	

8.22.5 Supports Object Creation and Deletion of the Accumulator Object

The Accumulator object can be created and deleted within the IUT. The Accumulator object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Accumulator Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Accumulator Object.

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	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Accumulator Object.
	Testing Hints	

8.22.6 Supports Object Creation and Deletion of the Analog Input Object

The Analog Input object can be created and deleted within the IUT. The Analog Input object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Input Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Input Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Input Object.
	Testing Hints	

8.22.7 Supports Object Creation and Deletion of the Analog Output Object

The Analog Output object can be created and deleted within the IUT. The Analog Output object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Output Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Output Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Output Object.
	Testing Hints	

8.22.8 Supports Object Creation and Deletion of the Analog Value Object

The Analog Value object can be created and deleted within the IUT. The Analog Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Analog Value Object.
	Testing Hints	

8.22.9 Supports Object Creation and Deletion of the Averaging Object

The Averaging object can be created and deleted within the IUT. The Averaging object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Averaging Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Averaging Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Averaging Object.
	Testing Hints	

8.22.10 Supports Object Creation and Deletion of the Binary Input Object

The Binary Input object can be created and deleted within the IUT. The Binary Input object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Input Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Input Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Input Object.
	Testing Hints	

8.22.11 Supports Object Creation and Deletion of the Binary Output Object

The Binary Output object can be created and deleted within the IUT. The Binary Output object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Output Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Output Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Output Object.
	Testing Hints	

8.22.12 Supports Object Creation and Deletion of the Binary Value Object

The Binary Value object can be created and deleted within the IUT. The Binary value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Value Object.
	Testing Hints	

8.22.13 Supports Object Creation and Deletion of the Calendar Object

The Calendar object can be created and deleted within the IUT. The Calendar object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Calendar Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Calendar Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Calendar Object.
	Testing Hints	

8.22.14 Supports Object Creation and Deletion of the Command Object

The Command object can be created and deleted within the IUT. The Command object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Command Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.

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	Test Directives	Execute using the Command Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Command Object.
	Testing Hints	

8.22.15 Supports Object Creation and Deletion of the Event Enrollment Object

The Event Enrollment object can be created and deleted within the IUT. The Event Enrollment object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Event Enrollment Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Event Enrollment Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Event Enrollment Object.
	Testing Hints	

8.22.16 Supports Object Creation and Deletion of the File Object

The File object can be created and deleted within the IUT. The File object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the File Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the File Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the File Object.
	Testing Hints	

8.22.17 Supports Object Creation and Deletion of the Group Object

The Group object can be created and deleted within the IUT. The Group object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Group Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Group Object.

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	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Group Object.
	Testing Hints	

8.22.18 Supports Object Creation and Deletion of the Life Safety Point Object

The Life Safety Point object can be created and deleted within the IUT. The Life Safety Point object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Life Safety Point Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Life Safety Point Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Life Safety Point Object.
	Testing Hints	

8.22.19 Supports Object Creation and Deletion of the Life Safety Zone Object

The Life Safety Zone object can be created and deleted within the IUT. The Life Safety Zone object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Life Safety Zone Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Life Safety Zone Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Life Safety Zone Object.
	Testing Hints	

8.22.20 Supports Object Creation and Deletion of the Loop Object

The Loop object can be created and deleted within the IUT. The Loop object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Loop Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Loop Object.

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	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Loop Object.
	Testing Hints	

8.22.21 Supports Object Creation and Deletion of the Multi State Input Object

The Multi State Input object can be created and deleted within the IUT. The Multi State Input object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Input Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Input Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Input Object.
	Testing Hints	

8.22.22 Supports Object Creation and Deletion of the Multi State Output Object

The Multi State Output object can be created and deleted within the IUT. The Multi State Output object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Output Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Output Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Output Object.
	Testing Hints	

8.22.23 Supports Object Creation and Deletion of the Multi State Value Object

The Multi State Value object can be created and deleted within the IUT. The Multi State Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Multi State Value Object.
	Testing Hints	

8.22.24 Supports Object Creation and Deletion of the Notification Class Object

The Notification Class object can be created and deleted within the IUT. The Notification Class object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Notification Class Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Notification Class Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Notification Class Object.
	Testing Hints	

8.22.25 Supports Object Creation and Deletion of the Program Object

The Program object can be created and deleted within the IUT. The Program object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Program Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Program Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Program Object.
	Testing Hints	

8.22.26 Supports Object Creation and Deletion of the Pulse Converter Object

The Pulse Converter object can be created and deleted within the IUT. The Pulse Converter object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Pulse Converter Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Pulse Converter Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Pulse Converter Object.
	Testing Hints	

8.22.27 Supports Object Creation and Deletion of the Schedule Object

The Schedule object can be created and deleted within the IUT. The Schedule object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Schedule Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Schedule Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Schedule Object.
	Testing Hints	

8.22.28 Supports Object Creation and Deletion of the Trend Log Object

The Trend Log object can be created and deleted within the IUT. The Trend Log object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Trend Log Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Trend Log Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Trend Log Object.
	Testing Hints	

8.22.29 Supports Object Creation and Deletion of the Structured View Object

The Structured View object can be created and deleted within the IUT. The Structured View object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Structured View Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.

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	Test Directives	Execute using the Structured View Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Structured View Object.
	Testing Hints	

8.22.30 Supports Object Creation and Deletion of the Load Control Object

The Load Control object can be created and deleted within the IUT. The Load Control object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Load Control Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Load Control Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Load Control Object.
	Testing Hints	

8.22.31 Supports Object Creation and Deletion of the Access Door Object

The Access Door object can be created and deleted within the IUT. The Access Door object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Door Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Door Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Door Object.
	Testing Hints	

8.22.32 Supports Object Creation and Deletion of Proprietary Objects

Proprietary objects can be created and deleted within the IUT. The Proprietary object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Proprietary Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.

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	Test Directives	Execute using the Proprietary Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Proprietary Object.
	Testing Hints	

8.22.33 Supports Object Creation and Deletion of the Event Log Object

The Event Log object can be created and deleted within the IUT. The Event Log object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Event Log Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Event Log Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Event Log Object.
	Testing Hints	

8.22.34 Supports Object Creation and Deletion of the Trend Log Multiple Object

The Trend Log Multiple object can be created and deleted within the IUT. The Trend Log Multiple object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Trend Log Multiple Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Trend Log Multiple Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Trend Log Multiple Object.
	Testing Hints	

8.22.35 Supports Object Creation and Deletion of the CharacterString Value Object

The CharacterString Value object can be created and deleted within the IUT. The CharacterString Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the CharacterString Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the CharacterString Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the CharacterString Value Object.
	Testing Hints	

8.22.36 Supports Object Creation and Deletion of the DateTime Value Object

The DateTime Value object can be created and deleted within the IUT. The DateTime Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the DateTime Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the DateTime Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the DateTime Value Object.
	Testing Hints	

8.22.37 Supports Object Creation and Deletion of the Large Analog Value Object

The Large Analog Value object can be created and deleted within the IUT. The Large Analog Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Large Analog Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Large Analog Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Large Analog Value Object.
	Testing Hints	

8.22.38 Supports Object Creation and Deletion of the BitString Value Object

The BitString Value object can be created and deleted within the IUT. The BitString Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the BitString Value Object.

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	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the BitString Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the BitString Value Object.
	Testing Hints	

8.22.39 Supports Object Creation and Deletion of the OctetString Value Object

The OctetString Value object can be created and deleted within the IUT. The OctetString Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the OctetString Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the OctetString Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the OctetString Value Object.
	Testing Hints	

8.22.40 Supports Object Creation and Deletion of the Time Value Object

The Time Value object can be created and deleted within the IUT. The Time Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Time Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Time Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Time Value Object.
	Testing Hints	

8.22.41 Supports Object Creation and Deletion of the Integer Value Object

The Integer Value object can be created and deleted within the IUT. The Integer Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Integer Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Integer Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Integer Value Object.
	Testing Hints	

8.22.42 Supports Object Creation and Deletion of the Positive Integer Value Object

The Positive Integer Value object can be created and deleted within the IUT. The Positive Integer Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Positive Integer Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Positive Integer Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Positive Integer Value Object.
	Testing Hints	

8.22.43 Supports Object Creation and Deletion of the Date Value Object

The Date Value object can be created and deleted within the IUT. The Date Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Date Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Date Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Date Value Object.
	Testing Hints	

8.22.44 Supports Object Creation and Deletion of the DateTime Pattern Value Object

The DateTime Pattern Value object can be created and deleted within the IUT. The DateTime Pattern Value object that is created must be the object that can be deleted using the delete service.

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135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the DateTime Pattern Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the DateTime Pattern Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the DateTime Pattern Value Object.
	Testing Hints	

8.22.45 Supports Object Creation and Deletion of the Time Pattern Value Object

The Time Pattern Value object can be created and deleted within the IUT. The Time Pattern Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Time Pattern Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Time Pattern Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Time Pattern Value Object.
	Testing Hints	

8.22.46 Supports Object Creation and Deletion of the Date Pattern Value Object

The Date Pattern Value object can be created and deleted within the IUT. The Date Pattern Value object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Date Pattern Value Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Date Pattern Value Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Date Pattern Value Object.
	Testing Hints	

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8.22.47 Supports Object Creation and Deletion of the Network Security Object

The Network Security object can be created and deleted within the IUT. The Network Security object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Network Security Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Network Security Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Network Security Object.
	Testing Hints	

8.22.48 Supports Object Creation and Deletion of the Global Group Object

The Global Group object can be created and deleted within the IUT. The Global Group object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Global Group Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Global Group Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Global Group Object.
	Testing Hints	

8.22.49 Supports Object Creation and Deletion of the Access Point Object

The Access Point object can be created and deleted within the IUT. The Access Point object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Point Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Point Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Point Object.

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	Testing Hints	

8.22.50 Supports Object Creation and Deletion of the Access Zone Object

The Access Zone object can be created and deleted within the IUT. The Access Zone object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Zone Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Zone Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Zone Object.
	Testing Hints	

8.22.51 Supports Object Creation and Deletion of the Access User Object

The Access User object can be created and deleted within the IUT. The Access User object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access User Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access User Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access User Object.
	Testing Hints	

8.22.52 Supports Object Creation and Deletion of the Access Rights Object

The Access Rights object can be created and deleted within the IUT. The Access Rights object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Rights Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.

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	Test Directives	Execute using the Access Rights Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Rights Object.
	Testing Hints	

8.22.53 Supports Object Creation and Deletion of the Access Credential Object

The Access Credential object can be created and deleted within the IUT. The Access Credential object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Credential Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Credential Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Access Credential Object.
	Testing Hints	

8.22.54 Supports Object Creation and Deletion of the Credential Data Object

The Credential Data object can be created and deleted within the IUT. The Credential Data object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Credential Data Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Credential Data Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Credential Data Object.
	Testing Hints	

8.22.55 Supports Object Creation and Deletion of the Notification Forwarder Object

The Notification Forwarder object can be created and deleted within the IUT. The Notification Forwarder object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Notification Forwarder Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Notification Forwarder Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Notification Forwarder Object.
	Testing Hints	

8.22.56 Supports Object Creation and Deletion of the Alert Enrollment Object

The Alert Enrollment object can be created and deleted within the IUT. The Alert Enrollment object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Alert Enrollment Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Alert Enrollment Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Alert Enrollment Object.
	Testing Hints	

8.22.57 Supports Object Creation and Deletion of the Channel Object

The Channel object can be created and deleted within the IUT. The Channel object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Channel Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Channel Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Channel Object.
	Testing Hints	

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8.22.58 Supports Object Creation and Deletion of the Lighting Output Object

The Lighting Output object can be created and deleted within the IUT. The Lighting Output object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Lighting Output Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Lighting Output Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Lighting Output Object.
	Testing Hints	

8.22.59 Supports Object Creation and Deletion of the Binary Lighting Output Object

The Binary Lighting Output object can be created and deleted within the IUT. The Binary Lighting Output object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Lighting Output Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Lighting Output Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Binary Lighting Output Object.
	Testing Hints	

8.22.60 Supports Object Creation and Deletion of the Network Port Object

The Network Port object can be created and deleted within the IUT. The Network Port object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Network Port Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Network Port Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Network Port Object.
	Testing Hints	

8.22.61 Supports Object Creation and Deletion of the Timer Object

The Timer object can be created and deleted within the IUT. The Timer object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Timer Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Timer Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Timer Object.
	Testing Hints	

8.22.62 Supports Object Creation and Deletion of the Elevator Group Object

The Elevator Group object can be created and deleted within the IUT. The Elevator Group object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Elevator Group Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Elevator Group Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Elevator Group Object.
	Testing Hints	

8.22.63 Supports Object Creation and Deletion of the Lift Object

The Lift object can be created and deleted within the IUT. The Lift object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Lift Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Lift Object.

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	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Lift Object.
	Testing Hints	

8.22.64 Supports Object Creation and Deletion of the Escalator Object

The Escalator object can be created and deleted within the IUT. The Escalator object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Escalator Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Escalator Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Escalator Object.
	Testing Hints	

8.22.65 Supports Object Creation and Deletion of the Staging Object

The Staging object can be created and deleted within the IUT. The Staging object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Staging Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Staging Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Staging Object.
	Testing Hints	

8.22.66 Supports Object Creation and Deletion of the Audit Reporter Object

The Audit Reporter object can be created and deleted within the IUT. The Audit Reporter object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Audit Reporter Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		

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	Test Conditionality	Must be executed.
	Test Directives	Execute using the Audit Reporter Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Audit Reporter Object.
	Testing Hints	

8.22.67 Supports Object Creation and Deletion of the Audit Log Object

The Audit Log object can be created and deleted within the IUT. The Audit Log object that is created must be the object that can be deleted using the delete service.

135.1-2019 - 9.16.1.1 - Creating Objects by Specifying the Object Type with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Audit Log Object.
	Testing Hints	
BTL - 9.16.1.2 - Creating Objects by Specifying the Object Identifier with No Initial Values		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Audit Log Object.
	Testing Hints	
135.1-2019 - 9.17.1.1 - Successful Deletion of an Object		
	Test Conditionality	Must be executed.
	Test Directives	Execute using the Audit Log Object.
	Testing Hints	

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8.23 Device Management - List Manipulation - A

8.23.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.23.2 Supports Adding and Removing Notification Class / Recipient_List Entries

The IUT is capable of adding entries to, and removing entries from, Recipient_List properties in Notification Class objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Recipient_List property of a Notification Class object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Recipient_List property of a Notification Class object.
	Test Directives	
	Testing Hints	

8.23.3 Supports Adding and Removing Schedule / List_Of_Object_Property_References Entries

The IUT is capable of adding entries to, and removing entries from, List_Of_Object_Property_References properties in Schedule objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the List_Of_Object_Property_References property of a Schedule object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the List_Of_Object_Property_References property of a Schedule object.
	Test Directives	
	Testing Hints	

8.23.4 Supports Adding and Removing Calendar / Date_List Entries

The IUT is capable of adding entries to, and removing entries from, Date_List properties in Calendar objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Date_List property of a Calendar object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Date_List property of a Calendar object.
	Test Directives	

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	Testing Hints	

8.23.5 Supports Adding and Removing Device / Time_Synchronization_Recipients Entries

The IUT is capable of adding entries to, and removing entries from, Time_Synchronization_Recipients properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Time_Synchronization_Recipients property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Time_Synchronization_Recipients property of a Device object.
	Test Directives	
	Testing Hints	

8.23.6 Supports Adding and Removing Device / UTC_Time_Synchronization_Recipients Entries

The IUT is capable of adding entries to, and removing entries from, UTC_Time_Synchronization_Recipients properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the UTC_Time_Synchronization_Recipients property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the UTC_Time_Synchronization_Recipients property of a Device object.
	Test Directives	
	Testing Hints	

8.23.7 Supports Adding and Removing Device / Restart_Notification_Recipients Entries

The IUT is capable of adding entries to, and removing entries from, Restart_Notification_Recipients properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Restart_Notification_Recipients property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Restart_Notification_Recipients property of a Device object.
	Test Directives	
	Testing Hints	

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8.23.8 Supports Adding and Removing Device / Device_Address_Binding Entries

The IUT is capable of adding entries to, and removing entries from, Device_Address_Binding properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Device_Address_Binding property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Device_Address_Binding property of a Device object.
	Test Directives	
	Testing Hints	

8.23.9 Supports Adding and Removing Device / Active_COV_Subscriptions Entries

The IUT is capable of adding entries to, and removing entries from, Active_COV_Subscriptions properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Active_COV_Subscriptions property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Active_COV_Subscriptions property of a Device object.
	Test Directives	
	Testing Hints	

8.23.10 Supports Adding and Removing Device / Manual_Slave_Address_Binding Entries

The IUT is capable of adding entries to, and removing entries from, Manual_Slave_Address_Binding properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Manual_Slave_Address_Binding property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Manual_Slave_Address_Binding property of a Device object.
	Test Directives	
	Testing Hints	

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8.23.11 Supports Adding and Removing Device / Slave_Address_Binding Entries

The IUT is capable of adding entries to, and removing entries from, Slave_Address_Binding properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Slave_Address_Binding property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Slave_Address_Binding property of a Device object.
	Test Directives	
	Testing Hints	

8.23.12 Supports Adding and Removing Group / List_Of_Group_Members Entries

The IUT is capable of adding entries to, and removing entries from, List_Of_Group_Members properties in Group objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the List_Of_Group_Members property of a Group object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the List_Of_Group_Members property of a Group object.
	Test Directives	
	Testing Hints	

8.23.13 Supports Adding and Removing Life Safety Point / Life_Safety_Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Life_Safety_Alarm_Values properties in Life Safety Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Life_Safety_Alarm_Values property of a Life Safety Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Life_Safety_Alarm_Values property of a Life Safety Point object.
	Test Directives	
	Testing Hints	

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8.23.14 Supports Adding and Removing Life Safety Point / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Life Safety Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Life Safety Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Life Safety Point object.
	Test Directives	
	Testing Hints	

8.23.15 Supports Adding and Removing Life Safety Point / Fault_Values Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Values properties in Life Safety Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Life Safety Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Life Safety Point object.
	Test Directives	
	Testing Hints	

8.23.16 Supports Adding and Removing Life Safety Point / Member_Of Entries

The IUT is capable of adding entries to, and removing entries from, Member_Of properties in Life Safety Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Member_Of property of a Life Safety Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Member_Of property of a Life Safety Point object.
	Test Directives	
	Testing Hints	

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8.23.17 Supports Adding and Removing Life Safety Zone / Life_Safety_Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Life_Safety_Alarm_Values properties in Life Safety Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Life_Safety_Alarm_Values property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Life_Safety_Alarm_Values property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	

8.23.18 Supports Adding and Removing Life Safety Zone / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Life Safety Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	

8.23.19 Supports Adding and Removing Life Safety Zone / Fault_Values Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Values properties in Life Safety Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	

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8.23.20 Supports Adding and Removing Life Safety Zone / Member_Of Entries

The IUT is capable of adding entries to, and removing entries from, Member_Of properties in Life Safety Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Member_Of property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Member_Of property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	

8.23.21 Supports Adding and Removing Multi-State Input / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Multi-State Input objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Multi-State Input object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Multi-State Input object.
	Test Directives	
	Testing Hints	

8.23.22 Supports Adding and Removing Multi-State Input / Fault_Values Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Values properties in Multi-State Input objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Multi-State Input object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Multi-State Input object.
	Test Directives	
	Testing Hints	

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8.23.23 Supports Adding and Removing Multi-State Value / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Multi-State Value objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Multi-State Value object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Multi-State Value object.
	Test Directives	
	Testing Hints	

8.23.24 Supports Adding and Removing Multi-State Value / Fault_Values Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Values properties in Multi-State Value objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Multi-State Value object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Multi-State Value object.
	Test Directives	
	Testing Hints	

8.23.25 Supports Adding and Removing Entries in Proprietary List Properties of Primitive Datatypes

The IUT is capable of adding entries to, and removing entries from, arbitrary proprietary properties that contain elements of a primitive datatype.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed once with the IUT modifying a proprietary property in a standard object and once with the IUT modifying a proprietary property in a proprietary object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed once with the IUT modifying a proprietary property in a standard object and once with the IUT modifying a proprietary property in a proprietary object.
	Test Directives	
	Testing Hints	

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8.23.26 Supports Adding and Removing Global Group / COVU_Recipients Entries

The IUT is capable of adding entries to, and removing entries from, COVU_Recipients properties in Global Group objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the COVU_Recipients property of a Global Group object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the COVU_Recipients property of a Global Group object.
	Test Directives	
	Testing Hints	

8.23.27 Supports Adding and Removing Device / VT_Classes_Supported Entries

The IUT is capable of adding entries to, and removing entries from, VT_Classes_Supported properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the VT_Classes_Supported property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the VT_Classes_Supported property of a Device object.
	Test Directives	
	Testing Hints	

8.23.28 Supports Adding and Removing Device / Active_VT_Sessions Entries

The IUT is capable of adding entries to, and removing entries from, Active_VT_Sessions properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Active_VT_Sessions property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Active_VT_Sessions property of a Device object.
	Test Directives	
	Testing Hints	

8.23.29 Supports Adding and Removing Life Safety Zone / Zone_Members Entries

The IUT is capable of adding entries to, and removing entries from, Zone_Members properties in Life Safety Zone objects.

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135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Zone_Members property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Zone_Members property of a Life Safety Zone object.
	Test Directives	
	Testing Hints	

8.23.30 Supports Adding and Removing Notification Forwarder / Recipient_List Entries

The IUT is capable of adding entries to, and removing entries from, Recipient_List properties in Notification Forwarder objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Recipient_List property of a Notification Forwarder object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Recipient_List property of a Notification Forwarder object.
	Test Directives	
	Testing Hints	

8.23.31 Supports Adding and Removing Notification Forwarder / Subscribed_Recipients Entries

The IUT is capable of adding entries to, and removing entries from, Subscribed_Recipients properties in Notification Forwarder objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Subscribed_Recipients property of a Notification Forwarder object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Subscribed_Recipients property of a Notification Forwarder object.
	Test Directives	
	Testing Hints	

8.23.32 Supports Adding and Removing Access Door / Masked_Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Masked_Alarm_Values properties in Access Door objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Masked_Alarm_Values property of a Access Door object.
	Test Directives	
	Testing Hints	

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135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Masked_Alarm_Values property of a Access Door object.
	Test Directives	
	Testing Hints	

8.23.33 Supports Adding and Removing Access Door / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Access Door objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Access Door object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Access Door object.
	Test Directives	
	Testing Hints	

8.23.34 Supports Adding and Removing Access Door / Fault_Values Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Values properties in Access Door objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Access Door object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Values property of a Access Door object.
	Test Directives	
	Testing Hints	

8.23.35 Supports Adding and Removing Access Point / Access_Alarm_Events Entries

The IUT is capable of adding entries to, and removing entries from, Access_Alarm_Events properties in Access Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Access_Alarm_Events property of a Access Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Access_Alarm_Events property of a Access Point object.
	Test Directives	
	Testing Hints	

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8.23.36 Supports Adding and Removing Access Point / Access_Transaction_Events Entries

The IUT is capable of adding entries to, and removing entries from, Access_Transaction_Events properties in Access Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Access_Transaction_Events property of a Access Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Access_Transaction_Events property of a Access Point object.
	Test Directives	
	Testing Hints	

8.23.37 Supports Adding and Removing Access Point / Failed_Attempt_Events Entries

The IUT is capable of adding entries to, and removing entries from, Failed_Attempt_Events properties in Access Point objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Failed_Attempt_Events property of a Access Point object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Failed_Attempt_Events property of a Access Point object.
	Test Directives	
	Testing Hints	

8.23.38 Supports Adding and Removing Access Zone / Credentials_In_Zone Entries

The IUT is capable of adding entries to, and removing entries from, Credentials_In_Zone properties in Access Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Credentials_In_Zone property of a Access Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Credentials_In_Zone property of a Access Zone object.
	Test Directives	
	Testing Hints	

8.23.39 Supports Adding and Removing Access Zone / Entry_Points Entries

The IUT is capable of adding entries to, and removing entries from, Entry_Points properties in Access Zone objects.

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135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Entry_Points property of a Access Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Entry_Points property of a Access Zone object.
	Test Directives	
	Testing Hints	

8.23.40 Supports Adding and Removing Access Zone / Exit_Points Entries

The IUT is capable of adding entries to, and removing entries from, Exit_Points properties in Access Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Exit_Points property of a Access Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Exit_Points property of a Access Zone object.
	Test Directives	
	Testing Hints	

8.23.41 Supports Adding and Removing Access Zone / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Access Zone objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Access Zone object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Access Zone object.
	Test Directives	
	Testing Hints	

8.23.42 Supports Adding and Removing Access User / Members Entries

The IUT is capable of adding entries to, and removing entries from, Members properties in Access User objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Members property of a Access User object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		

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	Test Conditionality	Must be executed with the IUT modifying the Members property of a Access User object.
	Test Directives	
	Testing Hints	

8.23.43 Supports Adding and Removing Access User / Member_Of Entries

The IUT is capable of adding entries to, and removing entries from, Member_Of properties in Access User objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Member_Of property of a Access User object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Member_Of property of a Access User object.
	Test Directives	
	Testing Hints	

8.23.44 Supports Adding and Removing Access User / Credentials Entries

The IUT is capable of adding entries to, and removing entries from, Credentials properties in Access User objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Credentials property of a Access User object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Credentials property of a Access User object.
	Test Directives	
	Testing Hints	

8.23.45 Supports Adding and Removing Access Credential / Authorization_Exemptions Entries

The IUT is capable of adding entries to, and removing entries from, Authorization_Exemptions properties in Access Credential objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Authorization_Exemptions property of a Access Credential object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Authorization_Exemptions property of a Access Credential object.
	Test Directives	
	Testing Hints	

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8.23.46 Supports Adding and Removing Access Credential / Reason_For_Disable Entries

The IUT is capable of adding entries to, and removing entries from, Reason_For_Disable properties in Access Credential objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Reason_For_Disable property of a Access Credential object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Reason_For_Disable property of a Access Credential object.
	Test Directives	
	Testing Hints	

8.23.47 Supports Adding and Removing Network Port / BBMD_Broadcast_Distribution_Table Entries

The IUT is capable of adding entries to, and removing entries from, BBMD_Broadcast_Distribution_Table properties in Network Port objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the BBMD_Broadcast_Distribution_Table property of a Network Port object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the BBMD_Broadcast_Distribution_Table property of a Network Port object.
	Test Directives	
	Testing Hints	

8.23.48 Supports Adding and Removing Network Port / Manual_Slave_Address_Binding Entries

The IUT is capable of adding entries to, and removing entries from, Manual_Slave_Address_Binding properties in Network Port objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Manual_Slave_Address_Binding property of a Network Port object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Manual_Slave_Address_Binding property of a Network Port object.
	Test Directives	
	Testing Hints	

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8.23.49 Supports Adding and Removing Network Port / Virtual_MAC_Address_Table Entries

The IUT is capable of adding entries to, and removing entries from, Virtual_MAC_Address_Table properties in Network Port objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Virtual_MAC_Address_Table property of a Network Port object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Virtual_MAC_Address_Table property of a Network Port object.
	Test Directives	
	Testing Hints	

8.23.50 Supports Adding and Removing Network Port / Slave_Address_Binding Entries

The IUT is capable of adding entries to, and removing entries from, Slave_Address_Binding properties in Network Port objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Slave_Address_Binding property of a Network Port object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Slave_Address_Binding property of a Network Port object.
	Test Directives	
	Testing Hints	

8.23.51 Supports Adding and Removing Timer / List_Of_Object_Property_References Entries

The IUT is capable of adding entries to, and removing entries from, List_Of_Object_Property_References properties in Timer objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the List_Of_Object_Property_References property of a Timer object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the List_Of_Object_Property_References property of a Timer object.
	Test Directives	
	Testing Hints	

8.23.52 Supports Adding and Removing Timer / Alarm_Values Entries

The IUT is capable of adding entries to, and removing entries from, Alarm_Values properties in Timer objects.

135.1-2019 - 8.14.1 - Non-Array Properties

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	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Timer object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Alarm_Values property of a Timer object.
	Test Directives	
	Testing Hints	

8.23.53 Supports Adding and Removing Device / Active_COV_Multiple_Subscriptions Entries

The IUT is capable of adding entries to, and removing entries from, Active_COV_Multiple_Subscriptions properties in Device objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Active_COV_Multiple_Subscriptions property of a Device object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Active_COV_Multiple_Subscriptions property of a Device object.
	Test Directives	
	Testing Hints	

8.23.54 Supports Adding and Removing Lift / Fault_Signals Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Signals properties in Lift objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Signals property of a Lift object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Signals property of a Lift object.
	Test Directives	
	Testing Hints	

8.23.55 Supports Adding and Removing Escalator / Fault_Signals Entries

The IUT is capable of adding entries to, and removing entries from, Fault_Signals properties in Escalator objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Signals property of a Escalator object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Fault_Signals property of a Escalator object.

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	Test Directives	
	Testing Hints	

8.23.56 Supports Adding and Removing Elevator Group / Landing_Calls Entries

The IUT is capable of adding entries to, and removing entries from, Landing_Calls properties in Elevator Group objects.

135.1-2019 - 8.14.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Landing_Calls property of a Elevator Group object.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.15.1 - Non-Array Properties		
	Test Conditionality	Must be executed with the IUT modifying the Landing_Calls property of a Elevator Group object.
	Test Directives	
	Testing Hints	

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8.24 Device Management - List Manipulation - B

8.24.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

A device that supports DM-LM-B is required to support AddListElement and RemoveListElement on every writable list property. In addition, any list property modifiable via AddListElement shall be modifiable via WriteProperty.

135.1-2019 - 9.14.1.3 - Adding a Redundant Element		
	Test Conditionality	
	Test Directives	
	Testing Hints	
135.1-2019 - 9.14.2.1 - Adding a List Element to a Property That is Not a List		
	Test Conditionality	If there is no writable property that is not a list, then this test shall be skipped.
	Test Directives	
	Testing Hints	Test against array and non-array properties that do not contain lists. Test against array properties but do not include an array index.
BTL - 9.14.2.2 - Adding a List Element With an Invalid Datatype		
	Test Conditionality	
	Test Directives	
	Testing Hints	
BTL - 9.14.2.3 - An AddListElement Failure Part Way Through a List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.15.2.1 - Removing a List Element from a Property That is Not a List		
	Test Conditionality	If there is no writable property that is not a list, then this test shall be skipped.
	Test Directives	
	Testing Hints	Test against array and non-array properties that do not contain lists. Test against array properties but do not include an array index.
BTL - 9.15.2.2 - A RemoveListElement Failure Part Way Through a List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B and that the DS-WP-B option "Contains Writable List Properties" is claimed.
	Testing Hints	

8.24.2 All Writable List Properties in the IUT Support List Manipulation

The IUT supports AddListElement and DeleteListElement modification of all writable list properties in the device.

135.1-2019 - 9.14.1.1 - Adding a Single Element		
	Test Conditionality	Must be executed.

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	Test Directives	Repeat for an instance of each type of object that contains a writable list property.
	Testing Hints	
135.1-2019 - 9.14.1.2 - Adding Multiple Elements		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for an instance of each type of object that contains a writable list property.
	Testing Hints	
135.1-2019 - 9.15.1.1 - Removing a Single Element from a List		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for an instance of each type of object that contains a writable list property.
	Testing Hints	
135.1-2019 - 9.15.1.2 - Removing Multiple Elements from a List		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for an instance of each type of object that contains a writable list property.
	Testing Hints	

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8.25 Device Management - Text Message - A

8.25.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.25.2 Supports Initiation of ConfirmedTextMessage

The IUT is capable of initiating ConfirmedTextMessage services.

This functionality is tested by one of the Message Class test sections.

8.25.3 Supports Initiation of UnconfirmedTextMessage

The IUT is capable of initiating UnconfirmedTextMessage services.

This functionality is tested by one of the Message Class test sections.

8.25.4 Initiates Text Messages with no Message Class

The IUT is capable of initiating a text message service with no Message Class.

135.1-2019 - 8.28.1 - Text Message with no Message Class		
	Test Conditionality	Must be executed if the IUT supports initiation of ConfirmedTextMessage services.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.29.1 - Text Message with no Message Class		
	Test Conditionality	Must be executed if the IUT supports initiation of UnconfirmedTextMessage services.
	Test Directives	
	Testing Hints	

8.25.5 Initiates Text Messages with an Unsigned Message Class

The IUT is capable of initiating a text message service with an Unsigned Message Class.

135.1-2019 - 8.28.2 - Text Message with an Unsigned Message Class		
	Test Conditionality	Must be executed if the IUT supports initiation of ConfirmedTextMessage services.
	Test Directives	
	Testing Hints	
135.1-2019 - 8.29.2 - Text Message with an Unsigned Message Class		
	Test Conditionality	Must be executed if the IUT supports initiation of UnconfirmedTextMessage services.
	Test Directives	
	Testing Hints	

8.25.6 Initiates Text Messages with a CharacterString Message Class

The IUT is capable of initiating a text message service with an CharacterString Message Class.

135.1-2019 - 8.28.3 - Text Message with a CharacterString Message Class		
	Test Conditionality	Must be executed if the IUT supports initiation of ConfirmedTextMessage services.
	Test Directives	

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	Testing Hints	
135.1-2019 - 8.29.3 - Text Message with a CharacterString Message Class		
	Test Conditionality	Must be executed if the IUT supports initiation of UnconfirmedTextMessage services.
	Test Directives	
	Testing Hints	

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8.26 Device Management - Text Message - B

8.26.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.26.2 Supports Execution of ConfirmedTextMessage

The IUT is capable of execution of ConfirmedTextMessage services.

This functionality is tested by one of the Message Class test sections.

8.26.3 Supports Execution of UnconfirmedTextMessage

The IUT is capable of execution of UnconfirmedTextMessage services.

This functionality is tested by one of the Message Class test sections.

8.26.4 Executes Text Messages with no Message Class

The IUT is capable of executing a text message service with no Message Class.

135.1-2019 - 9.28.1 - Text Message with no Message Class		
	Test Conditionality	Must be executed if the IUT supports execution of ConfirmedTextMessage services.
	Test Directives	
	Testing Hints	
BTL - 9.29.1 - UnconfirmedTextMessage With No Message Class		
	Test Conditionality	Must be executed if the IUT supports execution of UnconfirmedTextMessage services.
	Test Directives	
	Testing Hints	

8.26.5 Executes Text Messages with an Unsigned Message Class

The IUT is capable of executing a text message service with an Unsigned Message Class.

135.1-2019 - 9.28.2 - Text Message with an Unsigned Message Class		
	Test Conditionality	Must be executed if the IUT supports execution of ConfirmedTextMessage services.
	Test Directives	
	Testing Hints	
BTL - 9.29.2 - UnconfirmedTextMessage with an Unsigned Message Class		
	Test Conditionality	Must be executed if the IUT supports execution of UnconfirmedTextMessage services.
	Test Directives	
	Testing Hints	

8.26.6 Executes Text Messages with a CharacterString Message Class

The IUT is capable of executing a text message service with an CharacterString Message Class.

135.1-2019 - 9.28.3 - Text Message with a CharacterString Message Class		
	Test Conditionality	Must be executed if the IUT supports execution of ConfirmedTextMessage services.
	Test Directives	

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	Testing Hints	
BTL - 9.29.3 - UnconfirmedTextMessage with a CharacterString Message Class		
	Test Conditionality	Must be executed if the IUT supports execution of UnconfirmedTextMessage services.
	Test Directives	
	Testing Hints	

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8.27 Device Management - Virtual Terminal - A

8.27.1 Base Requirements

Contact BTL for interim tests for this BIBB.

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8.28 Device Management - Virtual Terminal - B

8.28.1 Base Requirements

Contact BTL for interim tests for this BIBB.

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8.29 Device Management - Slave Proxy - View and Modify - A

8.29.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each of the Slave Proxy properties in the Device object, and in the Network Port object, if the claimed Protocol_Revision is 17 or greater.
	Testing Hints	
BTL - 8.18.X1 - Reading and Presenting Large List Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each of {Manual_Slave_Address_Binding, Slave_Address_Binding} properties in the Device object, and in the Network Port object, if the claimed Protocol_Revision is 17 or greater.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each of the Slave Proxy properties in the Device object, and in the Network Port object, if the claimed Protocol_Revision is 17 or greater.
	Testing Hints	
BTL - 8.22.X1 - Accepting Input and Modifying Large List Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each of {Manual_Slave_Address_Binding, Slave_Address_Binding} properties in the Device object, and in the Network Port object, if the claimed Protocol_Revision is 17 or greater.
	Testing Hints	

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8.30 Device Management - Slave Proxy - B

8.30.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 13.5.1 - Manual Slave Binding Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 13.5.3 - Proxy Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.30.2 Supports Automatic Slave Address Binding

The IUT support automatic slave address binding.

135.1-2019 - 13.5.2 - Automatic Slave Discovery Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.31 Device Management - Dynamic Device Assignment - A

8.31.1 Base Requirements

Base requirements must be met by any IUT that can claim this BIBB.

BTL - 9.X35.1 - Uses Who-Is to Configure Devices Supporting the Who-Am-I Service		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 8.X36.3 - Can Unconfigure Devices		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.31.2 Can Configure Device Object Instance Number Using the You-Are Service

The IUT can configure another device's object instance number using the You-Are service.

BTL - 9.X35.2 - Configures Other Device's Object Instance Number		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.31.3 Can Configure MAC Address Using the You-Are Service

The IUT can configure another device's MAC address using the You-Are service.

BTL - 8.X36.1 - Configures Other Device's MAC Address		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.31.4 Can Configure Both Device Object Instance Number and MAC Address Using the You-Are Service

The IUT can configure another device's object instance number and MAC address using the You-Are service.

BTL - 8.X36.2 - Configures Other Device's Object Instance Number and MAC Address		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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8.32 Device Management - Dynamic Device Assignment - B

8.32.1 Base Requirements

Base requirements must be met by any IUT that can claim this BIBB.

Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify the Device Object has the Serial_Number property required to initiate Who-Am-I and execute You-Are.
	Testing Hints	
BTL - 9.X36.2.2 - Only Accepts Configuration When Received Parameters Match		
	Test Conditionality	This test shall be skipped if the IUT is an MS/TP subordinate node.
	Test Directives	
	Testing Hints	
BTL - 8.X35.1 - Responds to Who-Is With Who-Am-I While in the Unconfigured State		
	Test Conditionality	If the IUT does not support having a MAC address but no configured Device object instance number, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.X36.1.6 - Retains Configuration Through Restarts		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X36.1.7 - Unconfigurable by You-Are		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.32.2 Has Configurable Device Object Instance Number Using the You-Are Service

The IUT can be configured with a Device object instance number using the You-Are service.

BTL - 9.X36.1.1 - Configurable Device Object Instance Number		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X36.1.4 - Device Object Instance Number is Configurable Even When MAC Address is Also Sent		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

8.32.3 Has Configurable MAC Address Using the You-Are Service

The IUT can be configured with a MAC address using the You-Are service.

BTL - 9.X36.1.2 - Configurable MAC Address		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X36.2.1 - Only Supports Execution of the You-Are Service While Unconfigured		
	Test Conditionality	Must be executed.

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	Test Directives	
	Testing Hints	
BTL - 9.X36.1.5 - MAC Address is Reconfigurable		
	Test Conditionality	If the IUT cannot be configured with a MAC address that can be changed using the You-Are service, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 9.X36.1.3 - Configurable Device Object Instance Number and MAC Address		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X36.1.4 - Device Object Instance Number is Configurable Even When MAC Address is Also Sent		
	Test Conditionality	If the IUT cannot be configured with a MAC address that cannot be changed using the You-Are service, this test shall be skipped.
	Test Directives	
	Testing Hints	

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8.33 Device Management - Lighting Output Management - A

8.33.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

8.33.2 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to create and delete Access Control objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A, and that all object types required by DS-LOM-A are claimed within DM-OCD-A.
	Testing Hints	

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9 Data Link Layer

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9.1 Data Link Layer - MS/TP - Master Node

9.1.1 Base Requirements

Base requirements for all MS/TP master devices.

135.1-2019 - 12.1.1.9.6 - Max Info Frame Check		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	A check differs from a test in that there are no specific test steps but rather conditions that the tester should check for while executing other tests. If the conditions are violated at any time while executing other tests, then the IUT shall fail this check.
135.1-2019 - 12.1.3.2 - Verify $T_{postdrive}$		
	Test Conditionality	Must be executed.
	Test Directives	Every MS/TP device shall claim 9600 baud. Test that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400.
	Testing Hints	
BTL - 12.1.3.3 - Verify T_{frame_gap}		
	Test Conditionality	Must be executed.
	Test Directives	Every MS/TP device shall claim 9600 baud. Test that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400.
	Testing Hints	
135.1-2019 - 12.1.3.4 - Verify $T_{turnaround}$		
	Test Conditionality	Must be executed.
	Test Directives	Every MS/TP device shall claim 9600 baud. Test that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400.
	Testing Hints	
135.1-2019 - 12.1.3.5 - Verify T_{reply_delay}		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.6 - Verify T_{usage_delay} After a Token w/ Serial Analyzer		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.7 - Verify T_{usage_delay} After Poll For Master w/ Serial Analyzer		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.8 - Verify N_{poll} w/ Serial Analyzer		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.9 - Verify $T_{usage_timeout}$ w/ Serial Analyzer		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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135.1-2019 - 12.1.3.12 - Master Node Data Frame Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.13 - Poll for Master w/ Serial Analyzer		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.16 - MS/TP Network Startup Tests (IUT power on Variation)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.17 - MS/TP Network Startup Tests (IUTs wire connected)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.18 - MS/TP Network Startup Tests (IUTs wire disconnected)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.19 - MS/TP Network Startup Tests (Reference device joins the MS/TP network)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 2.2.X1 - Data Not For Us Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher and supports DS-WP-B.
	Test Directives	Execute this test at least once on each Network Port object that has Network_Type = MSTP and contains configurable properties.
	Testing Hints	
BTL - 12.1.3.X - Ignores Unknown Frame Types		
	Test Conditionality	If the IUT supports extended frames, this test shall be skipped.
	Test Directives	
	Testing Hints	

9.1.2 Supports Writable Max_Master Property

The IUT contains the Max_Master property and it is writable.

135.1-2019 - 12.1.3.10 - Max_Master Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 16 or lower.
	Test Directives	
	Testing Hints	
Verify Test Selection		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute test 7.3.2.X62.1.1 at least once for each Network Port object that has Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION. This test shall be performed on the Max_Master property.

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	Testing Hints	

9.1.3 Supports Read Only Max_Master Property

The IUT contains the Max_Master property that is read-only.

135.1-2019 - 12.1.3.10 - Max_Master Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 16 or lower. This test shall be skipped if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Verify that the IUT does not claim support for DS-WP-B.
	Testing Hints	
BTL - 7.3.2.X62.1.X1 - Network Port Object Not Writable Property Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute this test on each Network Port object that has Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION. This test shall be performed on the Max_Master property with a default value of 127.
	Testing Hints	

9.1.4 Contains Configurable Max_Info_Frames Property

The IUT contains a configurable Max_Info_Frames property.

135.1-2019 - 12.1.3.11 - Max_Info_Frames Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 16 or lower.
	Test Directives	
	Testing Hints	
Verify Test Selection		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute test 7.3.2.X62.1.1 at least once for each Network Port object that has Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION. This test shall be performed on the Max_Info_Frames property.
	Testing Hints	

9.1.5 Contains Non-Configurable Max_Info_Frames Property

The IUT contains a non-configurable Max_Info_Frames property.

135.1-2019 - 12.1.3.11 - Max_Info_Frames Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 16 or lower..
	Test Directives	
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Verify that the IUT does not claim support for DS-WP-B.
	Testing Hints	
BTL - 7.3.2.X62.1.X1 - Network Port Object Not Writable Property Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute this test on each Network Port object that has Network_Type = MSTP and Protocol_Level = BACNET_APPLICATION. This test shall be performed on the Max_Info_Frames property with a default value of 1.
	Testing Hints	

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9.1.6 Is a BACnet Router

The IUT is or can be configured to act as a BACnet router.

135.1-2019 - 12.1.3.15 - Sole Master Test		
	Test Conditionality	Must be executed.
	Test Directives	Only one master on the MS/TP network.
	Testing Hints	
BTL - 12.1.X - MS/TP Router Reply Postponed Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply for BACnet Data Expecting Reply Frame Type. For devices at Protocol_Revision 16 or greater, repeat for BACnet Extended Data Expecting Reply Frame Type
	Testing Hints	

9.1.7 Supports Extended MS/TP Frames (over 501 octets)

The IUT can transmit and receive messages with an NPDU > 501 octets

BTL - 12.1.3.X1 - Frame Type Based on Transmitted NPDU Size		
	Test Conditionality	Must be executed
	Test Directives	Execute the test such that the transmitted NPDU sizes are near the 501 octet boundary.
	Testing Hints	
BTL - 12.1.3.X2 - Executing COBS Encoded Frames		
	Test Conditionality	Must be executed
	Test Directives	
	Testing Hints	

9.1.8 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	
BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute this test at least once on each Network Port object that has Network_Type = MSTP and contains writable properties.
	Testing Hints	

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9.2 Data Link Layer - MS/TP - Slave Node

9.2.1 Base Requirements

Base Requirements for all MS/TP slave devices.

135.1-2019 - 12.1.3.2 - Verify $T_{postdrive}$		
	Test Conditionality	Must be executed.
	Test Directives	Every MS/TP device shall claim 9600 baud. Test that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400.
	Testing Hints	
BTL - 12.1.3.3 - Verify T_{frame_gap}		
	Test Conditionality	Must be executed.
	Test Directives	Every MS/TP device shall claim 9600 baud. Test that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400. Test both maintenance (Token and Poll_For_Master) as well as data frames.
	Testing Hints	
135.1-2019 - 12.1.3.4 - Verify $T_{turnaround}$		
	Test Conditionality	Must be executed.
	Test Directives	Every MS/TP device shall claim 9600 baud. Test that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400.
	Testing Hints	
135.1-2019 - 12.1.3.5 - Verify T_{reply_delay}		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 12.1.3.14 - Slave Node Data Frame Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 2.2.X1 - Data Not For Us Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	
BTL - 12.1.3.X - Ignores Unknown Frame Types		
	Test Conditionality	If the IUT supports extended frames, this test shall be skipped.
	Test Directives	
	Testing Hints	

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9.2.2 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object. Specifically, at least 1 property in the Network Port object which changes the behavior of the data link is writable.

BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.2.3 Supports Extended MS/TP Frames (over 501 octets)

The IUT can transmit and receive messages with an NPDU > 501 octets

BTL - 12.1.3.X1 - Frame Type Based on Transmitted NPDU Size		
	Test Conditionality	Must be executed
	Test Directives	Execute the test such that the transmitted NPDU sizes are near the 501 octet boundary.
	Testing Hints	

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9.3 Data Link Layer - IPv4

9.3.1 Base Requirements

Base requirements for all IPv4 devices.

BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute this test at least once on each Network Port object that has Network_Type = IPV4 and contains configurable properties.
	Testing Hints	

9.3.2 Is Able to Operate in Normal Mode

IUT can act, or can be made to act, as a BACnet/IP device in a non-BBMD mode.

135.1-2019 - 14.1.1 - Write-Broadcast-Distribution-Table		
	Test Conditionality	If the IUT is able to change into/out-of BBMD Mode via Write-BDT, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.2 - Read-Broadcast-Distribution-Table		
	Test Conditionality	If the IUT is able to change into/out-of BBMD Mode via Write-BDT, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.3 - Register-Foreign-Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.4 - Delete-Foreign-Device-Entry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.5 - Read-Foreign-Device-Table		
	Test Conditionality	If the IUT is able to change into/out-of BBMD Mode via Write-BDT, then this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.6 - Distribute-Broadcast-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.1.10 - Forwarded-NPDU (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.1.8 - Original-Broadcast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.9 - Original-Unicast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	

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	Testing Hints	
BTL - 14.1.X11 - Processing Forwarded-NPDU request initiated from different port		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.3.3 Is Able to Operate in Foreign Mode

The IUT can register as a foreign device with a BBMD.

The IUT supports a configurable BBMD Address to which it sends Register-Foreign-Device NPDU.

Verify Test Selection		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute test 7.3.2.X62.1.1 at least once for each Network Port object that has Network_Type = IPV4, Protocol_Level = BACNET_APPLICATION, and supports FOREIGN Mode. This test shall be performed on the FD_BBMD_Address and FD_Subscription_Lifetime properties.
	Testing Hints	
BTL - 14.1.X12 - Processing Forwarded-NPDU Request Initiated from a Different Port when Registered as a Foreign Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.8.1 - Registering as a Foreign Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.8.X1 - Register-Foreign-Device Enable and Disable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.8.X2 - Recurring Register-Foreign-Device Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.6 - Distribute-Broadcast-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.1.9 - Original-Unicast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.1.10 - Forwarded-NPDU (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.8.X3 - BBMD Address Configuration Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.8.X4 - Transmits a Broadcast at Startup preceded by Register-Foreign-Device		

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	Test Conditionality	If the IUT never transmits a broadcast at startup, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.8.X5 - Time-to-Live Configuration Test		
	Test Conditionality	If the Time-to-Live is not configurable, this test shall be skipped.
	Test Directives	
	Testing Hints	

9.3.4 Is Able to Operate in BBMD Mode

The IUT acts, or can be made to act, as a BBMD device.

The IUT is capable of being configured for two-hop distribution. In this mode a BBMD sends forwards original BACnet/IP broadcasts to each peer BBMD instead of sending directed broadcasts to each IP subnet.

Two-Hop mode is required functionality and many of the base requirements tests are applied against BBMDs configured to operate in two-hop mode. Due to the coverage of this functionality in the other test plan areas, no two-hop specific tests are provided here.

The IUT supports a BDT with at least four entries.

Verify Test Selection		
	Test Conditionality	Must be executed if the IUT claims Protocol_Revision 17 or higher.
	Test Directives	Execute test 7.3.2.X62.1.1 at least once for each Network Port object that has Network_Type = IPV4, Protocol_Level = BACNET_APPLICATION, and supports BBMD mode. This test shall be performed on the BBMD_Broadcast_Distribution_Table and BBMD_Accept_FD_Registrations properties.
	Testing Hints	
BTL - 14.2.1.2 - Execute Forwarded-NPDU (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.2.2.2 - Execute Original-Broadcast-NPDU (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.2.3 - Execute Original-Unicast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.3.X1 - Write-BDT service is required to return Write-BDT-NAK		
	Test Conditionality	Must be executed in all devices claiming Protocol_Revision >= 17.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.6.1 - Execute Read-Foreign-Device-Table		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.6.3.1 - Non-Zero-Duration Foreign Device Table Timer Operations		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.6.5 - Execute Delete-Foreign-Device-Table-Entry Which Should Be Rejected		

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	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.6.6 - Execute Delete-Foreign-Device-Table-Entry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.7.1.2 - Broadcast Message from Directly Connected IP Subnet (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.7.2.2 - Broadcast Message Forwarded by a Peer BBMD (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.7.3.2 - Broadcast Message From a Foreign Device (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.3.1 - Execute Write-Broadcast-Distribution-Table (Table Growth)		
	Test Conditionality	If the IUT does not support the Write-Broadcast-Distribution-Table message, this test may be skipped. If the IUT claims Protocol_Revision >= 17, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.3.2 - Execute Write-Broadcast-Distribution-Table (Table Shrinkage)		
	Test Conditionality	If the IUT does not support the Write-Broadcast-Distribution-Table message, this test may be skipped. If the IUT claims Protocol_Revision >= 17, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.3.3 - Verify Broadcast Distribution Table Created from the Configuration Saved During the Previous Session		
	Test Conditionality	If the IUT claims Protocol_Revision >= 17, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.5.2.2 - Original-Broadcast-NPDU Which Shall Be Forwarded (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.3.5 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	
BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed if Protocol_Revision is 17 or higher..

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	Test Directives	Execute this test at least once on each Network Port object that has Network_Type = IPV4 and contains writable properties.
	Testing Hints	

9.3.6 Is Able to Initiate Broadcast Messages

The IUT can issue a broadcast on its own local subnet or through a BBMD.

BTL - 14.9.1 - Distribute-Broadcast-To-Network		
	Test Conditionality	If the IUT does not support Foreign mode, this test shall be skipped.
	Test Directives	
	Testing Hints	
135.1-2019 - 14.9.3 - Original-Broadcast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.3.7 Supports Network Port Objects and DHCP

The IUT can participate in DHCP and reports its status in the Network Port Object.

BTL - 7.3.2.X62.7.1 - Basic IPv4 DHCP Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.3.8 Supports Network Address Translation in BBMD Mode

The IUT is capable of operating behind a router providing Network Address Translation as described in addendum 135-2008*o*-1.

BTL - 14.7.1.2 - Broadcast Message from Directly Connected IP Subnet (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	Internet Routers and the IUT shall be configured for NAT.
	Testing Hints	
BTL - 14.7.2.2 - Broadcast Message Forwarded by a Peer BBMD (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	Internet Routers and the IUT shall be configured for NAT.
	Testing Hints	
BTL - 14.7.3.2 - Broadcast Message From a Foreign Device (Two-hop Distribution)		
	Test Conditionality	Must be executed.
	Test Directives	Internet Routers and the IUT shall be configured for NAT.
	Testing Hints	

9.3.9 Supports NM-BBMDC-B

The IUT claims support for NM-BBMDC-B

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify the IUT claims support for NM-BBMDC-B
	Testing Hints	

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9.4 Data Link Layer - ZigBee

9.4.1 Base Requirements

These base requirements must be met by any IUT that claims to support for the ZigBee Data Link Layer.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	
	Test Directives	The IUT shall be configured to use the ZigBee Datalink. This test shall be executed using the Device Object and reading the Object_Name property.
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.4.2 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object. Specifically, at least 1 property in the Network Port object which changes the behavior of the data link is writable.

BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

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9.5 Data Link Layer - Ethernet

9.5.1 Base Requirements

These base requirements must be met by any IUT that claims to support for the Ethernet Data Link Layer.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	
	Test Directives	The IUT shall be configured to use the Ethernet Datalink. This test shall be executed using the Device Object and reading the Object_Name property.
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.5.2 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object. Specifically, at least 1 property in the Network Port object which changes the behavior of the data link is writable.

BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

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9.6 Data Link Layer - ARCNET

9.6.1 Base Requirements

These base requirements must be met by any IUT that claims to support for the ARCNET Data Link Layer.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	
	Test Directives	The IUT shall be configured to use the ARCNET Datalink. This test shall be executed using the Device Object and reading the Object_Name property.
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.6.2 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object. Specifically, at least 1 property in the Network Port object which changes the behavior of the data link is writable.

BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

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9.7 Data Link Layer - LonTalk

9.7.1 Base Requirements

These base requirements must be met by any IUT that claims to support for the LonTalk Data Link Layer.

BTL - 9.18.1.X1 - Reading Properties Based on Data Type		
	Test Conditionality	
	Test Directives	The IUT shall be configured to use the LonTalk Datalink. This test shall be executed using the Device Object and reading the Object_Name property.
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.7.2 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object. Specifically, at least 1 property in the Network Port object which changes the behavior of the data link is writable.

BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

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9.8 Data Link Layer - IPv6

9.8.1 Base Requirements

Base requirements must be met by any IUT that can act, or can be made to act, as a BACnet/IPv6 device in a non-BBMD mode.

BTL - 12.X.1.1 - Execute Original-Unicast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.1.2 - Execute Virtual-Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Execute this test at least once on each Network Port object that has Network_Type = IPV6 and contains configurable properties.
	Testing Hints	

9.8.2 Is Able to Operate in Normal Mode

The IUT supports NORMAL mode.

BTL - 12.X.2.1.1 - Initiate Original-Broadcast-NPDU		
	Test Conditionality	If the IUT does not initiate broadcasts, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.1.2 - Execute Original-Broadcast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.1.3 - Execute Forwarded-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.1.4 - Execute Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.1.5 - Execute Forwarded-Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.2.1 - Reject Register-Foreign-Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.2.2 - Reject Delete-Foreign-Device-Table-Entry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.2.2.3 - Reject Distribute-Broadcast-To-Network		
	Test Conditionality	Must be executed.

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	Test Directives	
	Testing Hints	

9.8.3 Is Able to Operate in Foreign Mode

The IUT supports FOREIGN mode.

Verify Test Selection		
	Test Conditionality	Must be executed.
	Test Directives	Execute test 7.3.2.X62.1.1 at least once for each Network Port object that has Network_Type = IPV6, Protocol_Level = BACNET_APPLICATION, and supports FOREIGN Mode. This test shall be performed on the FD_BBMD_Address and FD_Subscription_Lifetime properties.
	Testing Hints	
BTL - 12.X.3.1.1 - Initiate Distribute-Broadcast-To-Network-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.1.2 - Execute Forwarded-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.1.3 - Execute Forwarded-Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.2.1 - Ignores Original-Broadcast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.2.2 - Ignore Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.2.3 - Reject Register-Foreign-Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.2.4 - Reject Delete-Foreign-Device-Table-Entry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.3.2.5 - Reject Distribute-Broadcast-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.8.4 Is Able to Operate in BBMD Mode

The IUT supports BBMD mode.

Verify Test Selection		
	Test Conditionality	Must be executed.

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	Test Directives	Execute test 7.3.2.X62.1.1 at least once for each Network Port object that has Network_Type = IPV6, Protocol_Level = BACNET_APPLICATION, and supports BBMD mode. This test shall be performed on the BBMD_Broadcast_Distribution_Table and BBMD_Accept_FD_Registrations properties.
	Testing Hints	
BTL - 12.X.4.1.1 - Original-Broadcast-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.1.2 - Forwarded-NPDU		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.1.3 - Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.1.4 - Forwarded-Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.1.5 - Distribute-Broadcast-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.2.1 - Ignore Forwarded-NPDU from non-Participating BBMDs		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.2.2 - Reject Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.2.3 - Reject Forwarded-Address-Resolution		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.2.4 - Reject Distribute-Broadcast-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.4.3.1 - Verify writability of the BDT		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.5.1 - Execute Register-Foreign-Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.5.2 - Execute Delete-Foreign-Device-Table-Entry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 12.X.5.3.1 - Non-Zero-Duration Foreign Device Table Timer Operations		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.5.3.2 - Zero-Duration Foreign Device Timer Operations		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 12.X.5.4 - Delete-Foreign-Device-Table-Entry For A Non-existent Entry		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.8.5 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	
BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Execute this test at least once on each Network Port object that has Network_Type = IPV6 and contains writable properties.
	Testing Hints	

9.8.6 Supports DHCP

BTL - 7.3.2.X62.7.2 - Basic IPv6 DHCP Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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9.9 Data Link Layer - Secure Connect

9.9.1 Base Requirements

Base requirements must be met by any IUT that supports BACnet/Secure Connect.

BTL - 14.YY.1.1.1 - Connect and Maintain Hub Connection Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with IUT configured with a hub URI that requires DNS resolution, and with a URI that does not.
	Testing Hints	
BTL - 14.YY.1.1.5 - Unicast Through Hub Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.6 - Unicast to Hub Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.7 - Local Broadcast Initiation Test		
	Test Conditionality	If the IUT never initiates broadcasts, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.8 - Local Broadcast Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.9 - VMAC Uniqueness Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.17 - Configurable Reconnect Timeout Test		
	Test Conditionality	If the IUT has a fixed reconnect timeout, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.18 - Fixed Reconnect Timeout Test		
	Test Conditionality	If the IUT has a configurable reconnect timeout, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.1 - Direct Connect Not Supported - NAK Address Resolution Test		
	Test Conditionality	If the IUT cannot be configured to refuse direct connections, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.5 - Connect-Request Response Wait Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.6 - HTTP 1.1 Fallback Test		
	Test Conditionality	This test shall be executed if the IUT supports BACnet/SC over HTTP 2 or later.
	Test Directives	
	Testing Hints	

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BTL - 14.YY.1.2.7 - Rejection of Invalid Certificate Outgoing Connection Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with an expired certificate. Repeat with a certificate not signed by the locally configured CA.
	Testing Hints	
BTL - 14.YY.1.2.8 - No Additional Certificate Checks Performed Test On Outgoing Connections		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with a certificate: - with a domain different from the IUT's domain; - with an invalid organization; - with a hostname that does not match the device that presents the certificate; - with a hostname which contains multiple periods in a row.
	Testing Hints	
BTL - 14.YY.1.2.9 - Invalid WebSocket Data Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X62.1.2 - Verify Network Configuration Through Network Port Object Test		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.9.2 Is Able to Operate as a Node Without a Local Hub Function

The IUT supports operating as a node without a local hub function enabled.

BTL - 14.YY.1.1.2 - Connect to Failover Hub Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.3 - Connect to Failover Hub on Startup Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.4 - Reconnect to Primary Hub Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.10 - UUID Persistence Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.11 - UUID Persistence When VMAC Changes Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.12 - Unknown 'Must Understand' is True Message Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.13 - Unknown 'Must Understand' is False Message Test		

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	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.14 - Multiple Header Options Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.15 - Advertisement-Solicitation Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.1.16 - Heartbeat-Request Initiation Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.2 - Malformed BVLC Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test with the IUT configured as a basic node connected to the TD as the primary hub.
	Testing Hints	
BTL - 14.YY.1.2.3 - Discard BVLC with Wrong Address Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.4 - Hub Connector Ignores Malformed Hub URIs Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with a generally invalid URI and with a URI using an invalid scheme.
	Testing Hints	
BTL - 14.YY.1.3.1 - Configuration Via PEM Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.3.2 - Configuration Tool Accepts Arbitrary Valid Certificate Parameters Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.3.3 - Factory Defaults Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

9.9.3 Is Able to Operate as a Hub

The IUT is able to operate as a hub (contains a hub function).

BTL - 14.YY.2.1.1 - Local Broadcast Initiation Test		
	Test Conditionality	If the IUT never initiates broadcasts, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.2 - Local Broadcast Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat test with 1, and N clients attached to the hub, where N is any value supported by the IUT.

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	Testing Hints	
BTL - 14.YY.2.1.3 - Minimum NPDU Forwarding Size Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.4 - Failover Hub Connects to Primary Hub Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.5 - Failover Hub's Local Node Connects to Failover Hub Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.6 - Failover Hub Split Horizon Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.7 - Hub Forwards Unicast BVLCs Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.8 - No Additional Certificate Checks Performed Test On Incoming Connections		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with a certificate: - with a domain different from the IUT's domain; - with an invalid organization; - with a hostname that does not match the device that presents the certificate; - with a hostname which contains multiple periods in a row.
	Testing Hints	
BTL - 14.YY.2.1.9 - Duplicate Connection Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.1.10 - Heartbeat-Request Execution Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.2 - Malformed BVLC Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test with the IUT configured as the primary hub.
	Testing Hints	
BTL - 14.YY.2.2.1 - Hub Discards BVLCs with Non-connected VMAC Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.2.2 - Connect-Request Wait Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.2.2.3 - VMAC Collision Detection Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 14.YY.2.2.4 - Rejection of Invalid Certificate Incoming Connection Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with an expired certificate. Repeat with a certificate not signed by the locally configured CA.
	Testing Hints	

9.9.4 Supports Direct Connections

The IUT supports direct connections.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for initiating and/or accepting direct connections.
	Testing Hints	
BTL - 14.YY.3.1.1.1 - Unicast Through Direct Connect Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.1.1.2 - Direct Connect Disconnect Test		
	Test Conditionality	If the IUT does not drop connections, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.1.1.3 - Direct Connect Establishment Failover Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.1.2.1 - Discard Broadcast BVLC Received on Direct Connect Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.1.2.2 - Malformed BVLC Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test with the IUT connected to the TD via a direct connection.
	Testing Hints	
BTL - 14.YY.1.2.3 - Discard BVLC with Wrong Address Test		
	Test Conditionality	Must be executed.
	Test Directives	Apply the test with the IUT connected to the TD via a direct connection.
	Testing Hints	

9.9.5 Is Able to Accept Direct Connections

The IUT supports accepting incoming direct connections.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for direct connections.
	Testing Hints	
BTL - 14.YY.3.2.1.1 - Direct Connect Acceptance Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.2.1.2 - No Additional Certificate Checks Performed Test On Incoming Connections		

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	Test Conditionality	Must be executed.
	Test Directives	Repeat with a certificate: - with a domain different from the IUT's domain; - with an invalid organization; - with a hostname that does not match the device that presents the certificate; - with a hostname which contains multiple periods in a row.
	Testing Hints	
BTL - 14.YY.3.2.2.1 - Connect-Request Wait Time Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.2.2.2 - Direct-Connect Duplicate Connection for IUT Accepted Connections Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.2.2.3 - Direct-Connect Duplicate Connection for IUT Initiated Connections Test		
	Test Conditionality	If the IUT cannot be configured to both support initiating and accepting direct connections, this test shall be skipped. If the IUT does not support 2 or more simultaneous direct connect WebSocket connections, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.2.2.4 - VMAC Collision Detection Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.2.2.5 - Rejection of Invalid Certificate Incoming Connection Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with an expired certificate. Repeat with a certificate not signed by the locally configured CA.
	Testing Hints	

9.9.6 Is Able to Initiate Direct Connections

The IUT supports initiating direct connections.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for direct connections.
	Testing Hints	
BTL - 14.YY.3.3.1.1 - Direct Connect Establishment Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.3.1.2 - Direct Connect Multiple URI Test		
	Test Conditionality	If the IUT does not dynamically determine direct connect per URIs, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.3.2.1 - Invalid Web Socket Scheme In Configured Direct Connect URI Test		
	Test Conditionality	If the IUT does not support configured peer direct connect URI, this test shall be skipped.
	Test Directives	

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	Testing Hints	
BTL - 14.YY.3.3.2.2 - Invalid Web Socket Scheme in Discovered Direct Connect URI Test		
	Test Conditionality	If the IUT does not support discovering a peer's direct connect URI, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 14.YY.3.3.2.3 - Rejection of Invalid Certificate Outgoing Connection Test		
	Test Conditionality	Must be executed.
	Test Directives	Repeat with an expired certificate. Repeat with a certificate not signed by the locally configured CA.
	Testing Hints	

9.9.7 Supports Configuration Through Network Port Object

The IUT supports full, or partial, configuration of the data link through the Network Port object. Specifically, at least 1 property in the Network Port object which changes the behavior of the data link is writable.

BTL - 7.3.2.X62.1.1 - Configure Network Through Network Port Object Test		
	Test Conditionality	Must be executed.
	Test Directives	Perform at least once. Repeat each time the network is reconfigured for a test.
	Testing Hints	

9.9.8 Supports Data Attributes as of Protocol Revision 25

Contact BTL for interim tests for this functionality.

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9.10 Data Link Layer - Virtual Network

9.10.1 Base Requirements

Base requirements must be met by any IUT that is a router to a virtual network or is a virtual BACnet device.

Verify EPICS		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	Verify that the device contains a Network Port object with a Network_Type of VIRTUAL.
	Testing Hints	

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9.11 Data Link Layer - B/IP PAD (Annex H)

9.11.1 Base Requirements

Contact BTL for Interim Tests for this functionality.

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10 Network Management

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10.1 Network Management - Routing

10.1.1 Base Requirements

Base requirements that must be met by any IUT that supports Routing.

BTL - 10.2.X3 - Data Attributes Forwarding Test		
	Test Conditionality	If the IUT is not able to route between multiple networks which support data_attributes, this test shall be skipped.
	Test Directives	Execute the test with multiple attributes in the message to be routed.
	Testing Hints	As of PR 22, BACnet/SC is the only standard datalink which supports data_attributes
BTL - 10.2.X4 - Data Attributes Dropping Test		
	Test Conditionality	If the IUT is not able to route between a network which supports data_attributes and one which does not, this test shall be skipped.
	Test Directives	
	Testing Hints	As of PR 22, BACnet/SC is the only standard secure datalink.
BTL - 10.2.X5 - Secure Path Test		
	Test Conditionality	If the IUT is not able to route between multiple secure networks, this test shall be skipped.
	Test Directives	
	Testing Hints	As of PR 22, BACnet/SC is the only standard datalink which supports data_attributes
BTL - 10.2.X6 - Insecure Path Test		
	Test Conditionality	If the IUT is not able to route between a secure network and an insecure network, this test shall be skipped.
	Test Directives	
	Testing Hints	As of PR 22, BACnet/SC is the only standard secure datalink.

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10.1.2 Routes Packets between Physical BACnet LANs

A BACnet network router connects two or more BACnet networks at the network layer.

The tests are designed for testing routing devices that are connected to two BACnet LANs. The test device is required to send, receive, and "sniff" messages on both LANs at the same time. If a device is capable of routing between multiple combinations of BACnet LANs, then the tester shall use all possible LAN connections during testing, but it is not necessary to run all tests on all combinations of two LANs that the device supports.

If a routing device can be connected to three or more physical BACnet LANs at the same time, the tester shall construct a test network with at least three physical BACnet LANs directly connected to the routing device. Ideally the routing device should be connected to at least one network of each LAN type supported by the device, and more than one network of each LAN type if supported. See the "Test Conditionality" for specific requirements for certain tests.

These requirements must be met by any IUT that can act, or can be made to act, as a BACnet router.

135.1-2019 - 10.2.1 - Startup		
	Test Conditionality	Must be executed.
	Test Directives	Run this test a sufficient number of times to verify that the correct I-Am-Router-To-Network message is broadcasted on all LAN types supported by the routing device.
	Testing Hints	

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135.1-2019 - 10.2.2.1 - Forward I-Am-Router-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	Run this test a sufficient number of times to exercise all supported LAN types.
	Testing Hints	
135.1-2019 - 10.2.2.2.1 - Execute Who-Is-Router-To-Network: No Specified Network Number		
	Test Conditionality	Must be executed.
	Test Directives	Run this test a sufficient number of times to exercise all supported LAN types.
	Testing Hints	
135.1-2019 - 10.2.2.2.2 - Execute Who-Is-Router-To-Network: A Known Remote Network Number is Specified		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.2.3 - Execute Who-Is-Router-To-Network: A Network Number is Specified and the Router Does Not Respond		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.2.4 - Execute Who-Is-Router-To-Network: An Unknown and Unreachable Network Number is Specified		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.2.5 - Execute Who-Is-Router-To-Network: An Unknown Network is Discovered		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.2.6 - Forwarding a Who-Is-Router-To-Network from a Remote Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Use varying lengths for SADR (1-6 byte addresses).
135.1-2019 - 10.2.2.3 - Forward I-Could-Be-Router-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.4.1 - Forwarding Router-Busy-to-Network Information for Specific DNETs		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.2.2.4.2 - Forwarding Router-Busy-To-Network Information for all DNETs		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.4.3 - Receiving Messages for a Busy Router		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.4.4 - Router-Busy-To-Network: Timeout		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.5.1 - Execute Router-Available-To-Network: Restoring Specific DNETs		

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	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.5.2 - Execute Router-Available-To-Network: Restoring All DNETs		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.7.1 - Unknown Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.2.2.7.2 - Unknown Network Layer Message Type		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.2.7.3 - Unknown Network Layer Message Type For Someone Else		
	Test Conditionality	Must be executed on all devices that support BACnet revision 4 or higher.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.3.1 - Ignore Local Message Traffic		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each LAN type supported by the device.
	Testing Hints	
BTL - 10.2.3.2 - Route Message from a Local Device to a Local Device		
	Test Conditionality	Must be executed
	Test Directives	Repeat for each LAN type supported by the device. (The test checks communication in both directions.) One of the tests 10.2.3.2 and 10.2.3.3 must be run by sending the message using a Local Broadcast destination, and the other test must be run by sending the message directly to the IUT's MAC address. This test may be varied by sending a BACnet-ComplexACK-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data_expecting_reply bit.
	Testing Hints	
135.1-2019 - 10.2.3.3 - Route Message from a Local Device to a Router		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the originating device connected to the LAN and once with the destination router connected to the LAN. One of the tests 10.2.3.2 and 10.2.3.3 must be run by sending the message using a Local Broadcast destination, and the other test must be run by sending the message directly to the IUT's MAC address. Use varing legths for DADR (1-7 byte addresses). This test should be veried by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data_expecting_reply bit.
	Testing Hints	
135.1-2019 - 10.2.3.4 - Route Message from One Router to Another Router		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the originating router connected to the LAN and once with the destination

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		router connected to the LAN. Use varying lengths for DADR (1-7 byte addresses) and SADR (1-6 byte addresses). This test should be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data_expecting_reply bit.
	Testing Hints	
135.1-2019 - 10.2.3.5 - Route Message from a Router to a Local Device		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the destination device connected to the LAN and once with the source router connected to the LAN. Use varying lengths for SADR (1-6 byte addresses). This test may be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data_expecting_reply bit.
	Testing Hints	
BTL - 10.2.3.6.1 - Failed Attempt to Locate Router		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	There should be a pause between the transmission of the Who-Is-Router-To-Network message and the transmission of the Reject-Message-To-Network message by the IUT. The BACnet standard does not say how long this pause should be, but one to ten seconds is probably a reasonable range.
BTL - 10.2.3.6.2 - Successful Attempt to Locate Router		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.4.1 - Ignore Local Broadcast Message Traffic		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each LAN type supported by the device.
	Testing Hints	
135.1-2019 - 10.2.4.2 - Global Broadcast from a Local Device		
	Test Conditionality	Must be executed.
	Test Directives	Repeat this test for each LAN type supported by the device. In addition, repeat this test by sending the message directly to the IUT using the IUT's MAC address as well as using a Local Broadcast destination.
	Testing Hints	
135.1-2019 - 10.2.4.3 - Global Broadcast from a Remote Device		
	Test Conditionality	Must be executed.
	Test Directives	Repeat at least twice, with the originating router connected to different types of LANs. Use varying lengths for SADR (1-6 bytes). In addition, repeat this test by sending the message directly to the IUT using the IUT's MAC address as well as using a Local Broadcast destination.
	Testing Hints	
135.1-2019 - 10.2.4.4 - Remote Broadcast from a Local Device to a Directly-Connected Network		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the source device connected to the LAN and once with the LAN as the destination network for the remote broadcast. One of the tests 10.2.4.4

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		and 10.2.4.5 must be run by sending the message directly to the IUT using the IUT's MAC address, and the other test must be run by sending the message using a Local Broadcast destination.
	Testing Hints	
135.1-2019 - 10.2.4.5 - Remote Broadcast from a Local Device to a Non-Directly-Connected Network		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the source device connected to the LAN and once with destination router connected to the LAN. One of the tests 10.2.4.4 and 10.2.4.5 must be run by sending the message directly to the IUT using the IUT's MAC address, and the other test must be run by sending the message using a Local Broadcast destination.
	Testing Hints	
135.1-2019 - 10.2.4.6 - Remote Broadcast from a Remote Device to a Directly-Connected Network		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the source router connected to the LAN and once with the LAN as the destination network for the remote broadcast. Also, vary the length of SADR (1-6 bytes).
	Testing Hints	
135.1-2019 - 10.2.4.7 - Remote Broadcast from a Remote Device to a Remote Network		
	Test Conditionality	Must be executed.
	Test Directives	Repeat twice for each LAN type supported by the device, once with the source router connected to the LAN and once with destination router connected to the LAN. Also, Vary the length of SADR (1-6 bytes).
	Testing Hints	
135.1-2019 - 10.2.4.8 - Remote Broadcast that Should Be Ignored		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.5 - Hop Count Protection		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.2.6 - Network Layer Priority		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.2.X1 - Initiates Network-Number-Is on Startup		
	Test Conditionality	If the IUT supports Protocol_Revision 11 or greater, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.2.X2 - Routers Execute What-Is-Network-Number		
	Test Conditionality	If the IUT supports Protocol_Revision 11 or greater, this test musts be executed.
	Test Directives	
	Testing Hints	

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10.1.3 Routes Packets Between a Physical LAN and One or More Virtual LANs

The device can route BACnet packets between a physical BACnet LAN and one or more virtual BACnet LANs that contain one or more virtual BACnet devices. See H.1 and H.2 in the BACnet standard for a description of virtual BACnet LANs and virtual BACnet devices.

135.1-2019 - 10.8.1 - Startup		
	Test Conditionality	Must be executed.
	Test Directives	Run this test a sufficient number of times to verify that the correct I-Am-Router-To-Network message is broadcasted on all LAN types supported by the routing device.
	Testing Hints	
135.1-2019 - 10.8.2.1.1 - Execute Who-Is-Router-To-Network: No Specified Network Number		
	Test Conditionality	Must be executed.
	Test Directives	Run this test a sufficient number of times to exercise all supported LAN types.
	Testing Hints	
135.1-2019 - 10.8.2.1.2 - Execute Who-Is-Router-To-Network: A Known Remote Network Number is Specified		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.2.1.3 - Execute Who-Is-Router-To-Network: A Network Number is Specified and the Router Does Not Respond		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.2.1.4 - Execute Who-Is-Router-To-Network: An Unknown and Unreachable Network Number is Specified		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.2.2.1 - Unknown Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.2.2.2 - Unknown Network Layer Message Type		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.8.3.1 - Route Request Message from a Local Device to a Virtual Device and Route Response Message from the Virtual Device to the Local Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.8.3.2 - Route Request Message from a Virtual Device to a Local Device		
	Test Conditionality	Must be executed.
	Test Directives	This test should be run repeatedly in order to exercise all ways that the IUT can be configured or stimulated to send a unicast message to a device on a local network. Depending on the capabilities of the IUT this may involve sending a message from the target device to the IUT (unicast or broadcast), writing the network address of the target device

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		to an object property in the IUT, writing the Device ID of the target device to an object property in the IUT, writing the Device Name of the target device to an object property in the IUT, or configuring the IUT using a proprietary method.
	Testing Hints	During the test, the TD shall answer any requests that the IUT generates while attempting to locate the route to the target device. The IUT may need to broadcast a Who-Is or Who-Has request in order to discover the network address of the target device if the network address is unknown.
135.1-2019 - 10.8.3.3 - Route Request Message from a Remote Device to a Virtual Device and Route Response Message from the Virtual Device to the Remote Device		
	Test Conditionality	Must be executed.
	Test Directives	Repeat using varying lengths for SADR (1-6 byte addresses).
	Testing Hints	
135.1-2019 - 10.8.3.4 - Route Request Message from a Virtual Device to a Remote Device		
	Test Conditionality	Must be executed.
	Test Directives	Repeat using varying lengths for DADR (1-7 byte addresses).
	Testing Hints	
BTL - 10.8.3.5.1 - Unknown Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.3.5.2 - Network Reachable Through the Same Port		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.4.1 - Broadcasts that Should Be Ignored		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.4.2 - Route Global Broadcast from a Local Device to Virtual Devices		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.4.3 - Route Global Broadcast from a Remote Device to Virtual Devices		
	Test Conditionality	Must be executed.
	Test Directives	Use varying the lengths of SADR (1-6 bytes).
	Testing Hints	
135.1-2019 - 10.8.4.4 - Route Remote Broadcast from a Local Device to Virtual Devices		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.4.5 - Route Remote Broadcast from a Remote Device to Virtual Devices		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.4.6 - Route Global Broadcast Message from a Virtual Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.8.4.7 - Route Remote Broadcast Message from a Virtual Device to a Local Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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135.1-2019 - 10.8.4.8 - Route Remote Broadcast Message from a Virtual Device to a Remote Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.6 - Network Layer Priority		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.7.1 - Who-Is Specifying Different Device ID		
	Test Conditionality	Must be executed if the device supports DM-DDB-B.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.7.2 - Who-Has Specifying Different Device ID		
	Test Conditionality	Must be executed if the device supports DM-DOB-B.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.8.7.3 - Read of Object Not Contained by Virtual Device		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.8.7.4 - Who-Is Specifying Unknown Device Ids		
	Test Conditionality	Must be executed if the device supports DM-DDB-B.
	Test Directives	
	Testing Hints	
BTL - 10.8.7.5 - Who-Has Specifying Unknown Device Ids		
	Test Conditionality	Must be executed if the device supports DM-DOB-B.
	Test Directives	
	Testing Hints	
BTL - 10.2.X1 - Initiates Network-Number-Is on Startup		
	Test Conditionality	If the IUT supports Protocol_Revision 11 or greater, this test must be executed.
	Test Directives	Since no traffic at virtual ports is ever observed, it is not necessary for Network-Number-Is packets to be formed or emitted on networks which are only connected to virtual ports.
	Testing Hints	
BTL - 10.2.X2 - Routers Execute What-Is-Network-Number		
	Test Conditionality	If the IUT supports Protocol_Revision 11 or greater, this test must be executed.
	Test Directives	
	Testing Hints	
BTL - 10.8.3.6.X1 - Silently Drop Messages to a Virtual Device that is Offline		
	Test Conditionality	Must be executed if any virtual device can become offline, for a time.
	Test Directives	
	Testing Hints	

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10.2 Network Management - Router Configuration - B

The tests are designed for testing routing devices which connect two or more BACnet networks at the network layer.

10.2.1 Base Requirements

There are no base requirements tests for this section, since all testing except as in the following specific sections, is specified in Network Management - Routing.

10.2.2 Supports Routing

The IUT supports the requirements for BACnet Routers.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for section 10.1 Network Management - Routing.
	Testing Hints	

10.2.3 Supports DS-WP-B

The IUT supports DS-WP-B, to configure writable properties of any Network Port objects which it contains.

Verify Checklist		
	Test Conditionality	Must be executed if Protocol_Revision is 17 or greater.
	Test Directives	Verify that the IUT claims support for DS-WP-B.
	Testing Hints	

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10.3 Network Management - Connection Establishment - A

10.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 10.5.3.1 - Establish-Connection-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 10.5.3.2 - Disconnect-Connection-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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10.4 Network Management - Connection Establishment - B

10.4.1 Base Requirements

Base requirements must be met by any IUT that supports NM-CE-B.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims Network Management - Routing
	Testing Hints	Note that when applying routing tests to a half-router, the PTP connection should be established before the tests are started, and the IUT plus its peer half-router are together considered the router under test.
135.1-2019 - 10.3.1.2 - A Network Number is Specified that can be Reached Through a PTP Connection		
	Test Conditionality	Must be executed.
	Test Directives	Configure the test network as per 10.2.
	Testing Hints	
135.1-2019 - 10.3.3 - Initiating Half-Router Procedure for Connection Establishment		
	Test Conditionality	Must be executed.
	Test Directives	Configure the test network as per 10.2.
	Testing Hints	
135.1-2019 - 10.3.7 - Disconnect-Connection-To-Network		
	Test Conditionality	Must be executed.
	Test Directives	Configure the test network as per 10.2.
	Testing Hints	

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10.5 Network Management - Router Configuration - A

10.5.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 10.5.2.X1 - Query A Router's Known Routes		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

10.5.2 Is able to Configure Network Port Objects

The IUT is able to create, delete, read and modify Network Port objects.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard properties of the Network Port object, excluding the Object_Identifier and Object_Type properties.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard properties of the Network Port object, excluding the Object_Identifier and Object_Type properties. Also exclude any properties that are required to be read-only by the BACnet standard. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that creation and deletion of Network Port objects is claimed.
	Testing Hints	

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10.6 Network Management - BBMD Configuration - A

10.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 14.X1.1 - Read-Broadcast-Distribution-Table Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.X1.2 - Write-Broadcast-Distribution-Table Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.X1.3 - Read-Foreign-Device-Table Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.X1.4 - Delete-Foreign-Device-Table-Entry Initiation		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

10.6.2 Is able to Configure Network Port Objects

The IUT is able to read and modify Network Port objects.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard properties of the Network Port object which relate to Ipv4 BBMDs.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for all standard properties of the Network Port object which relate to Ipv4 BBMDs. Repeat the test for a variety of values that cover the range of values required by the "Minimum Writable Value Ranges" table in the DS-M-A BIBB definition.
	Testing Hints	

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10.7 Network Management - BBMD Configuration - B

10.7.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for BACnet/IP - Annex J - BBMD
	Testing Hints	
BTL - 14.X10.1 - Broadcast-Distribution-Table Holds at Least 5 Entries		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 14.X10.4 - Broadcast Distribution Table Configuration via Hostname Entries		
	Test Conditionality	If the IUT claims Protocol_Revision 16 or prior, this test shall be skipped.
	Test Directives	
	Testing Hints	

10.7.2 Supports Registration by Foreign Devices

While configured as a BBMD, the IUT supports, or can be made to support, registration by Foreign Devices and forwards as original BACnet/IP unicasts to each, any broadcasts it processes.

BTL - 14.X10.2 - Holds at Least 5 Foreign Device Registrations		
	Test Conditionality	Must be executed.
	Test Directives	Execute the test such that one Foreign Device has a lifetime of 30s and another Foreign Device has a lifetime of 32400s (9 hours).
	Testing Hints	
BTL - 14.X10.3 - Negative Foreign Device Registration when BBMD_Accept_FD_Registrations is FALSE		
	Test Conditionality	If the device claims Protocol_Revision 16 or lower, this test shall be skipped.
	Test Directives	
	Testing Hints	

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10.8 Network Management - Foreign Device Registration - A

10.8.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Data Link Layer and 'Is able to operate as a Foreign Device'.
	Testing Hints	

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10.9 Network Management - Secure Connect Hub - B

10.9.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims the "Is able to operate as a hub" option under Data Link Layer - Secure Connect.
	Testing Hints	

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10.10 Network Management - Secure Connect Direct Connect - A

10.10.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims the "Is able to initiate direct connections" option under Data Link Layer - Secure Connect.
	Testing Hints	

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10.11 Network Management - Secure Connect Direct Connect - B

10.11.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims the "Is able to accept direct connections" option under Data Link Layer - Secure Connect.
	Testing Hints	

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10.12 Network Management - Communications Configuration - A

10.12.1 Base Requirements

Contact BTL for interim tests for this BIBB.

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10.13 Network Management - Secure Connect Certificate Management - A

10.13.1 Base Requirements

Contact BTL for interim tests for this BIBB.

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11 Gateway

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11.1 Gateway - Virtual Network - B

11.1.1 Base Requirements

The IUT supports routing to virtual networks.

Verify Virtual Devices		
	Test Conditionality	Must be executed
	Test Directives	Test the virtual devices as per their BTL Checklist.
	Testing Hints	Similar to testing derivative products, the functionality supported might need to be spread over 2 or more virtual devices. In such cases, to which of the virtual devices any particular test is applied is left up to the test as long as all applicable tests are executed.
Verify Checklist		
	Test Conditionality	Must be executed
	Test Directives	Verify that the IUT claims the Network Management - Routing option "Routes Packets Between a Physical LAN and One or More Virtual LANs"
	Testing Hints	

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11.2 Gateway - Embedded Objects - B

11.2.1 Base Requirements

Base requirements must be met by any IUT that claims GW-EO-B.

BTL - 9.18.1.X8 - ReadProperty Service when Non-BACnet Device Offline		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be conducted upon an object which is representing information arriving through a Gateway.
	Testing Hints	
BTL - 9.20.1.X9 - ReadPropertyMultiple Service when Non-BACnet Device Offline		
	Test Conditionality	If IUT does not support ReadPropertyMultiple service then this test shall be skipped.
	Test Directives	The test shall be conducted upon an object which is representing information arriving through a Gateway.
	Testing Hints	
BTL - 9.21.1.X10 - ReadRange Service when Non-BACnet Device Offline		
	Test Conditionality	If IUT does not support ReadRange service then this test shall be skipped. If IUT supports the ReadRange service but does not support a list property that maps onto data from a non-BACnet device, this test shall be skipped.
	Test Directives	The test shall be conducted upon an object which is representing information arriving through a Gateway.
	Testing Hints	

11.2.2 Supports Command Prioritization

Gateways are required to implement Priority_Array properties correctly with all 16 entries

135.1-2019 - 7.3.1.2 - Relinquish Default Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be conducted upon an object which is representing information arriving through a Gateway. If no object can be made to meet the configuration requirements, this test shall be skipped.
	Testing Hints	
135.1-2019 - 7.3.1.3 - Command Prioritization Test		
	Test Conditionality	Must be executed.
	Test Directives	The test shall be conducted upon an object which is representing information arriving through a Gateway.
	Testing Hints	

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12 Network Security BIBBs

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12.1 Network Security - Secure Device

12.1.1 Base Requirements

Contact BTL for Interim tests for this BIBB.

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12.2 Network Security - Encrypted Device

12.2.1 Base Requirements

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12.3 Network Security - Multi-Application Device

12.3.1 Base Requirements

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12.4 Network Security - Device Master Key - A

12.4.1 Base Requirements

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12.5 Network Security - Device Master Key - B

12.5.1 Base Requirements

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12.6 Network Security - Key Server

12.6.1 Base Requirements

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12.7 Network Security - Temporary Key Server

12.7.1 Base Requirements

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12.8 Network Security - Secure Router

12.8.1 Base Requirements

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12.9 Network Security - Security Proxy

12.9.1 Base Requirements

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13 Audit Reporting BIBBs

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13.1 Audit Reporting - Logging - A

13.1.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that support for the Audit Log object is claimed.
	Testing Hints	
BTL - 7.3.2.X64.1 - One Audit Log Holds all of an Objects History Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.1 - Reading All Items in the List		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.1 - Enable Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.7 - Buffer_Size Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 7.3.2.24.8 - Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.24.9 - Total_Record_Count Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.2 - Reading Items by Position with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.3 - Reading Items by Position with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.4 - Reading Items by Time		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.4.1 - Reading Items by Time with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.21.1.9 - Reading Items by Sequence with Positive Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 9.21.1.10 - Reading Items by Sequence with Negative Count		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.7 - Reading a Range of Items that do not Exist (by Sequence)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.8 - Reading a Range of Items that do not Exist (by Time)		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2019 - 9.21.1.13 - Reading Items with Negative Count and MOREITEMS		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X64.7 - Accepts Audit Notifications from an Audit Forwarder Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

13.1.2 Supports Matching and Combining of Audit Notifications

The IUT supports matching and combining of audit notifications as performed by full audit loggers.

BTL - 7.3.2.X64.2 - Audit Notification Basic Combining Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X64.3 - Audit Notification Combining Failure Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X64.4 - Audit Notification Non-combining Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X64.5 - Audit Notification Combining Duplicate Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X64.6 - Audit Notification Combining Target Value Preference Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

13.1.3 Supports Hierarchical Audit Logging

The IUT supports forwarding audit notifications to a parent logger with Delete_On_Forward set to FALSE.

BTL - 7.3.2.X64.8 - Hierarchical Logging Test		
	Test Conditionality	Must be executed.
	Test Directives	

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	Testing Hints	
Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify the IUT claims support for AR-F-B.
	Testing Hints	

13.1.4 Supports Execution of AuditLogQuery

The IUT supports the reading of its Audit Log object via the AuditLogQuery service.

BTL - 9.X33.1.1 - AuditLogQuery By Target Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X33.1.2 - AuditLogQuery By Source Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 9.X33.2.1 - Attempting to Query a Non-existent Audit Log		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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13.2 Audit Reporting - Reporter - B

13.2.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.3.1.X499.1 - Audit_Notification_Recipient Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X498.1 - Object Specific Configurable Audit_Level NONE Test		
	Test Conditionality	If the IUT does not contain any non-Audit Reporter objects with configurable Audit_Level properties, this test shall be skipped.
	Test Directives	Apply to one non-Audit Reporter object which has a configurable Audit_Level property.
	Testing Hints	
BTL - 7.3.1.X498.2 - Audit Reporter Audit_Level Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X498.3 - Audit_Level Change Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
Verify EPICS		
	Test Conditionality	Must be executed.
	Test Directives	Verify that Audit_Level, Auditable_Operations, Audit_Priority_Filter properties are writable in all Audit Reporter objects.
	Testing Hints	
BTL - 7.3.1.X504.1 - Monitored_Objects Test		
	Test Conditionality	If the IUT does not contain any Audit Reporter objects with a Monitored_Objects property, this test shall be skipped. If the IUT contains a single Audit Reporter object and its Monitored_Objects property always references all objects in the IUT, this test shall be skipped.
	Test Directives	
	Testing Hints	

13.2.2 Supports Operation Target Auditing

The IUT supports audit reporting. All devices which support audit reporting must be a capable of reporting operations applied to them.

BTL - 7.3.2.X65.4 - Target Audit Reporting - Basic Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.5 - Target Audit Reporting - Unconfirmed Service Operation Test		
	Test Conditionality	If the IUT does not support auditable unconfirmed operations, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.6 - Target Audit Reporting - Confirmed Service Operation Audit Notification		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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BTL - 7.3.2.X65.7 - Target Audit Reporting - Operations with Priority Test		
	Test Conditionality	If the IUT does not support commandable objects, this test shall be skipped.
	Test Directives	Apply the test to one commandable object.
	Testing Hints	
BTL - 7.3.1.X500.1 - Audit_Priority_Filter Target Audit Reporting Test		
	Test Conditionality	If the IUT does not support commandable objects, this test shall be skipped. If the IUT does not support the Audit_Priority_Filter property, this test shall be skipped.
	Test Directives	Apply the test to one commandable object.
	Testing Hints	
BTL - 7.3.2.X65.8 - Target Audit Reporting - Target_Value and Current_Value Test		
	Test Conditionality	If the IUT does not support operations which contain a value (such as writes), this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.9 - Target Audit Reporting - Error Audit Notification Test		
	Test Conditionality	If the IUT does not report errors via audit notifications, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.10 - Target Audit Reporting - GENERAL Operation Test		
	Test Conditionality	If the IUT does not generate GENERAL operation audit notifications, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X501.2 - Auditable_Operations Target Audit Reporting Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

13.2.3 Supports Operation Source Auditing

The IUT supports operating as a BACnet client.

BTL - 7.3.2.X65.11 - Source Audit Reporting - Basic Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.12 - Source Audit Reporting - Same Device Notification Test		
	Test Conditionality	If the IUT is unable to perform auditable operations on itself, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.13 - Source Audit Reporting - Unconfirmed Service Operation Test		
	Test Conditionality	If the IUT cannot perform auditable unconfirmed service operations, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.14 - Source Audit Reporting - Confirmed Service Operation Audit Notification		
	Test Conditionality	If the IUT cannot perform auditable confirmed service operations, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.15 - Source Audit Reporting - Operations with Priority Test		

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	Test Conditionality	If the IUT cannot perform auditable operations which include a priority, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.16 - Source Audit Reporting - Error Audit Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.17 - Source Audit Reporting - Single Source Audit Reporter Object Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X501.3 - Auditable_Operations Source Audit Reporting Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

13.2.4 Generates UnconfirmedAuditNotifications

The IUT is able to report audit notifications using UnconfirmedAuditNotification requests.

Verify Test Selection		
	Test Conditionality	
	Test Directives	Ensure that a test from another section is executed with the IUT configured to send UnconfirmedAuditNotifications.
	Testing Hints	

13.2.5 Generates ConfirmedAuditNotifications

The IUT is able to report audit notifications using ConfirmedAuditNotification requests.

Verify Test Selection		
	Test Conditionality	
	Test Directives	Ensure that a test from another section is executed with the IUT configured to send ConfirmedAuditNotifications.
	Testing Hints	

13.2.6 Supports Delaying of Audit Notifications

The IUT supports delaying of audit notifications to allow multiple notifications to be sent in a single audit notification request.

BTL - 7.3.1.X503.1 - Maximum_Send_Delay Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X505.1 - Send_Now Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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13.3 Audit Reporting - Reporter - Simple - B

13.3.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

BTL - 7.3.1.X499.1 - Audit_Notification_Recipient Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X498.1 - Object Specific Configurable Audit_Level NONE Test		
	Test Conditionality	If the IUT does not contain any non Audit Reporter objects with configurable Audit_Level properties, this test shall be skipped.
	Test Directives	Apply to one non-Audit Reporter object which has a configurable Audit_Level property.
	Testing Hints	
BTL - 7.3.1.X498.2 - Audit Reporter Audit_Level Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X498.3 - Audit_Level Change Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X501.1 - Non-configurable Auditable_Operations Property Test		
	Test Conditionality	If the IUT does not contain any objects with a non-configurable Auditable_Operations property, this test shall be skipped.
	Test Directives	Repeat once for each object type for which at least 1 instance has a non-configurable Auditable_Operations property.
	Testing Hints	
BTL - 7.3.1.X504.1 - Monitored_Objects Test		
	Test Conditionality	If the IUT does not contain any Audit Reporter objects with a Monitored_Objects property, this test shall be skipped. If the IUT contains a single Audit Reporter object and its Monitored_Objects property always references all objects in the IUT, this test shall be skipped.
	Test Directives	
	Testing Hints	

13.3.2 Supports Operation Target Auditing

The IUT supports audit reporting. All BACnet devices which support audit reporting are required to generation audit notifications for operations performed on the IUT and / or its objects.

BTL - 7.3.2.X65.4 - Target Audit Reporting - Basic Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.5 - Target Audit Reporting - Unconfirmed Service Operation Test		
	Test Conditionality	If the IUT does not support unconfirmed auditable operations, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.6 - Target Audit Reporting - Confirmed Service Operation Audit Notification		
	Test Conditionality	Must be executed.
	Test Directives	

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	Testing Hints	
BTL - 7.3.2.X65.7 - Target Audit Reporting - Operations with Priority Test		
	Test Conditionality	If the IUT does not support commandable objects, this test shall be skipped.
	Test Directives	Apply the test to one commandable object.
	Testing Hints	
BTL - 7.3.1.X500.1 - Audit_Priority_Filter Target Audit Reporting Test		
	Test Conditionality	If the IUT does not support commandable objects, this test shall be skipped. If the IUT does not support the Audit_Priority_Filter property, this test shall be skipped.
	Test Directives	Apply the test to one commandable object.
	Testing Hints	
BTL - 7.3.2.X65.8 - Target Audit Reporting - Target_Value and Current_Value Test		
	Test Conditionality	If the IUT does not support operations which contain a value (such as writes), this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.9 - Target Audit Reporting - Error Audit Notification Test		
	Test Conditionality	If the IUT does not report errors via audit notifications, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.10 - Target Audit Reporting - GENERAL Operation Test		
	Test Conditionality	If the IUT does not generate GENERAL operation audit notifications, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X501.2 - Auditable_Operations Target Audit Reporting Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

13.3.3 Supports Operation Source Auditing

The IUT is a BACnet client and supports audit reporting. A device which supports audit reporting and which initiates requests (aside from notifications or unconfirmed services generated in response to other requests such as I-Am requests), is required to support source audit reporting.

BTL - 7.3.2.X65.11 - Source Audit Reporting - Basic Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.13 - Source Audit Reporting - Unconfirmed Service Operation Test		
	Test Conditionality	If the IUT cannot perform auditable unconfirmed service operations, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.14 - Source Audit Reporting - Confirmed Service Operation Audit Notification		
	Test Conditionality	If the IUT cannot perform auditable confirmed service operations, this test shall be skipped.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.15 - Source Audit Reporting - Operations with Priority Test		
	Test Conditionality	If the IUT cannot perform auditable operations which include a priority, this test shall be skipped.
	Test Directives	

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	Testing Hints	
BTL - 7.3.2.X65.16 - Source Audit Reporting - Error Audit Notification Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X65.17 - Source Audit Reporting - Single Source Audit Reporter Object Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X501.3 - Auditable_Operations Source Audit Reporting Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

13.3.4 Generates UnconfirmedAuditNotifications

The IUT is able to report audit notifications using UnconfirmedAuditNotification requests.

Verify Test Selection		
	Test Conditionality	
	Test Directives	Ensure that a test from another section is executed with the IUT configured to send UnconfirmedAuditNotifications.
	Testing Hints	

13.3.5 Generates ConfirmedAuditNotifications

The IUT is able to report audit notifications using ConfirmedAuditNotification requests.

Verify Test Selection		
	Test Conditionality	
	Test Directives	Ensure that a test from another section is executed with the IUT configured to send ConfirmedAuditNotifications.
	Testing Hints	

13.3.6 Supports Delaying of Audit Notifications

The IUT supports delaying of audit notifications to allow multiple notifications to be sent in a single audit notification request.

BTL - 7.3.1.X503.1 - Maximum_Send_Delay Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
BTL - 7.3.1.X505.1 - Send_Now Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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13.4 Audit Reporting - Forwarder - B

13.4.1 Base Requirements

The IUT supports forwarding audit notifications to a parent logger with Delete_On_Forward set to TRUE.

BTL - 7.3.2.X65.18 - Audit Forwarding Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

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13.5 Audit Reporting - View - A

13.5.1 Base Requirements

There are no base requirements for this BIBB.

13.5.2 Supports Reading Audit Logs using AuditLogQuery

The IUT is able to read Audit Log objects using the AuditLogQuery service.

BTL - 8.X33.1 - Reading a Range of Items Using Any Valid Query		
	Test Conditionality	If the device claims Audit Reporting-Advanced View and Modify-A this test shall be skipped.
	Test Directives	Use an Audit Log object as the log object for this test.
	Testing Hints	

13.5.3 Supports Reading Audit Logs using ReadRange

The IUT is able to read Audit Log objects using the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Initiates ReadRange.
	Testing Hints	
135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	If the IUT claims Audit Reporting-Advanced View and Modify-A this test may be skipped.
	Test Directives	Use an Audit Log object as the log object for this test.
	Testing Hints	

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13.6 Audit Reporting - Advanced View and Modify - A

13.6.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB.

135.1-2019 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each standard audit reporting property, in a standard object type. Repeat for each property in the Audit Reporter and Audit Log objects.
	Testing Hints	
135.1-2019 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat for each standard audit reporting property, in a standard object type. Repeat for each property in the Audit Reporter and Audit Log objects which is not mandated as read only by the standard, or to which access is otherwise restricted by the standard.
	Testing Hints	

13.6.2 Supports Reading Audit Logs using AuditLogQuery

The IUT is able to read Audit Log objects using the AuditLogQuery service.

BTL - 8.X33.1 - Reading a Range of Items Using Any Valid Query		
	Test Conditionality	Must be executed.
	Test Directives	Use an Audit Log object as the log object for this test.
	Testing Hints	

13.6.3 Supports Reading Audit Logs using ReadRange

The IUT is able to read Audit Log objects using the ReadRange service.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for Initiates ReadRange.
	Testing Hints	
135.1-2019 - 8.21.8 - Reading a Range of Items Using Any Valid Range		
	Test Conditionality	Must be executed.
	Test Directives	Use an Audit Log object as the log object for this test.
	Testing Hints	

13.6.4 Supports DS-RP-A

The IUT shall support DS-RP-A in order to receive alarm parameters for presentation to the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-RP-A.
	Testing Hints	

13.6.5 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update alarm parameters modified by the user.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DS-WP-A.
	Testing Hints	

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13.6.6 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to allow the user to create Audit Reporter and Audit Log objects.

Verify Checklist		
	Test Conditionality	Must be executed.
	Test Directives	Verify that the IUT claims support for DM-OCD-A and that it claims the ability to create and delete Audit Reporter, and Audit Log objects.
	Testing Hints	

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14 BACnet Web Services

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14.1 BACnet Web Services Client

14.1.1 Base Requirements

Contact BTL for Interim tests for this BIBB.

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14.2 BACnet Web Services Server

14.2.1 Base Requirements

Contact BTL for Interim tests for this BIBB.

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Version	Date	Author	Change
0.11	5-Aug-2004	Carl Neilson	• Updates based on Nashville meeting comments on Round 3 updates.
0.12	24-Aug-2004	Carl Neilson	• Removed 9.24.4.X1, 9.24.4.X2. Now reference 9.24.1.5 and 9.24.1.6 in 135.1. • Changed to reference BTL - 10.2.4.4 instead of 135.1 - 10.2.4.4 • Changed to reference BTL - 10.2.4.6 instead of 135.1 - 10.2.4.6 • Added conditional language to 10.2.6 for test 14.X2.1 Corrected 4.9.1 reference to BTL - 7.3.1.X.
0.13	26-Oct-2004	Roland Laird	• Updated BACnet/IP sections based on changed tests
0.14	27-Oct-2004	Carl Neilson	• Changed referenced to 7.3.1.11, 9.1.1.1, 9.1.1.4, 9.1.2.1, 9.1.2.5 to be BTL Specified tests
0.15	29-Oct-2004	Carl Neilson	• Removed highlighted edits marked for deletion.
0.16	18-Nov-2004	Carl Neilson	• Changed referenced from BTL - 9.24.1.X1 to 135.1 - 9.24.1.4
0.17	19-Nov-2004	Carl Neilson	• Added DCC protocol revision 4 entries
0.18	1-Dec-2004	Carl Neilson	• Minor typo
0.19	20-Dec-2004	Carl Neilson	• Updated section 10.3.2 Routing from Tp-Routing-08 • Added BTL-9.20.2.1 to RPM-B Base Requirements • Added BTL-7.3.2.9.8, 7.3.2.9.9, 7.3.2.15.5, 7.3.2.18.6, 7.3.2.19.5, 7.3.2.22.9, 7.3.2.13.1, 7.3.2.13.2 to WP-B - Contains Resizable Arrays. • Added 9.23.1.X7, 9.23.1.X8 to WPM-B Base Requirements • Added Alarming protocol revision 4 entries
0.20	13-Jan-2005	Carl Neilson	• Added clarifying text to the test hint for 9.2.7.6 about how filters are applied.
0.21	18-Feb-2005	Carl Neilson	• Separated DDB-A options for unicast vs broadcast use of WhoIs without range parameters • Made the scheduling of the INTEGER datatype optional in SCHED-E-B.
0.22	15-Jun-2005	Carl Neilson, Roland Laird	• Fixed typo in 3.3 • Added into 9.20.1.7,-9.20.19, allowance for skipping the test when APDU and segmentation restrictions make the test impossible. • Added 4.8.10 Can Cancel Subscriptions. • Added 4.8.12 Can Request Infinite Subscriptions. • Clarified why some datatypes are not explicitly listed in DS-RP-B and DS-RPM-B • Added testing hint to 135.1 - 9.7.2.6 • Added two-hop section to match the checklist • Added revision 4 scheduling entries
0.23	16-Jun-2005	Carl Neilson	• Added test plan entries for modifiable lists
0.24	20-Jul-2005	Carl Neilson	• Added WhoHas tests 9.32.1.X1, 9.32.1.X2
0.25	05-Oct-2005	Carl Neilson	• Added MS/TP restart tests 2.2.14..2.2.17 • Added RPM/RP fallback tests 8.20.5.1, 8.20.5.2

0.26	24-Oct-2005	Carl Neilson	• Added Notification Class object & moved Recipient_List entries from AE-N-I-B & T-ATR-B • Removed BUFFER_READY specific sections from T-ATR-B and added the tests into the intrinsic and algorithmic sections of T-ATR-B • Added test 7.3.1.X3 Array Sizing Test to WP-B and WPM-B • Added 13.X2.1 APDU Retry and Timeout in basic functionality
0.27	27-Oct-2005	Carl Neilson	• Removed leftover Recipient_List entry from AE-N-I-B • A few minor typos fixed
4.0.0	13-Sep-2006	Carl Neilson	• Changed revision numbering
4.0.1	04-Apr-2007	Carl Neilson	• Round 4 changes (excluding SCHED)
4.0.2	08-Jun-2007	Lori Tribble	• Applied changes required for CRR-0008, CRR-0015, CRR-0017, CRR-0020, CRR-0021 • Reconciled some of the differences between the checklist and this document.
4.0.3	30-Jul-07	Lori Tribble	• Changed test references from BTL to 135.1a.
4.0.4	25-Aug-07	Lori Tribble	• Highlighted changes
4.0.5	25-Oct-07	Lori Tribble	• Removed Highlights • Changed references from 135.1 to 135.1-2003 or 135.1-2003a where appropriate. • Removed (includes NM-RC-B) from Routing title. • Updated the BTL Mark. • Updated test conditionality for 9.18.1.X1.
4.0.6	2-Nov-2007	Lori Tribble	• Removed 'Supports writable Number_Of_States Property' from Multi-State Objects because tests included in WP-B. • Added tests from WP-B 'resizable arrays' to WPM-B section 'resizable arrays'.
4.0.7	11-Jan-2008	Lori Tribble	• Added DM-TS-B and DM-UTC-B to SCH-I-B • Added Virtual Routing • Added DM-LM-A and DM-LM-B • Removed test 14.X2.3 from the BBMD test section 10.2.6 Is Able to Register as a Foreign Device per BTL-CRR-0041 • Changed 5.2.3 Supports Notification Class Object to reference Verify Checklist instead of a test that is already run under the Notification Class Object set of tests. • Updated Test Conditionality for section 10.2.2 tests due to optional functionality requirements. • Added place holder and partial B&R-A section.
4.0.8	8-Feb-2008	Lori Tribble	• Updated DM-BR-A • Added test BTL-9.1.1.X3 in AE-ACK-B for new revision 5 requirements. • Removed 8.3.6 and 8.3.7 from DOB-A - BTL-CRR-0042 •

4.0.9	22-Feb-2008	Lori Tribble	• Updated List Manipulation-B test references to include 2003. Changed configuration to As per 135.1-2003. • Fixed references to DeviceCommunicationControl • Added place holders for SCH-AVM-A, SCH-VM-A, SCH-WS-A. • Fixed CHANGE_OF_STATE test reference from 135.1 to BTL.
4.0.10	13-Mar-2008	Lori Tribble	• Fixed test references for 5.1.13 and 5.1.14. • Updated page header format
4.0.11	16-Apr-2008	Lori Tribble	• Updated test references from 135.1 to BTL • Updated B&R-A tests from 13.X2 to 13.X5.
4.0.12	12-May-2008	Lori Tribble	• Corrected references for tests in DM-ADM-A and DM-ANM-A.
4.0.13	21-May-2008	Lori Tribble	• Changed test references from 135.1 to BTL per BTL-CRR-0017 • Modified AE-N-I-B requirements per BTL-CRR-0054. • Added EE requirement line item to AE-N-E-B. • Added Calendar object requirements. • Added Event Enrollment object requirements. • Added Schedule Object requirements. • Added Trend Log Object requirements. • Added SCH-WS-I-B and SCH-R-B • Modified test references from 135.1 to BTL per WS-038-4. • Updated table of contents.
4.0.14	28-Jun-2008	Lori Tribble	• Accepted all previous modifications • Added the BTL requirements sections and moved appropriate tests. Corresponds with Checklist 4.0.14. • Modified AE-AS-A requirements to not reference AE BIBBs that are being deleted by Addendum L. • Added comments where newly approved Addendum M affects tests and test plan. • Changed -2003 references to -2007. Updated test numbers where appropriate but left old numbers for reference.
4.0.15	9-Sep-2008	Lori Tribble	• Applied BTL-CRR-0061 Effective_Period • Applied changed to DM-ADM-A • Applied BTL-CRR-0059 DCC_TimeDuration • Changed references for 7.3.2.8.1, 7.3.2.8.2, 7.3.2.8.3 from 135.1 to BTL. • Changed references for 7.3.2.21.3.1 and 7.3.2.21.3.2 from 135.1 to BTL. • Changed reference for 7.3.2.23.2 from 135.1 to BTL. • Changed all BTL references which were changed by 135.1-2009. • Changed references for 7.3.2.23.3.1 - 9 from 135.1 to BTL.

			• Changed references for 7.3.2.23.4 - 8 from 135.1 to BTL. • Added Test Conditionality to tests in SCH-I-B and SCH-E-B. • Add changes required by current version of SCH-A document v9. More changes will be required to complete this section.
4.0.16	17-Sep-2008	Lori Tribble	• Accepted all changes made previously. • Corrected some format issues.
4.0.17	7-Oct-2008	Lori Tribble	• Corrected test reference for COV from 24 hours to 8 hours.
4.0.18	17-Oct-2008	Lori Tribble	• Fixed header and footer on first page. • Removed 9.23.1.7 WPM maximum properties and 9.20.1.12 RPM max properties • Updated SCH-WS-A, SCH-AVM-A, and SCH-VM-A per latest approved documents. • Added test 7.2.2.1 Read-Only Property Test and 7.2.2.X2 Non-documented Property Test to EPICS section of test plan. • Removed the 'input-tracking' and 'output-tracking' tests from AI, AO, BI, BO base requirements.
5.0.1	17-Oct-2008	Lori Tribble	• Accepted all previous changes • Modified test called out for WPM, Contains Writable List Properties.
5.0.2	24-Feb-2009	Lori Tribble	• Rearranged Analog Output section to match order in Checklist. • Rearranged RPM-A section to match order in Checklist. • Removed DS-COVU-A and DS-COVU-B sections as they are not in the Checklist. • Changed title of BTL-8.22.X4 to capitalize 'whole'. • Changed test requirements for Will Accept Infinite COV Subscriptions (4.10.17) • Changed reference from 135.1-2009-7.2.2 to BTL-7.2.2. • Removed Segmentation sections since tests are not available yet. • Added resizable support under object sections and removed from WP-B and WPM-B sections. • Added note to OCD-A Support File Objects to clarify when it should be selected. • Corrected Test Conditionality for Multi-State objects Support State_Text section. • Corrected typo in AE-ACK-B Testing Hints for test BTL-9.1.2.1. • Added unknown object tests to RP-B and RPM-B sections. • Added Ethernet section to Test Plan.
5.0.3	20-March-2009	Frank Schubert	• Formatted test references • Corrected Verify Checklist statements (removed "The tester shall"

			• Changed BTL - 8.5.X2 - Extended Algorithm Tests to BTL - 8.5.X3 • Changed revision =4 to revision >=4 • Changed “revision x later” to “revision x higher” • Replaced multi-whitespaces to single whitespaces • Changed Hints or Conditionality = “none” to blank fields • Changed “Must always be executed” to “Must be executed” • Added field “Test Directives” • Changed some tests marked in red color to black color • Moved “Testing Hints” of Verify Checklist tests to “Test Directives” • Changed BACnet Basic Functionality to match IUT checklist • Changed “SCH-“ to “SCHED-“ • Changed “T-VM-“ to “T-VMT-“ • Renamed chapter 9 Data-Link-Layer • Moved BACnet/IP to chapter 9 • Moved Ethernet to Chapter 9 • Moved Routing to Chapter 10 • Changed all “Results” to “Notes & Results” • Formatted all tables to have width of 6” • Changed tests specified for DM-LM-B Supports writable proprietary list properties of primitive datatypes.
5.0.4	27-Mar-2009	Lori Tribble	• Added new sections in SCHED-I-B and SCHED-E-B that reflect changes to Addendum L. • Added ‘Manual’ to all ‘Verify Checklist’ entries. • Renumbered 9.23.1.X7 to 9.23.2.6 as defined in 135.1-2009. • Renumbered 9.23.1.X8 to 9.23.2.7 as defined in 135.1-2009. • Changed reference from 135.1-2009-7.3.2.24.8 to BTL-7.3.2.24.8 due to BTL-CRR-0070 changes. • Added Database_Revision tests to Device Object section. • Rearranged Object Creation and Deletion -A section to remove requirement of create by Object_Type.
5.0.5	6-Apr-2009	Lori Tribble	• Accepted previous changes • Changed reference for Stop_When_Full test. It has been fixed in the BTL Specified Tests document. (BTL-7.3.2.24.6.1)
5.0.6	9-Apr-2009	Lori Tribble	• Changed reference to ‘Reading a Single, Unsupported Property from a Single Object’ from 135.1-2009 to BTL. This test was corrected by BTL-CRR-0039. • Modified references for Create and Delete tests per document proposed in BTL-WG and approved 4/9/2009.
5.0.7	8-Jun-2009	Lori Tribble	• Removed Effective_Period tests from SCHED-I-B base requirements. They are now part of a

			separate section in the SCHED-I-B group. Same was done for SCHED-WS-I-B. • Updated Binary Input and Output object requirements per BTL-CRR-KV01. • Updated requirements to DM-DCC-B per BTL-CRR-KV02. • Modified references to test 7.3.1.1 to reference the new BTL version. Changed the Configuration to indicate the object required during the test execution.
5.0.8	22-Jun-2008	Lori Tribble	• Removed duplicate test (BTL-9.23.1.X2) in section 8.4.6. • Removed note in configuration for tests 7.3.1.1 per discussion in BTL-WG meeting on 6/18/2009 • Corrected Polarity tests description paragraph. • Removed the 'No Specific Test' under Base Requirements for section 8.14. • Corrected test name for test number BTL - 9.21.1.4
5.0.9	7-Jul-2009	Lori Tribble	• Accepted all changes per BTL-WG meeting on June 18, 2009. • Corrected formatting errors. • Removed AE-ANS-A and AE-ANS-B sections • Deleted Macros from document.
5.0.final	7-Jul-2009	Lori Tribble	• Renamed to final
6.0.6	5-Jan-2011	Duffy O'Craven	• Integrated changes for 135-2004d-5_v3.doc • Integrated changes for BTL-CRR-KV06-ReadingDataTypes.pdf into DS-RP-B/RPM-B • Added Contains Octet String to DS-WP-B/WPM-B • Integrated Trend Log Multiple, Event Log, and Structured View changes • Added Processes UNSIGNED_RANGE notifications to AE-N-A • Integrated deprecation of static router binding • Renamed DM-OCD-A sections from Supports … to Can Create and Delete … • Added ZigBee Data Link Layer • Added Supports Clock-aligned Logging
6.0.7	19-Jan-2011	Duffy O'Craven	• Initial capitalized Create and Delete, and Clock-align Logging section names • Renamed Initates to Issues in BACnet/IP sections • Revised Conditionality of 7.3.2.24.6.1/7.3.2.24.6.2 Stop_When_Full tests based upon BTL-CRR-0120_Stop_When_Full.doc
6.0.8	19-Jan-2011	Duffy O'Craven	• Revised AE-N-I-B and AE-N-E-B based upon 135-2004m-5 r4 Add requirements to Alarm and Event BIBBs.doc • Added ReinitializeDevice with invalid 'Reinitialized State of Device', based upon 135-2004m-8 r2 Clarify

			DeviceCommunicationControl and ReinitializeDevice interactions.doc
6.0.9	19-Jan-2011	Duffy O'Craven	• Revised all test references to 135.1 - 2009 if the test is present there. • Corrected test references to 135.1 - 2009 as appropriate, based upon errors brought to light in BTL-CRR-0110_7.3.2.23.9_reference.doc, BTL-CRR-0125_9.1.2.6.doc, BTL-CRR-0129_7.3.2.23.9_conditionality.doc, and BTL-CRR-0147_9.2.1.2_reference.doc • Added conditionality on tests 9.8.3 and 9.8.6 according to BTL-CRR-0133_9.8.3_conditionality.doc •
6.0.10	26-Jan-2011	Duffy O'Craven	• Added tests 9.1.1.X4 and 9.1.1.X5 to ACK-B, based upon BTL Specified Tests-Add135-2004m-4-ReAckAlarms-3.doc • Added test 9.21.1.X5 Reading Items with Negative Count and MOREITEMS • Derived tests from 135.1-2009 in DCC-A and RD-A, adding proper password treatment based upon BTL-CRR-0078 - DeviceCommunicationControl_Password.doc • Added conditionality to 9.24.1.X3 and 9.24.1.X4 - Disable of Service Initiation Restored by Time Duration and by DeviceCommunicationControl, based upon BTL-CRR-KV04-DisableServiceInitiation.doc • Revised tests 9.24.2.1, 9.24.2.2, 9.27.1.1 and 9.27.1.3, and added tests 9.24.2.X3, 9.27.2.X3 and 9.27.2.X4 in DCC-B and RD-B, based upon 135-2004m-8 r2 Clarify DeviceCommunicationControll and ReinitializeDevice interactions.doc • Eliminated section: Supports AE-AVN-A, in AE-AVM-A since Addendum 135-2008l specifies no such requirement.
9.0.11	09-Feb-2011	Duffy O'Craven	• Combined Structured View optional sections into one • DM-OCD-A combined first two lineitems • BACnet/IP unicast is not optional so is moved into Base Requirements • BACnet/IP broadcast section renamed to Is able to initiate Original-Broadcast-NPDU
9.0.12	10-Feb-2011	Duffy O'Craven	• Corrected test references in COV for Life Safety Objects to BTL - 9.2.1.X2 according to BTL-CRR-0111_9.2.1.X2_reference.doc • Moved AE algorithms' requirement that the test be repeated from Test Conditionality to Test Directives • If Event Enrollment objects are supported, ensure AE-N-I-B is tested on Event Enrollment objects.
9.0.13	23-Feb-2011	Duffy O'Craven	• Corrected Test Conditionality in "Supports writable and resizable Subordinate_List and

			contains a Subordinate_Annotations property" to Must be executed. • Added missing section "Is able to Present and Modify Weekly_Schedule of INTEGER (Signed) Type" • Reordered "Supports Writable Polarity Property" in Binary Input objects to match Checklist order • Reordered "Initiates Who-Has Service Request with Object Name Identifier Parameter with Range Parameters" and Initiates Who-Has Service Request with Object Identifier Name Parameter and No Range Parameters" to match Checklist order • Reordered "Supports Non-Password Protected Backup" to match Checklist order • Test Conditionality added for "Priority_For_Writing is writable" in consequence of BTL-CRR-0091_Must_Priority_For_Writing_be_Writable.doc
9.0.14	09-Mar-2011	Duffy O'Craven	• Incorporated "Enables/Disables BBMD Mode via Write-BDT" changes • In List Manipulation-B moved Negative Tests to "Base Requirements" and Positive Tests to "All writable list properties in the IUT support list manipulation" • Reordered "Is able to Schedule Octet String Values" in Schedule-External-B to match Checklist order • In consequence of BTL-CRR-0179_9600_baud.doc, testing now ensures that every MS/TP device claims 9600 baud, and that the device operates at each baud rate that is claimed. Devices claiming Protocol_Revision 12 or higher where Addendum 135-2008ab is incorporated, shall claim 38400. • In consequence of BTL-CRR-0180_P_C_C.doc, testing now ensures that every deleted property is detected, if present.
9.0.15	06-Apr-2011	Duffy O'Craven	• Corrected test references for test 9.10.2.1 The Monitored Object Does Not Support COV Notification from 135.1 - 2007 to BTL Specified tests as specified in BTL-CRR-0104_correcting_9.10.2.1.doc • Revised Conditionality of 9.10.1.X2 Ensuring Subscription Lifetimes Are Not Effected By Time Changes test based upon BTL-CRR-0183_9.10.1.X2.doc • In consequence of re-consideration of BTL-CRR-0091_Must_Priority_For_Writing_be_Writable.doc reverted the Test Conditionality added for "Priority_For_Writing is writable". • Removed duplicate section 6.7.5 "Can Be Made to Contain a Schedule That Schedules NULL Values" and incorrect test BTL - 7.3.2.23.X1.1 in

			Schedule - Readonly - B. It appears later as 6.7.23, correctly with test BTL - 7.3.2.23.X1.2 • The preamble for WPM-B "Contains Writable NULL properties" is clarified, because this section and tests are explicitly for non-commandable properties, in consequence of BTL-CRR-0156_4.5.6_4.5.7.doc • In consequence of BTL-CRR-0182_9.10.1.2, added Directive that tests 9.10.1.1 and 9.10.1.2 shall be executed against objects which will accept the subscription.
9.0.16	26-Apr-2011	Duffy O'Craven	• Clarified by renaming the sections in AE-AS-A, that the filters apply only to GetEnrollmentSummary requests • Removed section "Supports AE-AVN-A" in AE-AVM-A • Renamed "Can write NULL property values" in DS-WP-A, and the prior section, in consequence of BTL-CRR-0156_4.5.6_4.5.7.doc • Renamed "Can write NULL property values" and the prior section in DS-WPM-A, in consequence of BTL-CRR-0156_4.5.6_4.5.7.doc • Added "Supports SCHED-I-B" and "Supports DS-WP-A" to Scheduling - External - B, because they are required • Renamed " Is able to present and modify Weekly_Schedule of INTEGER (signed) type" to match the Checklist and other section's names which includes the parenthetical • Removed "Supports DS-RP-B" and "Supports DS-WP-B" from Scheduling - Weekly Schedule - Internal - B, because those are implicitly required elsewhere • Removed "Supports DS-RP-B" from Scheduling - Readonly- B, because that is explicitly required elsewhere • Reordered "Is able to schedule Octet String values" to match Checklist order • Corrected test references for test 9.33.2.3 General Inquiry, Directed to a Remote Device from 135.1 - 2007 to BTL Specified tests as specified in BTL-CRR-0101_9.33.2.3.doc • Corrected test 9.32.2.1 Object ID Version, Global Broadcast from a Remote Network from the version in 135.1 - 2009 and changed to reference it in BTL Specified Tests, as specified in BTL-CRR-KV05-ObjectID VersionRemotebroadcast.doc. • Corrected test 9.10.1.7 Finite Lifetime Subscriptions from the version in 135.1 - 2009 and changed to reference it in BTL Specified Tests, as specified in BTL-CRR-0184_9.10.1.7.doc and BTL-CRR-0194_ACK_in_9.10.1.1_and_9.10.1.7.doc and 0200_9.10.1.7.doc

9.0.17	24-May-2011	Duffy O'Craven	• Renamed section name to "Supports Correct Interaction of Weekly and Exception Schedules" in SCHED-I-B, in consequence of BTL-CRR-0208_No-Weekly_Schedule. • Reverted alterations of Test Conditionality and Test Directives and Test Hints in "Can write NULL property values" and the prior section in DS-WP-A and DS-WPM-A, in consequence of simplified BTL-CRR-0156_4.5.6_4.5.7.doc
9.0.18	30-May-2011	Duffy O'Craven	• Removed Testing Hints from tests 10.X.3 in consequence of BTL-CRR-0106_10.X.3_TestingHints.doc • Added sections Supports TimeSynchronization_Recipients and Supports UTC_TimeSynchronization_Recipients in consequence of BTL-CRR-0123_UTC_or_Time_Recipients_present.doc • Reverted section name to "Supports concurrent Weekly and Exception Schedules" in SCHED-I-B, as the response to BTL-CRR-0208_No-Weekly_Schedule was: no change. • Corrected test references for tests 9.30.1.1, 9.30.1.2, 9.31.1.1 and 9.31.1.2 from 135.1 - 2007 to BTL Specified tests as specified in BTL-CRR-0113_9.31.1.1_diverge_dissimilar_tests.doc, and added a Test Directive that the parameter used in test 9.31.1.1 - UTCTimeSynchronization Local Broadcast that shall cause the result to cross midnight. • Renamed the sections involving datatype NULL in DS-WP-A and DS-WPM-A, to mention commandable and non-commandable properties, in consequence of BTL-CRR-0156_4.5.6_4.5.7.doc
9.0.19	09-Jun-2011	Duffy O'Craven	• Renamed the sections involving datatype NULL in DS-WP-B and DS-WPM-B, to mention they are for non-commandable properties, extending upon BTL-CRR-0156_4.5.6_4.5.7.doc
9.0.20	12-Jun-2011	Duffy O'Craven	• Added Test Directives and Hint to 10.X.5 to ensure that the packet actually reaches the IUT, and that the test uses an address which resembles the actual address of IUT, in consequence of BTL-CRR-0138_10.X.5_same_DADR.doc and BTL-CRR-0139_10.X.5_ensure_reaches_IUT.doc • Changed references on tests 7.3.2.21.3.X and 8.22.X1, as the versions in 135.1-2009g-6 and 135.1-2009i-8 incorporated them. • Changed references on tests 7.1 and 13.1.12.1 to BTL Specified Tests versions, in consequence of BTL-CRR-0177_server_in_Abort-PDU.doc • Changed reference on test 7.3.2.24.12 to BTL Specified Tests version, in consequence of BTL-CRR-0165_7.3.2.24.12.doc

			• Changed reference on test 9.21.1.4 as 135.1-2009g-16 replaced it, in consequence of BTL-CRR-0201_9.21.1.4.doc • Changed reference on test 14.7.3.1 as 135.1-2009e replaced it, in consequence of BTL-CRR-0209_14.7.3.1.doc
9.0.21	14-Jun-2011	Duffy O'Craven	• Aligned Test Plan section names with Checklist lineitem names
9.0.22	28-Sep-2011	Duffy O'Craven	• Marked tests 7.3.2.24.X8 and 7.3.2.24.X9 as *This test is not yet defined and shall be skipped.*, since those tests are incomplete and were never ratified. • Incorporated tests 13.2.1 through 13.2.7, the Time Master tests.
9.0.23	30-Sep-2011	Duffy O'Craven	• Changed reference for 9.1.10.X2 to 9.10.X in 135.1-2009d-1 • Changed reference for 7.3.1.X1 to 7.3.2.10.1 in 135.1-2009d-2 • Changed referenced for tests in sections 14.1, 14.2, 14.3, 14.5, 14.6, 14.7, and 14.X to be 135.1-2009e-1 • Changed referenced for 7.3.1.11, 9.1.1.1, 9.1.1.4, 9.1.2.1, and 9.1.2.5 to be 135.1-2009f-1 • Changed referenced for 7.3.2.10.X1, 7.3.2.10.X2, and 7.3.2.10.X3 to be 135.1-2009f-2 • Changed reference for 8.16.3, 8.16.4, 9.16.1.1, 9.16.1.3, 9.16.1.4, 9.16.2.2, 9.16.2.3, 9.16.2.4, and 9.16.2.5 to be 135.1-2009f-3 • Changed reference for 9.17.1.1 to be 135.1-2009f-4 • Changed reference from BTL - 9.24.1.X2 to 135.1-2009g-8 - 9.24.1.X1 and for BTL - 9.24.1.X3 to 135.1-2009g-8 - 9.24.1.X2 • Changed references for 7.3.1.1 to be 135.1-2013 • Changed reference from BTL - 10.X.5 to 135.1-2009g-10 - 10.X.1 and for BTL - 10.X.6 to 135.1-2009g-10 - 10.X.2 and for BTL - 10.X.7 to 135.1-2009g-10 - 10.X.3 • Changed reference from BTL - 10.X.1 to 135.1-2009g-10 - 10.Y.1 and for BTL - 10.X.2 to 135.1-2009g-10 - 10.Y.2 and for BTL - 10.X.3 to 135.1-2009g-10 - 10.Y.3 • Changed reference for test 7.3.2.21.3.4 as the version in 135.1-2009g-11 takes precedence but that only portrayed the intended revision with a context-diff, so the entirety of the revised test is rendered here. • Changed references for test 8.1 as the version in 135.1-2009g-13 takes precedence. • Changed references from BTL - 8.18.X3 to be 135.1-2009g-14 - 8.18.3 • Changed references from BTL - 9.4.X1 to 135.1-2009g-15 9.4.5 and for BTL - 9.4.X2 to 135.1-2009g-15 9.4.6 and for BTL - 9.5.X1 to 135.1-

			2009g-15 9.5.1 and for BTL - 9.5.X2 to 135.1-2009g-15 9.5.2
9.0.24	10-Oct-2011	Duffy O'Craven	• Fixed cut&paste typo in section 4.5.11 for Multi-state Value where Multi-state Output was mentioned instead. • Changed references on test 9.14.2.2 to BTL Specified Tests version, in consequence of BTL-CRR-0117_9.14.2.2_First_Failed_Element.doc • Changed references for test 7.3.2.24.9 as the version in 135.1-2009g-16 takes precedence. • Changed references for tests 7.3.2.23.3.1, 7.3.2.23.X2.3.1, 7.3.2.23.X2.3.2, 7.3.2.23.X2.3.3, 7.3.2.23.X2.3.4, 7.3.2.23.X2.3.5, and 7.3.2.23.X2.3.6 as the versions in 135.1-2009g-17 take precedence. Note that the test numbers used in 135,1-2009g-17 each specify X rather than the X2 used in Test Plan-5.0.final and BTL Specified Test-5.0.final. • Changed references for test 13.X3 to be 135.1-2009g-19 13.X1 and for test 13.X4 to be 135.1-2009g-19 13.X2 as those take precedence. • Changed references for test 8.3.X1 to be 135.1-2009g-20 8.3.X and for test 9.3.X8 to be 135.1-2009g-20 9.3.1 as those take precedence. • Added the conditionality from 135.1-2009h-1 to tests 9.8.3 and 9.8.6 • Changed references for 8.18.1 and 8.18.2 from BTL to 135.1-2009i-4 • Changed references for tests 7.3.2.23.X1.1, 7.3.2.23.X1.2, 7.3.2.23.X1.3, and 7.3.2.23.X1.4 as the versions in 135.1-2009g-21 take precedence. Note that the test numbers used in 135,1-2009g-21 each specify Y rather than the X1 used in Test Plan-5.0.final and BTL Specified Test-5.0.final. • Changed references for tests 8.8.1 and 8.8.2 from BTL to 135.1-2009i-5 • Changed references for test 8.20.Y1.X1 to 135.1-2009i-6 - 8.20.Y1.1 and for test 8.20.Y1.X2 to 135.1-2009i-6 - 8.20.Y1.2 • Changed references for tests 7.23.9.3, 8.23.1, 8.23.2, 8.23.3, and 8.23.4 from 135.1-2009 to 135.1-2009i-7 in consequence of an added Notes to tester: • Changed references for 8.22.1 and 8.22.2 from BTL to 135.1-2009i-7 as that addendum ratified the Notes to Tester: addition that had caused these revised tests to supercede the 135.1 - 2003 - 8.22.1 and 135.1 - 2003 - 8.22.2 versions. • Changed reference for test 8.22.X1 to be 135.1-2009i-8 - 8.22.X1
9.0.25	24-Nov-2011	Duffy O'Craven	• Prefixed referenced tests 9.30.1.1, 9.30.1.2, 9.31.1.1, 9.31.1.2 with TimeSynchronization and UTCTimeSynchronizartion, matching their new names in BTL Specified Tests.

			• Removed the duplicate reference to test 13.2.1 (the one with wrong conditionality) that had been introduced by a paste error, in the section on Automatic Time Synchronization - A. • Changed reference for test BTL - 7.3.1.X2 to 135.1-2009i-15 - 7.3.2.11.X • Changed references for tests 7.3.2.23.X2.3.1 through 7.3.23.X2.3.6 to 135.1-2009g-17 - 7.3.2.23.X.3.1 through 135.1-2009g-17 - 7.3.2.23.X.3.6 as the versions in 135.1-2009g-17 take precedence. Note that the test numbers used in 135.1-2009g-17 each specify X rather than the X2 used in Test Plan-5.0.final and BTL Specified Test-5.0.final. • Changed reference for test BTL - 8.34.X1 to 135.1-2009i-12. • Changed references for tests 9.1.1.X4 and 9.1.1.X5 from BTL to 135.1-2009i-17. • Changed reference for 9.1.2.6 from 135.1-2009 to BTL. • Changed reference for 9.7.1.1 from 135.1-2009 to BTL. • Changed reference for 9.16.1.4 back to BTL for it contains a more accurate restriction of "...any unique object identifier of a type that is creatable and an instance number that is creatable". • Changed reference for tests 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4.X1, 9.21.1.6.X1, 9.21.1.6.X2, 9.21.1.X1, 9.21.1.X2, and 9.21.2.X4 because the versions in 135.1-2009i-14 take precedence. Note that BTL - 9.21.1.X3 is preserved for it contains a more accurate list: "Qualifying tests are: 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.X1, 9.21.1.X1 or 9.21.1.X2." • Changed reference for test 9.23.2.6 as the version in 135.1-2009i-10 takes precedence. • Changed reference for test 9.20.2.1 as the version in 135.1-2009i-11 takes precedence. • Corrected references for tests 9.24.2.1 and 9.24.2.2 from BTL to 135.1-2009
9.0.26	28-Nov-2011	Duffy O'Craven	• Added a list of the additional addenda incorporated into this test plan to achieve Protocol_Revision 9. • Added a list of the additional addenda incorporated into this test plan to adopt pan-Protocol BIBB amendments. • Corrected the references to test 7.1 from 135.1-2009 to BTL in RPM as was already done in RP. • Replaced all endashes with hyphens, and made the spacing around them consistent. • Corrected the references to tests 135.1-2009g-10 - 10.X.1, 10.X.2, and 10.X.3from the higher numbers 10.X.5, 10.X.6, and 10.X.7 which were used in BTL Specified Tests-5.0.fnal

			• Removed trailing period from name of test 7.3.2.23.X1.3 - Externally Written Datatypes Test, non-NULL values. • Changed Test Conditionality to "*This test is not yet defined and shall be skipped.*" For tests 7.3.2.24.X8 and 7.3.2.24.X9 in T - VMMT - I - B as well as in T - VMT - I - B. • Corrected the name (removing the underscores and replacing the second one with a space) for the 13.2.1 - TimeSynchronization Recipients Test • Corrected references for test 9.32.2.1 from BTL to 135.1-2009, since the wholesale changes suggested in BTL-CR-0112 are not yet completed.
9.0.27	28-Nov-2011	Duffy O'Craven	• Fixed test 8.34.X1 reference (Unicast is not part of test name) and a typo in the number as 135,1 should be 135.1 • Changed references to all four tests of 8.21.X from BTL to 135.1-2009i-19. • Changed references for tests BTL - 9.1.1.X4 - Successful Alarm Re-Acknowledgment of Confirmed Event Notifications and BTL - 9.1.1.X5 Unconfirmed Event Notifications to 135.1-2009i-17 - 9.1.1.X1 and 9.1.1.X2 respectively. • Changed references for test 9.16.1.1 from BTL to 135.1-2009f-3 • Changed the occurrences of BTl Specified Tests in Test Configuration for tests 9.16.1.2 and 9.17.1.1 to BTL Specified Tests. • Changed references for test 9.17.1.1 from BTL to 135.1-2009f-4 • Note that BTL - 9.21.1.X3 is preserved for it contains a more accurate list: "Qualifying tests are: 9.21.1.1, 9.21.1.2, 9.21.1.3, 9.21.1.4, 9.21.1.4.X1, 9.21.1.X1 or 9.21.1.X2." • Change Test Configuration for test 9.21.1.X4 to ***ASHRAE 135.1-2009***. 8.22.19 Supports Object Creation and Deletion of the Life Safety Zone Object • Changed reference to 9.22.2.4 from BTL to 135.1-2009i-9. • Changed references from BTL - 9.23.1.X1 to 135.1-2009i-9 - 9.23.1.X • Change reference for test 9.24.2.2 from 135.1-2009 to 135.1-2009i-16. • Changed reference for test 9.24.2.X3 from BTL to 135.1-2009i-16. • Change references to 9.27.1.1, 9.27.1.3, 9.27.2.X3, 9.27.2.X4 to 135.1-2009i-16. • Change reference to 9.33.2.3 from 135.1-2009 to 135.1-2009i-18. • Changed reference of test BTL - 9.2.1.X8 - Change of Value Notification from Proprietary Objects to BTL - 9.3.X9

			• Did not change the reference from 135.1-2009 to non-existent test BTL - 9.32.2.1, since the wholesale changes suggested in BTL-CR-0112 are not yet completed.
9.0.28	29-Nov-2011	Duffy O'Craven	• Changed reference missing a number for the test to BTL - 9.17.1.1 in section "Supports Object Creation and Deletion of the Life Safety Zone Object". • Changed reference for the test 7.3.2.23.3.9 in section "Scheduling - Internal - B" from 135.1-2009 to BTL, as it already is in "Scheduling - Readonly - B". • Added leading space character after hyphen before references to 9.21.1.1 -Reading All Items in the List • Capitalized Test consistently in 7.3.2.24.1 - Enable Test
9.0.29	29-Nov-2011	Duffy O'Craven	• Changed another pair of references in section "Supports Initiation of GetEventInformation Service" for tests 8.8.1 and 8.8.2 from BTL to 135.1-2009i-5 • Replaced less-than-symbol in the 13.2.1 - TimeSynchronization Recipients Test, Protocol_Revision < 7 with a left-brace, so that it cut&pastes more conventionally. • Reverted italics to normal in "Supports Time_Synchronization_Recipients" and "Supports UTC_Time_Synchronization_Recipients"
9.0.30	30-Nov-2011	Duffy O'Craven	• Changed references for tests 9.33.1.1, 9.33.1.2, 9.33.1.4, 9.33.1.5, 9.33.1.6, 9.33.2.1, 9.33.2.2, and 9.33.2.3 from 135.1-2009 to 135.1-2009i-18 which was based upon "BTL Specified Tests-Add135-2004q-1-UnicastIAm-2.doc" • Fixed the section boundaries between 5.16.1 and 5.16.2 so that they don't display two-across in Web Layout view.
9.0.final	01-Dec-2011	Duffy O'Craven	• Updated from 9.0.30 to 9.0.final, accepting all change tracking
12.0.1	24-Jul-2012	Lori Tribble	• Applied Errata 9.0 7/19/2012 • Applied Addendum 9.0-a • Applied Addendum 9.0-b • Applied Addendum 9.0-c • Applied Errata 12.0 7/23/2012
12.0.2	02-Aug-2012	Lori Tribble	• Applied Errata-BTL Test Package 9.0 plus addenda 8/02/2012 (includes above Errata which was not published)
12.0.final	02-Aug-2012	Lori Tribble	• Accepted changes and changed name to final
12.1.1	27-Sept-2013	Lori Tribble	• Applied Addendum 12.0b
12.1.2	27-Sept-2013	Lori Tribble	• Applied Addendum 12.0c
12.1.3	30-Sept-2013	Lori Tribble	• Applied Addendum 12.0d
12.1.4	30-Sept-2013	Lori Tribble	• Applied Addendum 12.0e
12.1.5	1-Oct-2013	Lori Tribble	• Applied Addendum 12.0f
12.1.6	1-Oct-2013	Lori Tribble	• Applied Addendum 12.0g

12.1.7	1-Oct-2013	Lori Tribble	• Applied Errata
14.0.a	1-Nov-2014	Lori Tribble	• Applied Addendum 12.1a
14.0.b	1-Nov-2014	Lori Tribble	• Applied Addendum 12.1b
14.0.c	1-Nov-2014	Lori Tribble	• Applied Addendum 12.1c
14.0.d	1-Nov-2014	Lori Tribble	• Applied Addendum 12.1d
14.0.e	1-Nov-2014	Lori Tribble	• Applied Addendum 12.1e
14.0.plus_errata	3-Nov-2014	Lori Tribble	• Cleaned up remaining BTL vs 135.1 references.
14.0.final	19-Nov-2014	Duffy O'Craven	• Accepted changes, deleted comments, and changed name to final
15.0.05	24-Aug-2017	Lori Tribble	• Applied Addenda 14.0b-j plus errata
15.0.07	16-Sep-2017	Lori Tribble	• Applied additional errata.
15.0.08	25-Sep-2017	Lori Tribble	• Removed of 'supports Reliability Evaluation'
15.0.09	25-Sep-2017	Lori Tribble	• Changed test references in Supports User Initiated Abort Backup to the correct test. Changed test reference in Supports User Initiated Abort Restore to the correct test.
15.0.10	28-Sep-2017	Lori Tribble	• Applied two errata.
15.0.final	28-Sep-2017	Lori Tribble	• Accepted all changes.
15.1.1	29-Mar-2018	Lori Tribble	• Applied addenda a, b, c and d and errata
15.1.2	29-Mar-2018	Lori Tribble	• More errata changes
15.1.3	5-Apr-2018	Lori Tribble	• Additional changes to complete Addenda b changes.
15.1.4	6-Apr-2018	Lori Tribble	• Accepted all changes.
15.1.5	17-Apr-2018	Lori Tribble	• Applied additional Errata
15.1.6	1-May-2018	Lori Tribble	• Applied additional Errata
15.1.final	1-June-2018	Lori Tribble	• Renamed to final
15.2.1		Lori Tribble	• Applied errata and e
15.2.2		Lori Tribble	• Applied addenda f
15.2.3	13-Oct-2018	Lori Tribble	• Applied addenda g and added missing sections to match the checklist added sections.
15.2.4	11-Nov-2018	Lori Tribble	• Applied errata
15.2.final	11-Nov-2018	Lori Tribble	• Accepted all changes and changed revision number
15.3.3	16-Nov-2018	Lori Tribble	• Reformatted the tables to remove 'Method', "Configuration', and 'Notes & Results'.
16.0.1	19-Aug-2019	Lori Tribble	• Updated to docx. Rebuilt TOC. Changed version. Errata changes: Titles to match checklist items, removed italic, changed long dashes to short dashes.
16.0.2	19-Aug-2019	Lori Tribble	• Applied Addenda h.
16.0.3	26-Aug-2019	Lori Tribble	• Applied Addenda i
16.0.4	27-Aug-2019	Lori Tribble	• Applied Addenda j
16.0.5	28-Aug-2019	Lori Tribble	• Applied Addenda k
16.0.6	29-Aug-2019	Lori Tribble	• Applied Addenda l
16.0.7	29-Aug-2019	Lori Tribble	• Applied Addenda m
16.0.8	29-Aug-2019	Lori Tribble	• Applied Addenda n
16.0.9	30-Aug-2019	Lori Tribble	• Applied Addenda o
16.0.10	30-Aug-2019	Lori Tribble	• Applied Addenda p
16.0.11	30-Aug-2019	Lori Tribble	• Applied Addenda r
16.0.12	30-Aug-2019	Lori Tribble	• Applied Addenda s
16.0.13	30-Aug-2019	Lori Tribble	• Applied Errata

16.0.14	25-Sep-2019	Lori Tribble	• Accepted all changes. Formatting fixes.
16.0.final	25-Sep-2019	Lori Tribble	• Renamed to Final
16.0.final.v2	5-Nov-2019	Lori Tribble	• Added Ipv6 data link place holder.
16.1	10-Dec-2019	Lori Tribble	• Applied Errata, Added PR21 and PR22 items, renamed to 16.1.
18.0_v1	5-Aug-2020	Lori Tribble	• Updated to version 18.0 • Applied addenda ai • Applied addenda aj • Applied addenda bf • Applied addenda bg • Applied addenda bj • Applied addenda fix1, fix2 • Applied addenda misc1 • Applied addenda al • Applied addenda aq • Applied addenda as • Applied addenda ay • Applied addenda misc3 • Applied addenda misc4
18.0_v2	10-Oct-2020	Lori Tribble	• Applied addenda misc2
18.0_v3	11-Oct-2020	Lori Tribble	• Applied Errata
18.0_v4	13-Oct-2020	Lori Tribble	• Applied misc5
18.0_v5	17-Oct-2020	Lori Tribble	• Applied Errata LJT - miscellaneous formatting, adding missing sections, and synchronizing section names with checklist.
18.0_v6	18-Oct-2020	Lori Tribble	• Updated version and date to match other documents.
18.0_v7	29-Oct-2020	Lori Tribble	• Final cleanup from voter comments.
18.1_v1	3-Jan-2021	Lori Tribble	• Creation of 18.1 document from 18.0 v7.
18.1_v2	21-Jan-2021	Lori Tribble	• Additional Errata added.
18.1_v3	24-Jan-2021	Lori Tribble	• Applied the Addenda Fix1
18.1_v5	8-Feb-2021	Lori Tribble	• Applied errata per Chris Howard's ballot.
18.1_v6	13-Feb-2021	Lori Tribble	• Applied final vote comments
20.0 v1	28-Nov-2021	Lori Tribble	• Applied fix addenda
20.0 v2	19-Nov-2021	Lori Tribble	• Applied alm addenda
20.0 v3	21-Nov-2021	Lori Tribble	• Applied bc addenda
20.0 v4	11-Dec-2021	Lori Tribble	• Applied bi addenda
20.0 v5	11-Dec-2021	Lori Tribble	• Applied bk addenda - no changes
20.0 v6	11-Dec 2021	Lori Tribble	• Applied cov addenda.
20.0 v7	12-Dec-2021	Lori Tribble	• Applied misc1 addenda
20.0 v8	12-Dec-2021	Lori Tribble	• Applied log addenda
20.0 v9	15-Dec-2021	Lori Tribble	• Applied PR13-PR18 addenda
20.0 v10	15-Dec-2021	Lori Tribble	• Applied bd addenda
20.0 v11	16-Dec-2021	Lori Tribble	• Applied Errata (part 1)
20.0 v12	18-Dec-2021	Carl Neilson	• Applied 18.1.3 changes and accepted all previous change tracking for TP 20.0.
20.0 v13	20-Dec-2021	Lori Tribble	• Applied Errata (part 2)
20.0.v14	21-Dec-2021	Carl Neilson	• Fixed Test Plan vs CheckList issues
20.0 v15	02-Jan-2022	Lori Tribble	• Applied change comments from voters
20.0v16	14-Jan-2022	Carl Neilson	• Errata
20.0 final	17-Jan-2022	Emily Hayes	• Accepted all changes; renamed 20.0 final

20.0.1 draft2	25-April-2022	Lori Tribble	• Applied addenda Int1 and addenda crs1 to Carl's draft1 of 20.0.1
20.0.1 draft3	7-May 2022	Lori Tribble	• Applied errata
20.0.1 draft4	19-May-2022	Lori Tribble	• Applied errata BTLWG-1272
20.0.1 draft5	13 June-2022	Lori Tribble	• Applied errata from voting members. Added BTLWG-1284 per Carl's assignment to me.
20.0.1	15-June-2022	Carl Neilson	• Applied fixes from TP validation
20.0.1 final	16-June-2022	Emily Hayes	• Final
23.0 v1	25-Oct-2022	Lori Tribble	• Applied Vote1 (af, bc, bl, br)
23.0 v2	1-Nov-2022	Lori Tribble	• Applied Vote2 (bq, bs, bt, bu, bz)
23.0 v3	1-Nov-2022	Lori Tribble	• Applied Vote3 (cd, improvements)
23.0 v4	4-Nov-2022	Lori Tribble	• Appliev Vote4 (cr1, cr2)
23.0 v5	11-Nov-2022	Lori Tribble	• Applied Errata as of 11/11/2022
23.0 v6		Carl Neilson	• Validation process before formal vote.
23.0 v7	21-Dec-2022	Lori Tribble	• Applied comments from formal vote.
23.0.1 v1	24-Feb-2023	Lori Tribble	• Applied Errata to 23.0.final
23.1 v3	23-May-2023	Lori Tribble	• Applied cr1, fix, errata
23.1 v4	23-May-2023	Michael Osborne	• Corrected spelling of 'numeric' in Test Conditionality in BTL-9.11.1.9 usage. Deleted NM-BBMDC-B from IPv6 section.
23.1 v5	29-May-2023	Michael Osborne	• Corrected syntax of test name in section 3.14.1, Moved Verify Checklist entry for section 3.14.4 to end of list; Changed name of reference to test 7.3.1.15 from 135.1-2019 to BTL and corrected title syntax in all usages; Moved Verify Checklist entry in section 3.15.5 to end of list. Moved Verify Checklist entry in section 3.16.5 to end of list; Corrected test title case for test BTL-7.3.1.1.X3 and BTL-7.3.2.X60.8; Fixed title of test in section 5.2.13 from BTL-2019 to BTL; Fixed test title syntax in section 9.1.5.
23.1 v6	14-Jun-2023	Lori Tribble	• Updated this table and version on cover.
23.1 fainl	15-Jun-2023	Emily Hayes	• Final