



BACnet<sup>®</sup> TESTING LABORATORIES

**INTERIM TEST SPECIFICATION**

To Be Used with Test Package 16.0  
Version 5  
October 4, 2019

Approved by the BTL Working Group on September 9, 2019.  
Approved by the BTL Working Group Voting Members on MMM XX, 2019.  
Published on MMM XX, 2019.

## Foreward

The purpose of this document is to define interim tests and other test package changes made to support testing of a device that supports functionality currently not covered in the released BTL Test Package. This document should be applied and used with BTL Test Package 16.0.

Vendors who are planning to submit a device for testing and who implement Protocol\_Revision 17 and higher, or which contain functionality not covered by the Official Test Package, should use this Interim Test document.

Please note that if the device contains functionality not yet covered by the official Test Package, nor by the Interim Tests document, development of new tests may be required for your device. Please contact the BTL Manager before submitting your device for testing to ensure you are aware of all tests that will need to be applied to your device.

The changes in this document are for interim use only and may or may not be used as documented here when the final changes are applied to the next Test Package revision. Devices tested using this interim test document shall be recalled for updated testing when the next revision of test package is released that includes the topics covered here.

In the following document, language to be added to existing clauses of ANSI/ASHRAE 135.1-2013 or any part of the Test Package 16.0 are indicated through the use of *italics*, while deletions are indicated by ~~strike through~~. Where entirely new sections are proposed to be added, plain type is used throughout.

## Table of Contents

<b>BTL CHECKLIST AND BTL TEST PLAN CHANGES .....</b>	<b>4</b>	
3.56	Network Port Object .....	5
3.58	Elevator Group object .....	7
3.59	Lift Object .....	9
3.60	Escalator Object.....	14
4.27	Data Sharing - Life Safety View - A .....	17
4.28	Data Sharing - Life Safety Advanced View - A.....	18
4.29	Data Sharing - Life Safety Modify - A .....	19
4.30	Data Sharing - Life Safety Advanced Modify - A.....	20
4.31	Data Sharing - Access Control View - A.....	21
4.32	Data Sharing - Access Control Advanced View - A .....	22
4.33	Data Sharing - Access Control Modify - A.....	23
4.34	Data Sharing - Life Safety Advanced Modify - A.....	24
4.35	Data Sharing - Access Control User Configuration - A.....	25
4.37	Data Sharing - Access Control Site Configuration - A.....	27
4.40	Data Sharing - Access Control Access Door - A.....	29
4.41	Data Sharing - Access Control Credential Data Input - A.....	31
4.43	Data Sharing - Lighting Output - A .....	33
4.44	Data Sharing - Lighting Output Status - A.....	34
4.45	Data Sharing - Advanced Lighting Output - A .....	35
4.48	Data Sharing - Lighting Output Management - A .....	36
4.49	Data Sharing - Lighting View - A .....	37
4.50	Data Sharing - Lighting Advanced View - A.....	38
4.51	Data Sharing - Lighting Modify - A .....	39
4.52	Data Sharing - Lighting Advanced Modify - A.....	40
5.27	Alarm and Event Management - Life Safety View Notifications - A .....	41
5.28	Alarm and Event Management - Life Safety Advanced View Notifications - A.....	43
5.29	Alarm and Event Management - Life Safety View Modify - A.....	45
5.30	Alarm and Event Management - Life Safety Advanced View Modify - A .....	47
5.31	Alarm and Event Management - Access Control - A .....	49
5.33	Alarm and Event Management - Access Controls Advanced View Notifications - A.....	52
5.34	Alarm and Event Management - Access Control View Modify - A .....	54
5.35	Alarm and Event Management - Access Control Advanced View Modify - A.....	55
8.30	Device Management – Slave Proxy - B .....	57
9.4	BACnet/IP – Annex J - BBMD .....	58
10.7	Network Management - BBMD Configuration - B.....	59
<b>BTL SPECIFIED TESTS CHANGES.....</b>	<b>62</b>	
7.3.2.X43	Network Port Object Tests .....	63
7.3.2.X43.1	Network Port ACTIVATE_CHANGES test .....	63
7.3.2.X43.2	Network Port non-volatility properties test .....	63
7.3.2.X43.3	Out_Of_Service, Status_Flags, and Reliability test for an Object that does not contain Present_Value .....	64
7.3.2.X45.1	Linking of Elevator Group Object Tests.....	64
7.3.2.X45.1.1	Machine_Room_ID property linking with the Positive_Integer_Value Object .....	64
7.3.2.X45.1.2	Linking of Lift Objects under Group_Members property of the Elevator Group Object .....	65
7.3.2.X45.1.3	Linking of Escalator Objects under Group_Members property of the Elevator Group Object.....	65
7.3.2.X45.1.4	Linking of Landing_Call_Control Property Test .....	65
7.3.2.X46.1	Escalator Object Tests.....	66
7.3.2.X46.1.1	Elevator_Group property of Escalator Object linking with Group_Members property of Elevator_Group Object.....	66
7.3.2.X46.1.2	Energy_Meter, Power_Mode and Operation_Direction Tracking Test .....	66

7.3.2.X46.1.3	Passenger_Alarm and Fault_Signals Tracking Test.....	67
7.3.2.X46.1.4	Escalator_Mode Tracking Test .....	68
7.3.2.X46.1.6	Energy_Meter_Ref Property Test .....	69
7.3.2.X46.1.7	CHANGE_OF_STATE for Passenger_Alarm (ConfirmedEventNotification).....	69
7.3.2.X46.1.8	CHANGE_OF_STATE for Passenger_Alarm (UnconfirmedEventNotification).....	70
7.3.2.X47.1	Lift Object Tests.....	71
7.3.2.X47.1.1	Elevator_Group property of Lift Object linking with Group_Members property of Elevator Group Object.....	71
7.3.2.X47.1.2	Car_Moving_Direction and Car_Assigned_Direction Tracking Test.....	71
7.3.2.X47.1.4	Car_Position and Next_Stopping_Floor Tracking Test .....	73
7.3.2.X47.1.5	Passenger_Alarm and Fault_Signals Tracking Test.....	73
7.3.2.X47.1.6	Making_Car_Call, Car_Mode & Car_Door_Command Tracking Test.....	74
7.3.2.X47.1.7	Assigned_Landing_Call and Registered_Car_Call Tracking Test .....	75
7.3.2.X47.1.8	Car_Door_Zone and Car_Load Tracking Test .....	76
7.3.2.X47.1.9	Energy_Meter and Car_Drive_Status Tracking Test .....	76
7.3.2.X47.1.10	Making_Car_Call and Registered_Car_Call Test.....	77
7.3.2.X47.1.11	Array Size of the Lift Object properties based on car door size. ....	77
7.3.2.X47.1.12	Landing_Door_Status Tracks Car_Door_Status Test .....	78
7.3.2.X47.1.13	Highest Universal floor number linking to Car_Position and Next_Stopping_Floor properties .....	78
7.3.2.X47.1.14	Highest Universal floor number linking to Assigned_Landing_Calls, Making_Car_Call and Registered_Car_Call properties .....	79
7.3.2.X47.1.15	Energy_Meter_Ref Property Tests.....	80
7.3.2.X47.1.16	Higher_Deck and Lower_Deck Tests .....	80
7.3.2.X47.1.17	Linking of Assigned_Landing_Calls property of Lift Object to Landing_Calls property of Elevator Group.....	81
8.5.X1	CHANGE_OF_RELIABILITY Tests .....	82
8.5.X1.15	Change_Of_Reliability FAULT-to-FAULT transitions in FAULT_LISTED .....	82
9.18.1	Positive ReadProperty Service Execution Tests.....	83
9.18.1.X5	ReadProperty of the Network Port Object using the Unknown Instance .....	83
14.3	Broadcast Distribution Table Operations.....	84
14.3.X1	Write-BDT service is required to return Write-BDT-NAK.....	84
14.3.X2	Broadcast-Distribution-Table Holds at Least 5 Entries.....	84
14.3.X3	BBMD_Broadcast_Distribution_Table Holds at Least 5 Entries .....	84
14.6	Foreign Device Management .....	85
14.6.X1	Holds at Least 5 Foreign Device Registrations.....	85
14.6.X2	Negative Foreign Device Registration when FD_Supported is FALSE .....	85

---

## **BTL Checklist and BTL Test Plan Changes**

---

This section of the document contains interim changes to the BTL Checklist and the BTL Test Plan documents to support testing of products with functionality outside the scope of the official test plan.

This section is ordered the same as the BTL Checklist and BTL Test Plan documents to allow easy navigation of the material.

All test changes can be found in the next major section.

## 3.56 Network Port Object

A device including a Network Port object must claim Protocol\_Revision 17 or higher and comply with the following section.

### Checklist Changes

[In BTL Checklist, replace Network Port Object section]

Support	Listing	Option
<b>Network Port Object</b>		
	R	Base Requirements
	S	Supports writable Out_Of_Service properties

### Test Plan Changes

[In BTL Test Plan, replace section 3.56 Network Port Object]

## 3.56 Network Port Object

### 3.56.1 Base Requirements

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

<b>BTL - 7.3.2.X43.1 - Network Port ACTIVATE_CHANGES test</b>		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
<b>BTL - 7.3.2.X43.2 - Network Port non-volatility properties test</b>		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
<b>BTL - 9.18.X5 - ReadProperty of the Network Port Object using the Unknown Instance</b>		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

### 3.56.2 Supports writable Out\_Of\_Service properties

The Out\_Of\_Service property in Network Port objects contained in the IUT is either writable or can be modified by any other means.

<b>BTL - 7.3.2.X43.3 - Out_Of_Service, Status_Flags, and Reliability test for an Object that does not contain Present_Value</b>		
	Test Conditionality	If this property is writable, this test must be executed.
	Test Directives	This test shall be applied to a Network Port object.
	Testing Hints	



## 3.58 Elevator Group object

A device including an Elevator Group object must claim Protocol\_Revision 18 or higher and comply with the following section.

### Checklist Changes

[In BTL Checklist, replace Elevator Group Object section]

Support	Listing	Option
		<b>Elevator Group</b>
	R	Base Requirements
	R	Supports Group_Members property
	O	Supports Landing_Call_Control property

### Test Plan Changes

[In BTL Test Plan, replace section 3.58 Elevator Group Object]

## 3.58 Elevator Group Object

### 3.58.1 Base Requirements

The object contains Machine\_Room\_ID Property.

BTL - 7.3.2.X45.1.1 - Machine_Room_ID property linking with the Positive_Integer_Value Object		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

### 3.58.2 Supports Group\_Members Property

The object contains a Group\_Members Property.

BTL - 7.3.2.X45.1.2 - Linking of Lift Objects under Group_Members property of the Elevator Group Object		
	Test Conditionality	Must be executed if IUT supports Lift object.
	Test Directives	
	Testing Hints	
BTL - 7.3.2.X45.1.3 - Linking of Escalator Objects under Group_Members property of the Elevator Group Object		
	Test Conditionality	Must be executed if IUT supports Escalator object.
	Test Directives	
	Testing Hints	



### 3.58.3 Supports Landing\_Call\_Control Property

The object contains a Landing\_Call\_Control Property.

<b>BTL - 7.3.2.X45.1.4 - Linking of Landing_Call_Control Property Test</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

## 3.59 Lift Object

A device including a Lift object must claim Protocol\_Revision 18 or higher and must comply with the following section.

### Checklist Changes

[In BTL Checklist, add new Lift section in existing 3]

Support	Listing	Option
<b>Lift Object</b>		
	R	Base Requirements
	S	Supports writable Out_Of_Service properties
	S	Supports Landing_Door_Status and Car_Door_Status properties
	O	Supports Making_Car_Call, and Register_Car_Call properties
	O	Supports BACnetARRAY Properties related to the doors of a car
	O	Supports Car_Position and Next_Stopping_Floor properties
	O	Supports Assigned_Landing_Calls, Making_Car_Call and Registered_Car_Call properties
	O	Supports Energy_Meter_Ref and Energy_Meter properties
	O	Supports Higher_Deck and Lower_Deck properties
	O	Supports Reliability_Evaluation_Inhibit property
	O	Supports Reliability Evaluation
	O	Supports CHANGE_OF_STATE event algorithm with Passenger_Alarm property
	O	Supports writable Assigned_Landing_Calls property
	O	Supports FAULT-to-FAULT transitions in FAULT_LISTED

### Test Plan Changes

[In BTL Test Plan, replace section 3.59 Lift Object]

## 3.59 Lift Object

### 3.59.1 Base Requirements

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

<b>BTL - 7.3.2.X47.1.1 - Elevator_Group property of Lift Object linking with Group_Members property of Elevator Group Object.</b>		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

### 3.59.2 Supports writable Out\_Of\_Service properties

The Out\_Of\_Service property in Lift objects contained in the IUT is either writable or can be modified by any other means.

<b>BTL - 7.3.2.X43.3 - Out_Of_Service, Status_Flags, and Reliability test for an Object that does not contain Present_Value</b>		
	<b>Test Conditionality</b>	If this property is writable, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.2 - Car_Moving_Direction and Car_Assigned_Direction Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.3 - Car_Door_Status and Landing_Door_Status Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.4 - Car_Position and Next_Stopping_Floor Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.5 - Passenger_Alarm and Fault_Signals Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.6 - Making_Car_Call, Car_Mode &amp; Car_Door_Command Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.7 - Assigned_Landing_Call and Registered_Car_Call Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.8 - Car_Door_Zone and Car_Load Tracking Test</b>		
	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X47.1.9 - Energy_Meter and Car_Drive_Status Tracking Test</b>		

	<b>Test Conditionality</b>	If Out_Of_Service property is either writable or can be modified by other means and if any of these properties are present, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.3 Supports Making\_Car\_Call and Register\_Car\_Call Properties

Either of the Making\_Car\_Call, Register\_Car\_Call properties in at least one Lift object are present.

<b>BTL - 7.3.2.X47.1.10 - Making_Car_Call and Registered_Car_Call Tests</b>		
	<b>Test Conditionality</b>	This test must be executed if Making_Car_Call and Registered_Car_Call properties are present.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.4 Supports BACnetARRAY Properties related to the doors of a car

BACnetARRAY properties related to the doors of a car are present in at least one Lift object.

<b>BTL - 7.3.2.X47.1.11 - Array Size of the Lift Object properties based on car door size</b>		
	<b>Test Conditionality</b>	This test must be executed if any 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.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.5 Supports Landing\_Door\_Status and Car\_Door\_Status Properties

The Landing\_Door\_Status property in at least one Lift object is present.

<b>BTL - 7.3.2.X47.1.12 - Landing_Door_Status Tracks Car_Door_Status Test</b>		
	<b>Test Conditionality</b>	This test must be executed if Landing_Door_Status property is present.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.6 Supports Car\_Position and Next\_Stopping\_Floor Properties

Either of the Car\_Position,Next\_Stopping\_Floor property in at least one Lift object is present.

<b>BTL - 7.3.2.X47.1.13 - Highest Universal floor number linking to Car_Position and Next_Stopping_Floor properties</b>		
	<b>Test Conditionality</b>	This test must be executed if Car_Position and Next_Stopping_Floor properties are present. If any property is not present, the respective step shall be skipped
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.7 Supports Assigned\_Landing\_Calls, Making\_Car\_Call and Registered\_Car\_Call Properties

Either of the Assigned\_Landing\_Calls, Making\_Car\_Call and Register\_Car\_Call property in at least one Lift object is present.

<b>BTL - 7.3.2.X47.1.14 Highest Universal floor number linking to Assigned_Landing_Calls, Making_Car_Call and Registered_Car_Call properties</b>		
	<b>Test Conditionality</b>	This test must be executed if Assigned_Landing_Calls, Making_Car_Call and Registered_Car_Call properties are present. If any property is not present, the respective step shall be skipped
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.8 Supports Energy\_Meter\_Ref and Energy\_Meter Properties

The Energy\_Meter\_Ref and Energy\_Meter property in at least one Lift object is present.

<b>BTL - 7.3.2.X47.1.15 Energy_Meter_Ref Property Tests</b>		
	<b>Test Conditionality</b>	This test must be executed if Energy_Meter_Ref and Energy_Meter property is present
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.9 Supports Higher\_Deck and Lower\_Deck Properties

The Higher\_Deck and Lower\_Deck properties in at least one Lift object is present.

<b>BTL - 7.3.2.X47.1.16 Higher_Deck and Lower_Deck Tests</b>		
	<b>Test Conditionality</b>	This test must be executed if Higher_Deck and Lower_Deck properties are present
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.10 Supports Reliability\_Evaluation\_Inhibit Property

The IUT contains, or can be made to contain, a Reliability\_Evaluation\_Inhibit property that is configurable to a value of TRUE.

<b>BTL - 7.3.1.X8.1 - Reliability_Evaluation_Inhibit Test</b>		
	<b>Test Conditionality</b>	If no object exists in the IUT for which fault conditions can be generated, then this test shall be skipped.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.1.X8.2 - Reliability_Evaluation_Inhibit Summarization Test</b>		
	<b>Test Conditionality</b>	If no object exists in the IUT for which fault conditions can be generated, then this test shall be skipped.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.11 Supports Reliability Evaluation

The IUT contains, or can be made to contain, a Lift object that can generate ConfirmedEventNotifications and UnconfirmedEventNotifications with an Event\_Type of CHANGE\_OF\_RELIABILITY.

<b>BTL - 8.4.X1.13 Change_Of_Reliability with FAULT_LISTED Algorithm (ConfirmedEventNotification)</b>		
	<b>Test Conditionality</b>	This test must be executed
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 8.4.X1.14 Change_Of_Reliability with FAULT_LISTED Algorithm (UnconfirmedEventNotification)</b>		
	<b>Test Conditionality</b>	This test must be executed
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.12 Supports CHANGE\_OF\_STATE event algorithm with Passenger\_Alarm property

Intrinsic event algorithm is supported using Passenger\_Alarm property in at least one Lift object.

<b>BTL - 7.3.2.X46.1.8 CHANGE_OF_STATE for Passenger_Alarm (ConfirmedEventNotification)</b>		
	<b>Test Conditionality</b>	This test must be executed if the object under test supports CHANGE_OF_STATE event algorithm with Passenger_Alarm property writable or can be modified by any other means.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X46.1.9 CHANGE_OF_STATE for Passenger_Alarm (UnconfirmedEventNotification)</b>		
	<b>Test Conditionality</b>	This test must be executed if the object under test supports CHANGE_OF_STATE event algorithm with Passenger_Alarm property writable or can be modified by any other means.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.13 Supports writable Assigned\_Landing\_Calls Property

The Assigned\_Landing\_Calls property is present in at least one Lift object.

<b>BTL - 7.3.2.X47.1.17 - Linking of Assigned_Landing_Calls property of Lift Object to Landing_Calls property of Elevator Group</b>		
	<b>Test Conditionality</b>	This test must be executed if Assigned_Landing_Calls is writable.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.59.14 Supports FAULT-to-FAULT transitions in FAULT\_LISTED

These requirements must be met by any IUT that can contain more than one element or different values in the Fault\_Signals property in any of its Lift objects.

<b>BTL - 8.5.X1.15 - Change_Of_Reliability FAULT-to-FAULT transitions in FAULT_LISTED</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

## 3.60 Escalator Object

A device including an Escalator object must claim Protocol\_Revision 18 or higher and must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace Escalator Object section]

Support	Listing	Option
<b>Escalator Object</b>		
	R	Base Requirements
	S	Supports writable Out_Of_Service properties
	S	Supports Escalator_Mode property
	O	Supports Energy_Meter_Ref property
	O	Supports CHANGE_OF_STATE event algorithm with Passenger_Alarm property
	O	Supports Reliability_Evaluation_Inhibit property
	O	Supports FAULT-to-FAULT transitions in FAULT_LISTED

### Test Plan Changes

[In BTL Test Plan, replace section 3.60 Escalator Object]

## 3.60 Escalator Object

### 3.60.1 Base Requirements

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

<b>BTL - 7.3.2.X46.1.1 Elevator_Group property of Escalator Object linking with Group_Members property of Elevator Group Object</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.60.2 Supports writable Out\_Of\_Service properties

The Out\_Of\_Service property in Escalator objects contained in the IUT is either writable or can be modified by any other means.

<b>BTL - 7.3.2.X43.3 - Out_Of_Service, Status_Flags, and Reliability test for an Object that does not contain Present_Value</b>		
	<b>Test Conditionality</b>	If this property is writable, this test must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X46.1.2 - Energy_Meter, Power_Mode and Operation_Direction Tracking Test</b>		
	<b>Test Conditionality</b>	This test must be executed if Energy_Meter or Power_Mode properties are present.
	<b>Test Directives</b>	

	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X46.1.3 - Passenger_Alarm and Fault_Signals Tracking Test</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X46.1.4 - Escalator_Mode Tracking Test</b>		
	<b>Test Conditionality</b>	This test must be executed if Escalator_Mode property is present.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.60.3 Supports Escalator\_Mode Property

The Escalator\_Mode property in at least one Escalator object is present.

<b>BTL - 7.3.2.X46.1.5 - Operation_Direction Tracks Escalator_Mode Test</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.60.4 Supports Energy\_Meter\_Ref Property

The Energy\_Meter\_Ref property in at least one Escalator object is present.

<b>BTL - 7.3.2.X46.1.6 - Energy_Meter_Ref Property Test</b>		
	<b>Test Conditionality</b>	This test must be executed if both Energy_Meter_Ref and Energy_Meter properties are present.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.60.5 Supports CHANGE\_OF\_STATE event algorithm with Passenger\_Alarm property

Intrinsic event algorithm is supported using Passenger\_Alarm property in at least one Escalator.

<b>BTL - 7.3.2.X46.1.7 - CHANGE_OF_STATE for Passenger_Alarm (ConfirmedEventNotification)</b>		
	<b>Test Conditionality</b>	This test must be executed if the object under test supports CHANGE_OF_STATE event algorithm with Passenger_Alarm property writable or can be modified by any other means.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.2.X46.1.8 - CHANGE_OF_STATE for Passenger_Alarm (UnconfirmedEventNotification)</b>		
	<b>Test Conditionality</b>	This test must be executed if the object under test supports CHANGE_OF_STATE event algorithm with Passenger_Alarm property writable or can be modified by any other means.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.60.6 Supports Reliability\_Evaluation\_Inhibit Property

The IUT contains, or can be made to contain, a Reliability\_Evaluation\_Inhibit property that is configurable to a value of TRUE.

<b>BTL - 7.3.1.X8.1 - Reliability_Evaluation_Inhibit Test</b>		
---	--	--



	<b>Test Conditionality</b>	If no object exists in the IUT for which fault conditions can be generated, then this test shall be skipped.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 7.3.1.X8.2 - Reliability Evaluation Inhibit Summarization Test</b>		
	<b>Test Conditionality</b>	If no object exists in the IUT for which fault conditions can be generated, then this test shall be skipped.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 3.60.7 Supports FAULT-to-FAULT transitions in FAULT\_LISTED

These requirements must be met by any IUT that can contain more than one element or different values in the Fault\_Signals property in any of its Escalator objects.

<b>BTL - 8.5.X1.15 - Change Of Reliability FAULT-to-FAULT transitions in FAULT_LISTED</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

## 4.27 Data Sharing - Life Safety View - A

Devices claiming support for Data Sharing - Life Safety View - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, modify section Data Sharing - Life Safety View - A]

Data Sharing - Life Safety View - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan replace section 4.27 Data Sharing - Life Safety View - A]

## 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.

135.1-2013 - 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 <u>each</u> 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	

## 4.28 Data Sharing - Life Safety Advanced View - A

Devices claiming support for Data Sharing - Life Safety Advanced View - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section DS-LSAV-A]

Data Sharing - Life Safety Advanced View - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace 4.28 Data Sharing - Life Safety Advanced View - A]

## 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.

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Repeat the test for <u>all</u> 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.
	<b>Testing Hints</b>	

### 4.28.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

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

## 4.29 Data Sharing - Life Safety Modify - A

Devices claiming support for Data Sharing - Life Safety Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Life Safety Modify - A]

Data Sharing - Life Safety Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.29 Data Sharing - Life Safety Modify - A]

## 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.

135.1-2013 - 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 <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 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	

## 4.30 Data Sharing - Life Safety Advanced Modify - A

Devices claiming support for Data Sharing - Life Safety Advanced Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Life Safety Advanced Modify - A]

Data Sharing - Life Safety Advanced Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[Replace Test Plan Entry 4.30 Data Sharing - Life Safety Advanced Modify - A]

## 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.

135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 8.
	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	

## 4.31 Data Sharing - Access Control View - A

Devices claiming support for Data Sharing - Access Control View - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control View - A]

Data Sharing - Access Control View - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports DS-RP-A</i>
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.31 Data Sharing - Access Control View - A]

## 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.

135.1-2013 - 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 <u>each</u> 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	

## 4.32 Data Sharing - Access Control Advanced View - A

Devices claiming support for Data Sharing - Access Control Advanced View - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control Advanced View - A]

Data Sharing - Access Control Advanced View - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plans Changes

[In BTL Test Plan, replace section 4.32 Data Sharing - Access Control Advanced View - A]

## 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.

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>all</u> 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	

## 4.33 Data Sharing - Access Control Modify - A

Devices claiming support for Data Sharing - Access Control Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control Modify - A]

Data Sharing - Access Control Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plans Changes

[In BTL Test Plan, replace section 4.32 Data Sharing - Access Control Advanced View - A]

## 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.

135.1-2013 - 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 <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 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	



## 4.34 Data Sharing - Life Safety Advanced Modify - A

Devices claiming support for Data Sharing - Access Control Advanced Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control Advanced Modify - A]

Data Sharing - Access Control Advanced Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.34 Data Sharing - Life Safety Advanced Modify - A]

## 4.34 Data Sharing - Life Safety Advanced Modify - A

### 4.34.1 Base Requirements

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

135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 8.
	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	

## 4.35 Data Sharing - Access Control User Configuration - A

Devices claiming support for Data Sharing - Access Control User Configuration - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control User Configuration - A]

Data Sharing - Access Control User Configuration - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
	R	Supports DS-WP-A
	R	Supports DM-OCD-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.35 Data Sharing - Access Control User Configuration - A]

## 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.

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the standard object types and associated properties specified by DS-ACUC-A.
	Testing Hints	
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 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
------------------

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

### 4.35.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

<b>Verify Checklist</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

### 4.35.2 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to create and delete Access Control objects.

<b>Verify Checklist</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	

## 4.37 Data Sharing - Access Control Site Configuration - A

Devices claiming support for Data Sharing - Access Control Site Configuration - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control Site Configuration - A]

Data Sharing - Access Control Site Configuration - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
	R	Supports DS-WP-A
	R	Supports DM-OCD-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.37 Data Sharing - Access Control Site Configuration - A]

## 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.

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the standard object types and associated properties specified by DS-ACSC-A.
	Testing Hints	
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-RP-A.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

### 4.37.2 Supports DM-OCD-A

The IUT shall support DM-OCD-A in order to create and delete Access Control objects.

Verify Checklist		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	

## 4.40 Data Sharing - Access Control Access Door - A

Devices claiming support for Data Sharing - Access Control Access Door - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control Access Door - A]

Data Sharing - Access Control Access Door - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.40 Data Sharing - Access Control Access Door - A]

## 4.40 Data Sharing - Access Control Access Door - A

### 4.40.1 Base Requirements

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

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the standard object types and associated properties specified by DS-ACAD-A.
	Testing Hints	
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 8.
	Testing Hints	

### 4.40.2 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.

	<b>Test Directives</b>	Verify that the IUT claims support for DS-RP-A.
	<b>Testing Hints</b>	

### 4.40.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update Access Door properties modified by the user.

<b>Verify Checklist</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

## 4.41 Data Sharing - Access Control Credential Data Input - A

Devices claiming support for Data Sharing - Access Control Credential Data Input - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Access Control Credential Data Input - A]

Data Sharing - Access Control Credential Data Input - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
	R	Supports DS-WP-A
	R	Supports DS-COV-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.41 Data Sharing - Access Control Credential Data Input - A]

## 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.

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the standard object types and associated properties specified by DS-ACCDI-A.
	Testing Hints	
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-RP-A.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-COV-A, and that Credential Data Input is claimed within DM-COV-A.
	<b>Testing Hints</b>	

## 4.43 Data Sharing - Lighting Output - A

Devices claiming support for Data Sharing - Lighting Output - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting Output - A]

Data Sharing - Lighting Output - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports DS-WP-A</i>
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.43 Data Sharing - Lighting Output - A]

## 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.

135.1-2013 - 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	

## 4.44 Data Sharing - Lighting Output Status - A

Devices claiming support for Data Sharing - Lighting Output Status - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting Output Status - A]

Data Sharing - Lighting Output Status - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.44 Data Sharing - Lighting Output Status - A]

## 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.

135.1-2013 - 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	

## 4.45 Data Sharing - Advanced Lighting Output - A

Devices claiming support for Data Sharing - Advanced Lighting Output - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Advanced Lighting Output - A]

Data Sharing - Advanced Lighting Output - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.45 Data Sharing - Advanced Lighting Output - A]

## 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.

135.1-2013 - 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	

## 4.48 Data Sharing - Lighting Output Management - A

Devices claiming support for Data Sharing - Lighting Output Management - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting Output Management - A]

Data Sharing - Lighting Output Management - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports DM-OCD-A</i>
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.48 Data Sharing - Lighting Output Management - A]

## 4.48 Data Sharing - Lighting Output Management - A

### 4.48.1 Base Requirements

Base requirements must be met by any IUT claiming conformance to this BIBB. There are no base requirements tests for this section.

### 4.48.2 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	

## 4.49 Data Sharing - Lighting View - A

Devices claiming support for Data Sharing - Lighting View - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting View - A]

Data Sharing - Lighting View - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports DS-RP-A</i>
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.49 Data Sharing - Lighting View - A]

## 4.49 Data Sharing - Lighting View - A

### 4.49.1 Base Requirements

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

135.1-2013 - 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 <u>each</u> of the standard object types and associated properties specified by DS-LV-A.
	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	

## 4.50 Data Sharing - Lighting Advanced View - A

Devices claiming support for Data Sharing - Lighting Advanced View - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting Advanced View - A]

Data Sharing - Lighting Advanced View - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports DS-RP-A</i>
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.50 Data Sharing - Lighting Advanced View - A]

## 4.50 Data Sharing - Lighting Advanced View - A

### 4.50.1 Base Requirements

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

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Repeat the test for <u>all</u> 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.
	<b>Testing Hints</b>	

### 4.50.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

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

## 4.51 Data Sharing - Lighting Modify - A

Devices claiming support for Data Sharing - Lighting Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting Modify - A]

Data Sharing - Lighting Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
+Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.51 Data Sharing - Lighting Modify - A]

## 4.51 Data Sharing - Lighting Modify - A

### 4.51.1 Base Requirements

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

135.1-2013 - 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 <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 8.
	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	



## 4.52 Data Sharing - Lighting Advanced Modify - A

Devices claiming support for Data Sharing - Lighting Advanced Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Data Sharing - Lighting Advanced Modify - A]

Data Sharing - Lighting Advanced Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-WP-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 4.52 Data Sharing - Lighting Advanced Modify - A]

## 4.52 Data Sharing - Lighting Advanced Modify - A

### 4.52.1 Base Requirements

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

135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	Test Conditionality	Must be executed.
	Test Directives	Repeat the test for <u>each</u> of the required object types listed in the BIBB definition. Repeat for <u>each</u> 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	
135.1-2013 - 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 <sub>1</sub> = 8.
	Testing Hints	

### 4.52.2 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	

## 5.27 Alarm and Event Management - Life Safety View Notifications - A

Devices claiming support for Alarm and Event Management - Life Safety View Notification - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Life Safety View Notifications - A]

Alarm and Event Management - Life Safety View Notifications - A		
	R <sup>+</sup>	Base Requirements
	R	Supports AE-N-A
	R	Supports AE-LS-A
*Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.27 Alarm and Event Management - Life Safety View Notifications - A]

## 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.

BTL - 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	
135.1-2013 - 9.5.1 - UnconfirmedEventNotification Simple 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 32 or more characters in length.

### 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.

<b>Testing Hints</b>	
----------------------	--

### 5.27.3 Supports AE-LS-A

The IUT shall support AE-LS-A in order to silence / unsilence life safety objects.

<b>Verify Checklist</b>	
<b>Test Conditionality</b>	Must be executed.
<b>Test Directives</b>	Verify that the IUT claims support for AE-LS-A.
<b>Testing Hints</b>	

## 5.28 Alarm and Event Management - Life Safety Advanced View Notifications - A

Devices claiming support for Alarm and Event Management - Life Safety Advanced View Notifications - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Life Safety Advanced View Notifications - A]

Alarm and Event Management - Life Safety Advanced View Notifications - A		
	R <sup>+</sup>	Base Requirements
	R	Supports AE-AVN-A
	R	Supports AE-LS-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.28 Alarm and Event Management - Life Safety Advanced View Notifications - A]

## 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.

BTL - 9.4.6 - ConfirmedEventNotification Full Presentation		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	
135.1-2013 - 9.5.2 - UnconfirmedEventNotification Full Presentation		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-AVN-A.
	<b>Testing Hints</b>	

### 5.28.3 Supports AE-LS-A

The IUT shall support AE-LS-A in order to silence / unsilence life safety objects.

Verify Checklist		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-LS-A.
	<b>Testing Hints</b>	

## 5.29 Alarm and Event Management - Life Safety View Modify - A

Devices claiming support for Alarm and Event Management - Life Safety View Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Life Safety View Modify - A]

Alarm and Event Management - Life Safety View Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
	R	Supports DS-WP-A
	R	Supports AE-VM-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.29 Alarm and Event Management - Life Safety View Modify - A]

## 5.29 Alarm and Event Management - Life Safety View Modify - A

### 5.29.1 Base Requirements

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

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	<b>Test Conditionality</b>	Must be executed if AE-LSAVM-A is not supported.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	<b>Test Conditionality</b>	Must be executed if AE-LSAVM-A is not supported.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	

### 5.29.2 Supports DS-RP-A

The IUT shall support DS-RP-A in order to read properties for presentation.

Verify Checklist		
	<b>Test Conditionality</b>	Must be executed.

	<b>Test Directives</b>	Verify that the IUT claims support for DS-RP-A.
	<b>Testing Hints</b>	

### 5.29.3 Supports DS-WP-A

The IUT shall support DS-WP-A in order to update properties modified by the user.

<b>Verify Checklist</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

### 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.

<b>Verify Checklist</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-VM-A.
	<b>Testing Hints</b>	

## 5.30 Alarm and Event Management - Life Safety Advanced View Modify - A

Devices claiming support for Alarm and Event Management - Life Safety Advanced Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Life Safety Advanced View Modify - A]

Alarm and Event Management - Life Safety Advanced View Modify - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports DS-RP-A</i>
	R	<i>Supports DS-WP-A</i>
	R	<i>Supports DM-OCD-A</i>
	R	<i>Supports AE-AVM-A</i>
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.30 Alarm and Event Management - Life Safety Advanced View Modify - A]

## 5.30 Alarm and Event Management - Life Safety Advanced View Modify - A

### 5.30.1 Base Requirements

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

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	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.
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-RP-A.
	<b>Testing Hints</b>	



### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-AVM-A.
	<b>Testing Hints</b>	

## 5.31 Alarm and Event Management - Access Control - A

Devices claiming support for Alarm and Event Management - Access Control - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Access Control - A]

Alarm and Event Management - Access Control - A		
	R	Base Requirements
	R	Executes ConfirmedEventNotifications
	R	Executes UnconfirmedEventNotifications
	R	Processes intrinsically generated notifications
	R	Processes algorithmically generated notifications
	R	Processes event notifications with timestamps of the BACnetDateTime form
	R	Processes event notifications with timestamps of the Time form
	R	Processes event notifications with timestamps of the Sequence Number form
	R	Supports AE-ACK-A

### Test Plan Changes

[In BTL Test Plan, replace section 5.31 Alarm and Event Management - Access Control - A]

## 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.

BTL - 9.4.X1 - 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	
BTL - 9.5.X1 - 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.

No Specific Test		
	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.

<b>No Specific Test</b>	
<b>Test Conditionality</b>	Must be executed.
<b>Test Directives</b>	Verify that the IUT's EPICS claims that it supports the UnconfirmedEventNotification service.
<b>Testing Hints</b>	

### 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.

<b>135.1-2013 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Text Message, 135.1-2013 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Text Message, or 135.1-2013 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Text Message</b>	
<b>Test Conditionality</b>	At least one of the tests must be executed with the Event Object Identifier referencing a BACnet object other than an Event Enrollment object.
<b>Test Directives</b>	Execute using an event type of ACCESS_EVENT.
<b>Testing Hints</b>	

### 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.

<b>135.1-2013 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Text Message, 135.1-2013 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Text Message, or 135.1-2013 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Text Message</b>	
<b>Test Conditionality</b>	At least one of the tests must be executed with the Event Object Identifier referencing an Event Enrollment object.
<b>Test Directives</b>	Execute using an event type of ACCESS_EVENT.
<b>Testing Hints</b>	

### 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.

<b>135.1-2013 - 9.4.2 - ConfirmedEventNotification Using the DateTime Form of the 'Timestamp' Parameter and no Text Message</b>	
<b>Test Conditionality</b>	Must be executed.
<b>Test Directives</b>	Execute using an event type of ACCESS_EVENT.
<b>Testing Hints</b>	

### 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.

<b>135.1-2013 - 9.4.1 - ConfirmedEventNotification Using the Time Form of the 'Timestamp' Parameter and Conveying a Text Message</b>	
<b>Test Conditionality</b>	Must be executed.
<b>Test Directives</b>	Execute using an event type of ACCESS_EVENT.
<b>Testing Hints</b>	

### 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.

<b>135.1-2013 - 9.4.3 - ConfirmedEventNotification Using the Sequence Number Form of the 'Timestamp' Parameter and no Text Message</b>	
<b>Test Conditionality</b>	Must be executed.
<b>Test Directives</b>	Execute using an event type of ACCESS_EVENT.
<b>Testing Hints</b>	

### 5.31.9 Supports AE-ACK-A

The IUT must support AE-ACK-A if it claims support for AE-AC-A.

<b>Verify Checklist</b>	
<b>Test Conditionality</b>	Must be executed.
<b>Test Directives</b>	Verify that the IUT claims support for AE-ACK-A in the Checklist.
<b>Testing Hints</b>	
<b>BTL - 8.1 - ACKNOWLEDGEALARM SERVICE INITIATION TESTS</b>	
<b>TEST CONDITIONALITY</b>	Must be executed.
<b>Test Directives</b>	Execute using an event type of ACCESS_EVENT. Execute once to acknowledge a ConfirmedEventNotification, and again to acknowledge an UnconfirmedEventNotification.
<b>TESTING HINTS</b>	

## 5.33 Alarm and Event Management - Access Controls Advanced View Notifications - A

Devices claiming support for Alarm and Event Management - Access Control Advanced View Notifications - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Access Control Advanced View Notifications - A]

Alarm and Event Management - Access Control Advanced View Notifications - A		
	R <sup>+</sup>	Base Requirements
	R	Supports AE-AVN-A
	R	Supports AE-AC-A
†Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.33 Alarm and Event Management - Access Controls Advanced View Notifications - A]

## 5.33 Alarm and Event Management - Access Controls Advanced View Notifications - A

### 5.33.1 Base Requirements

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

BTL - 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	
135.1-2013 - 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.

	<b>Testing Hints</b>	
--	----------------------	--

### 5.33.3 Supports AE-AC-A

The IUT must support AE-AC-A if it claims support for AE-ACAVN-A.

<b>Verify Checklist</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-AC-A in the Checklist.
	<b>Testing Hints</b>	

## 5.34 Alarm and Event Management - Access Control View Modify - A

Devices claiming support for Alarm and Event Management - Access Control View Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Access Control View Modify - A]

Alarm and Event Management - Access Control View Modify - A		
	R <sup>+</sup>	Base Requirements
	R	<i>Supports AE-VM-A</i>
+Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.34 Alarm and Event Management - Access Control View Modify - A]

## 5.34 Alarm and Event Management - Access Control View Modify - A

### 5.34.1 Base Requirements

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

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	<b>Test Conditionality</b>	Must be executed if AE-ACAVM-A is not supported.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	Repeat the test for each standard object capable of generating ACCESS_EVENT events, reading and displaying the pAccessEvents and pAccessEventTime properties.
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	<b>Test Conditionality</b>	Must be executed if AE-ACAVM-A is not supported.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-VM-A.
	<b>Testing Hints</b>	

## 5.35 Alarm and Event Management - Access Control Advanced View Modify - A

Devices claiming support for Alarm and Event Management - Access Control Advanced View Modify - A must comply with the following section.

### Checklist Changes

[In BTL Checklist, replace section Alarm and Event Management - Access Control Advanced View Modify - A]

Alarm and Event Management - Access Control Advanced View Modify - A		
	R <sup>+</sup>	Base Requirements
	R	Supports DS-RP-A
	R	Supports DS-WP-A
	R	Supports D-OCD-A
	R	Supports AE-AVM-A
+Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 5.35 Alarm and Event Management - Access Control Advanced View Modify - A]

## 5.35 Alarm and Event Management - Access Control Advanced View Modify - A

### 5.35.1 Base Requirements

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

135.1-2013 - 8.18.3 - Reading and Presenting Properties		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	Repeat the test for each standard event generating object type which can generate ACCESS_EVENT event notifications.
135.1-2013 - 8.22.4 - Accepting Input and Modifying Properties		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-RP-A.
	<b>Testing Hints</b>	



### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for DS-WP-A.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	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.
	<b>Testing Hints</b>	

### 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		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	Verify that the IUT claims support for AE-AVM-A.
	<b>Testing Hints</b>	

## 8.30 Device Management – Slave Proxy - B

Devices claiming support for Device Management - Slave Proxy - B must claim support for Protocol\_Revision 4 or higher and comply with the following section.

Addendum 135-2001a added MS/TP slave proxy functionality. This document makes needed changes in the BTL Test Package to claim the associated BIBB DM-SP-B.

These changes are not contained in any SSPC proposal.

### Checklist Changes

[In BTL Checklist, replace Device Management - Slave Proxy - B section]

Device Management - Slave Proxy - B		
	R <sup>1</sup>	Base Requirements
	O	<i>Supports Automatic Slave Address Binding</i>
<sup>1</sup> Contact BTL for interim tests for this BIBB.		

### Test Plan Changes

[In BTL Test Plan, replace section 8.30 Device Management - Slave Proxy - B]

## 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.

135.1-2013 - 13.5.1 Manual Slave Binding Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
135.1-2013 - 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.

135.1-2013 - 13.5.2 Automatic Slave Discovery Test		
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	

## 9.4 BACnet/IP – Annex J - BBMD

The operation and manipulation of Broadcast Distribution Tables in devices claiming Protocol\_Revision 17 or higher is performed through operations on a Network Port object for each supported port.

### Test Plan Changes

[In BTL Test Plan, add test to end of Base Requirements for BACnet/IP - Annex J - BBMD]

## 9.4 BACnet/IP - Annex J - BBMD

### 9.4.1 Base Requirements

The IUT acts, or can be made to act, as a BBMD device.

These base requirements must be met by any IUT that claims to support the Annex J BACnet/IP BBMD functionality.

. . .	
<b>BTL – 14.3.X1 - Write-BDT service is required to return Write-BDT-NAK</b>	
<b>Test Conditionality</b>	Must be executed in all devices claiming Protocol_Revision >= 17.
<b>Test Directives</b>	
<b>Testing Hints</b>	

## 10.7 Network Management - BBMD Configuration - B

Addendum 135-2012*al* added the NM-BBMDC-B BIBB. This document makes needed changes in the BTL Test Package to claim NM-BBMDC-B.

These changes are not contained in any SSPC proposal.

### Checklist Changes

[In BTL Checklist, replace Network Management - BBMD Configuration - B section]

Support	Listing	Option
<b>Network Management - BACnet Broadcast Management Device Configuration - B</b>		
	R	Base Requirements
	R	Supports Registration by Foreign Devices
	BTL-C <sup>1</sup>	Executes Write-Broadcast-Distribution-Table
	C <sup>2</sup>	Supports configurable BBMD_Broadcast_Distribution_Table property
<sup>1</sup> This option is required if the IUT claims Protocol_Revision 16 or lower.		
<sup>2</sup> This option is required if the IUT claims Protocol_Revision 17 or higher.		

### Test Plan Changes

[In BTL Test Plan, replace section 10.7 Network Management - BBMD Configuration - B]

## 10.7 Network Management - BBMD Configuration - B

These tests are designed for testing implementations of a BACnet Broadcast Management Device, including the execution of Network Layer and Application Layer commands to configure the BBMD.

### 10.7.1 Base Requirements

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

<b>BTL - 14.2.1.2 - Execute Forwarded-NPDU (Two-hop Distribution)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.2.2.2 - Execute Original-Broadcast-NPDU (Two-hop Distribution)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.2.3 - Execute Original-Unicast-NPDU</b>		

	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.5.2.2 - Original-Broadcast-NPDU Which Shall Be Forwarded (Two-hop Distribution)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.7.1.2 - Broadcast Message from Directly Connected IP Subnet (Two-hop Distribution)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.7.2.2 - Broadcast Message Forwarded by a Peer BBMD (Two-hop Distribution)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.9.3 - Original-Broadcast-NPDU</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

## 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.

<b>BTL - 14.6.X1 - Holds at least 5 Foreign Device Registrations</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.6.X2 - Negative Foreign Device Registration when FD_Supported is FALSE</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.6.1 - Execute Read-Foreign-Device-Table</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.6.3.1 - Non-zero-Duration Foreign Device Table Timer Operations</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.6.5 - Execute Delete-Foreign-Device-Table-Entry Which Should Be Rejected</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

<b>135.1-2013 - 14.6.6 - Execute Delete-Foreign-Device-Table-Entry</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.7.3.2 - Broadcast Message From a Foreign Device (Two-hop Distribution)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 10.7.3 Executes Write-Broadcast-Distribution-Table

The IUT executes Write-Broadcast-Distribution-Table to update the configured peer BBMDs.

<b>135.1-2013 - 14.3.1 - Execute Write-Broadcast-Distribution-Table (Table Growth)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>135.1-2013 - 14.3.2 - Execute Write-Broadcast-Distribution-Table (Table Shrinkage)</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.3.3 - Verify Broadcast Distribution Table Created from the Configuration Saved During the Previous Session</b>		
	<b>Test Conditionality</b>	This test may be skipped if the IUT claims support for BACnet/IP - BBMD Functionality.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.3.X2 - Broadcast-Distribution-Table Holds at least 5 Entries</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

### 10.7.4 Supports BBMD\_Broadcast\_Distribution\_Table property

The IUT supports the configurable BBMD\_Broadcast\_Distribution\_Table property in Network Port objects to configure peer BBMDs.

<b>BTL - 14.3.X3 - BBMD Broadcast Distribution Table Holds at Least 5 Entries</b>		
	<b>Test Conditionality</b>	Must be executed.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	
<b>BTL - 14.3.X1 - Write-BDT service is required to return Write-BDT-NAK</b>		
	<b>Test Conditionality</b>	Must be executed in all devices claiming Protocol_Revision >= 17.
	<b>Test Directives</b>	
	<b>Testing Hints</b>	

---

## **BTL Specified Tests Changes**

---

This section contains all of the new and changes tests required by the interim test BTL Checklist and BTL Test Plan changes.

[Network Port Object Tests]

[In BTL Specified Tests, add clause 7.3.2.X43 Network Port Object Tests]

### **7.3.2.X43 Network Port Object Tests**

#### **7.3.2.X43.1 Network Port ACTIVATE\_CHANGES test**

Reason for Change: New test per Addendum 135-2012*ai*.

Purpose: This test verifies that after any of the Network Port properties are changed, the revised value is activated when executing a ReinitializeDevice ACTIVATE\_CHANGES service request.

Test Concept: Write any of the writable properties of a Network Port object and activate those changes by issuing a ReinitializeDevice – WARMSTART or ACTIVATE\_CHANGES service request. Then after the IUT has time to have finished its update, verify that the Network Port object properties contain the values that were written.

Test Steps:

1. WRITE (any writable Network Port property) = (a value different from current value)
2. VERIFY Changes\_Pending = TRUE
3. TRANSMIT ReinitializeDevice-Request  
'Reinitialized State of Device' = WARMSTART | ACTIVATE\_CHANGES  
'Password' = (any valid password)
4. RECEIVE BACnet-SimpleACK-PDU
5. CHECK (that the IUT has had time to have finished its update)
6. REPEAT X - for each changed Network Port property  
VERIFY X = (the revised value to which it was changed)
7. VERIFY Changes\_Pending = FALSE

#### **7.3.2.X43.2 Network Port non-volatility properties test**

Reason for Change: New test per Addendum 135-2012*ai*.

Purpose: This test verifies that after any of the Network Port properties is changed, and the revised value is activated, then the revised value with which it was configured is maintained through a power failure and device restart.

Test Concept: Write any of the writable properties of a Network Port object (multiple properties may be written), and activate those changes by issuing a ReinitializeDevice – WARMSTART or ACTIVATE\_CHANGES service request. Then after the IUT has time to have finished its update, restart the IUT device by temporarily removing power. When the device has resumed operation after that restart, verify that the Network Port object properties contain the values that were changed and activated.

Test Steps:

1. WRITE (X, any writable Network Port property) = (a value different from current value)
2. TRANSMIT ReinitializeDevice-Request  
'Reinitialized State of Device' = WARMSTART | ACTIVATE\_CHANGES  
'Password' = (any valid password)
3. RECEIVE BACnet-SimpleACK-PDU
4. WAIT for IUT to have finished its update
5. CHECK (that the IUT has had time to have finished its update)
6. VERIFY X = (the revised value to which it was changed)
7. MAKE (the IUT power cycle to reinitialize)
8. VERIFY X = (the revised value to which it was changed)



### **7.3.2.X43.3 Out\_Of\_Service, Status\_Flags, and Reliability test for an Object that does not contain Present\_Value**

Purpose: This test verifies the interrelationship between the Out\_Of\_Service, Status\_Flags, and Reliability properties. If the PICS indicates that the Out\_Of\_Service property of the object under test is not writable, and if the value of the property cannot be changed by other means, then this test shall be omitted. This test applies to objects that do not contain Present\_Value.

Test Concept: Write to and verify the interrelationship between the Out\_Of\_Service, Status\_Flags, and Reliability properties of an object which does not contain Present\_Value.

Configuration Requirements: The selected object is configured such that its Reliability is NO\_FAULT\_DETECTED before execution of this test.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
    ELSE  
        MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, FALSE, ?, TRUE)
4. IF (Reliability is present and writable) THEN  
    REPEAT X = (all values of the Reliability enumeration appropriate to the object type except NO\_FAULT\_DETECTED) DO {  
        WRITE Reliability = X  
        VERIFY Reliability = X  
        VERIFY Status\_Flags = (TRUE, TRUE, ?, TRUE)  
        WRITE Reliability = NO\_FAULT\_DETECTED  
        VERIFY Reliability = NO\_FAULT\_DETECTED  
        VERIFY Status\_Flags = (? FALSE, ?, TRUE)  
    }  
    }
5. CHECK (all communication of the protocol modeled by the object, through that port is disabled)
6. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
    ELSE  
        MAKE (Out\_Of\_Service = FALSE)
7. VERIFY Out\_Of\_Service = FALSE
8. VERIFY Status\_Flags = (? , ? , ? , FALSE)

[Elevator Group, Escalator, and Lift Object Tests]  
[In BTL Specified Tests, add clause 7.3.2.X45]

### **7.3.2.X45.1 Linking of Elevator Group Object Tests**

#### **7.3.2.X45.1.1 Machine\_Room\_ID property linking with the Positive\_Integer\_Value Object**

Purpose: To verify that Machine\_Room\_ID property of Elevator Group reference the Positive\_Integer\_Value (PIV) object, whose Present\_Value property contains the identification number for the machine room that contains the group of Lifts or Escalators, represented by this object.

Test Concept: A machine room contains the Elevator Group which is having a group of Lifts or Escalators. This machine room is mapped to the Present\_Value property of Positive\_Integer\_Value Object which in turn is referenced to the Machine\_Room\_ID property of Elevator Group.

Configuration Requirements: The Machine room contains Elevator Group (EG1). OBJECT is any valid object type. X is any valid instance number in the range 0 to 4194302.

Test Steps:

1. IF (Machine\_Room\_ID contains room identification number) THEN  
    VERIFY (EG1), Machine\_Room\_ID = (PIV, X)  
ELSE  
    VERIFY (EG1), Machine\_Room\_ID = (OBJECT, 4194303)

### **7.3.2.X45.1.2 Linking of Lift Objects under Group\_Members property of the Elevator Group Object**

Purpose: This test verifies that the Group\_Members property of the Elevator Group object contains the object identifier of the Lift object representing lifts contained within the group represented by this Elevator Group object.

Test Concept: Tester selects an Elevator Group and reads the Group\_Members property of the Elevator Group and verifies that all the Lifts that are configured under one group are present under the Group\_Members property of the Elevator Group object.

Configuration Requirements: Configure 2 Lifts (L1 and L2) under the Elevator Group (EG1).

Test Steps:

1. VERIFY (EG1), Group\_Members = (L1, L2)

### **7.3.2.X45.1.3 Linking of Escalator Objects under Group\_Members property of the Elevator Group Object**

Purpose: This test verifies that the Group\_Members property of the Elevator Group object contains the object identifier of the Escalator object representing the escalators contained within the group represented by this Elevator Group object.

Test Concept: Tester selects an Elevator Group and reads the Group\_Members property of the Elevator Group and verifies that all the Escalators that are configured under one group are present under the Group\_Members property of the Elevator Group object.

Configuration Requirements: Configure 2 Escalators (E1 and E2) under the Elevator Group (EG1).

Test Steps:

1. VERIFY (EG1), Group\_Members = (E1, E2)

### **7.3.2.X45.1.4 Linking of Landing\_Call\_Control Property Test**

Purpose: To verify that writing Landing\_Call\_Control property of Elevator Group assigns an active call to the Lift Object linked by pushing it to the Assigned\_Landing\_Calls property of the Lift object.

Test Concept: An Elevator Group is available, and it contains at least one Lift object. Landing\_Call\_Control property of the Elevator Group is written with a Floor number and direction or destination for the lift. Value written to Landing\_Call\_Control property is updated in the Landing\_Calls property of the Elevator Group which in turn updates the Assigned\_Landing\_Calls property of Lift. This test shall be skipped in the event of absence of Landing\_Call\_Control property. If any of the Landing\_Calls or Assigned\_Landing\_Calls property is not present, then the test steps for that specific property shall be skipped.

Configuration Requirements: The Lift (L1) should be present in the Group\_Members property of Elevator Group (EG1). Lowest universal floor number of the lift < A < Highest universal floor number of the lift. Lowest universal

floor number of the lift <= X <= Highest universal floor number of the lift. B = (UP | DOWN | UP\_AND\_DOWN) and C = (B | UP\_AND\_DOWN).

Test Steps:

1. WRITE (EG1), Landing\_Call\_Control = (Floor Number A, Direction B | Destination X)
2. VERIFY (EG1), Landing\_Call\_Control = (Floor Number A, Direction B | Destination X)
3. VERIFY (EG1), Landing\_Calls = (Floor Number A, Direction C | Destination X)
4. VERIFY (L1), Assigned\_Landing\_Calls = (Floor Number A, Direction C)

Notes to Tester: Landing\_Calls property may contain other entries from same lift or different lifts connected under same Elevator Group. If the Elevator Group contains more than 1 lift, value written to Landing\_Call\_Control may get assigned to any other lift, based on the lift algorithm.

[In BTL Specified Tests, add clause 7.3.2.X46.1]

### **7.3.2.X46.1 Escalator Object Tests**

#### **7.3.2.X46.1.1 Elevator\_Group property of Escalator Object linking with Group\_Members property of Elevator Group Object**

Purpose: This test verifies that Elevator\_Group property of Escalator object shall have reference of Elevator Group object whose Group\_Members property contains a reference of Escalator object.

Test Concept: Escalator object falls under one specific Elevator Group object. The reference of Elevator Group object should be mentioned in Elevator\_Group property of Escalator object. If there is no such Elevator Group object, Elevator\_Group property shall contain an object instance of 4194303.

Configuration Requirements: The Escalator (E1), should be present under Elevator Group (EG1). OBJECT is any valid object type.

Test Steps:

1. VERIFY (E1), Elevator\_Group = (EG1)
2. VERIFY (EG1), Group\_Members = ((E1),....., En)
3. IF (IUT does not contain reference of any Elevator Group Object) THEN  
VERIFY (E1), Elevator\_Group = (OBJECT, 4194303)

#### **7.3.2.X46.1.2 Energy\_Meter, Power\_Mode and Operation\_Direction Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Escalator object, it does not track the changes made for Energy\_Meter, Power\_Mode and Operation\_Direction property and it does not control the escalator operation from these properties.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Energy\_Meter, Power\_Mode and Operation\_Direction property shall not make escalator to update its energy value, power mode and operation direction. Also, while making escalator's energy, power mode and operation direction change from current status, it shall not get updated to Energy\_Meter, Power\_Mode and Operation\_Direction property of the Escalator object. Out\_Of\_Service property of the Escalator object is set to TRUE in the beginning of the test. If either of the Energy\_Meter or Power\_Mode properties are not present, then the test steps for that specific property shall be skipped.

Configuration Requirements: The Escalator Object supports Energy\_Meter and/or Power\_Mode properties. Escalator Power\_Mode is TRUE and Operation\_Direction is STOPPED. Escalator is having energy meter value =

X. Tester shall select any value for energy meter Y;  $Y < 99999$  or permitted by IUT. Tester shall select any Operation\_Direction supported by IUT while testing.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Energy\_Meter = Y
5. VERIFY Energy\_Meter = Y
6. CHECK (the escalator's energy consumption is having value = X or value other than Y)
7. MAKE (the escalator's energy consumption value = Z)
8. VERIFY Energy\_Meter = Y
9. WRITE Power\_Mode = FALSE
10. VERIFY Power\_Mode = FALSE
11. CHECK (the escalator is still powered up independent of the value written)
12. MAKE (the escalator's power mode to be TRUE from FALSE)
13. VERIFY Power\_Mode = FALSE
14. WRITE Operation\_Direction = UP\_RATED\_SPEED
15. VERIFY Operation\_Direction = UP\_RATED\_SPEED
16. CHECK (the escalator remains stopped)
17. MAKE (the escalator's operation direction to be DOWN\_RATED\_SPEED)
18. VERIFY Operation\_Direction = UP\_RATED\_SPEED
19. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
ELSE  
    MAKE (Out\_Of\_Service = FALSE)
20. VERIFY Out\_Of\_Service = FALSE
21. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### 7.3.2.X46.1.3 Passenger\_Alarm and Fault\_Signals Tracking Test

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Escalator object, it does not track the changes made for Passenger\_Alarm and Fault\_Signals property and it does not control the escalator operation from these properties.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Passenger\_Alarm and Fault\_Signals property shall not make escalator to update its alarm and fault status. Also, while making escalator's fault and alarm status change from current value, it shall not get updated to Passenger\_Alarm and Fault\_Signals property of the Escalator object. Out\_Of\_Service property of the Escalator object is set to TRUE in the beginning of the test. If Fault\_Signals property is not present, then the respective test steps shall be skipped.

Configuration Requirements: Escalator has no alarm or fault at the start of test. Tester shall select any value for Fault\_Signals property testing that is supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE

3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Passenger\_Alarm = TRUE
5. VERIFY Passenger\_Alarm = TRUE
6. CHECK (the escalator's alarm is not triggered)
7. MAKE (the escalator in NORMAL state)
8. VERIFY Passenger\_Alarm = TRUE
9. WRITE Fault\_Signals = OVERSPEED\_FAULT
10. VERIFY Fault\_Signals = OVERSPEED\_FAULT
11. CHECK (the escalator does not have any fault into it)
12. MAKE (the escalator to have SAFETY\_DEVICE\_FAULT fault)
13. VERIFY Fault\_Signals = OVERSPEED\_FAULT
14. IF (Out\_Of\_Service is writable) THEN
  - WRITE Out\_Of\_Service = FALSE
  - ELSE
    - MAKE (Out\_Of\_Service = FALSE)
15. VERIFY Out\_Of\_Service = FALSE
16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### 7.3.2.X46.1.4 Escalator\_Mode Tracking Test

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Escalator object, it does not track the changes made for Escalator\_Mode property and also it does not control the escalator operation from this property.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Escalator\_Mode property shall not make escalator to update its mode. Also, while making escalator's mode to change from current value, it shall not get updated to Escalator\_Mode property of the Escalator object. Out\_Of\_Service property of the Escalator object is set to TRUE in the beginning of the test. If this property is not present, then this test shall be skipped.

Configuration Requirements: The Escalator Object shall support Escalator\_Mode property. Escalator runs at UP mode. Tester shall select any value for Escalator\_Mode property for testing that are supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN
  - WRITE Out\_Of\_Service = TRUE
  - ELSE
    - MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Escalator\_Mode = DOWN
5. VERIFY Escalator\_Mode = DOWN
6. CHECK (the escalator or slanted passenger conveyor is still moving upward)
7. MAKE (the escalator to move from downward to upward)
8. VERIFY Escalator\_Mode = DOWN
9. IF (Out\_Of\_Service is writable) THEN
  - WRITE Out\_Of\_Service = FALSE
  - ELSE
    - MAKE (Out\_Of\_Service = FALSE)
10. VERIFY Out\_Of\_Service = FALSE
11. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### 7.3.2.X46.1.5 Operation\_Direction Tracks Escalator\_Mode Test

Purpose: To verify the linking of Operation\_Direction property and Escalator\_Mode property of Escalator object

Test Concept: Operation\_Direction property i.e. the direction and speed in which this escalator is presently moving corresponds to the Escalator\_Mode property of Escalator object

Test Steps:

1. IF (Escalator\_Mode = STOP) THEN  
    VERIFY Operation\_Direction = STOPPED
2. IF (Escalator\_Mode = UP) THEN  
    VERIFY Operation\_Direction = UP\_RATED\_SPEED | UP\_REDUCED\_SPEED
3. IF (Escalator\_Mode = DOWN) THEN  
    VERIFY Operation\_Direction = DOWN\_RATED\_SPEED | DOWN\_REDUCED\_SPEED

### **7.3.2.X46.1.6 Energy\_Meter\_Ref Property Test**

Purpose: To verify linking of Energy\_Meter property and Energy\_Meter\_Ref property.

Test Concept: If the Energy\_Meter\_Ref property is present and initialized with an Object (contains an instance other than 4194303), then the Energy\_Meter property, if present, shall have a value of 0.0. If Energy\_Meter\_Ref property is un-initialized, then the Energy\_Meter property shall have any valid value.

Test Steps:

1. IF (Energy\_Meter\_Ref is present and initialized with instance other than 4194303) THEN  
    VERIFY Energy\_Meter = 0.0  
ELSE  
    VERIFY Energy\_Meter = (Any Valid Value)

### **7.3.2.X46.1.7 CHANGE\_OF\_STATE for Passenger\_Alarm (ConfirmedEventNotification)**

Purpose: To verify the correct operation of the CHANGE\_OF\_STATE event algorithm. This test applies to Event Enrollment objects with an Event\_Type of CHANGE\_OF\_STATE and to intrinsic event reporting for Escalator and Lift objects.

Test Concept: The object begins the test in a NORMAL state. pMonitoredValue is set to TRUE. After pTimeDelay the object shall enter the OFFNORMAL state and transmit an event notification message. pMonitoredValue is set to FALSE corresponding to a NORMAL state. After pTimeDelayNormal the object shall enter the NORMAL state and transmit an event notification message

Configuration Requirements: The IUT shall be configured such that the Event\_Enable property has a value of TRUE for the TO-OFFNORMAL, TO-FAULT and TO-NORMAL transitions. The Issue\_Confirmed\_Notifications parameter shall have a value of TRUE. The event-generating objects shall be in a NORMAL state at the start of the test. If a Notification Class object is being used to configure recipient information the value of the Transitions parameter for all recipients shall be (TRUE, TRUE, TRUE). If present in the object being tested, the Event\_Detection\_Enable property shall have a value of TRUE, Event\_Algorithm\_Inhibit shall have a value of FALSE.

Test Steps:

1. VERIFY pCurrentState = NORMAL
2. IF (the object, or referenced object, if using Event Enrollment, is an Escalator or Lift object with Passenger\_Alarm property) THEN
3. MAKE (pMonitoredValue (Passenger\_Alarm) = TRUE)
4. WAIT (pTimeDelay)
5. BEFORE Notification Fail Time  
    RECEIVE ConfirmedEventNotification-Request,  
        'Process Identifier' = (any valid process ID),

'Initiating Device Identifier' = IUT,  
 'Event Object Identifier' = (the intrinsic reporting object being tested or the EventEnrollment object being tested),  
 'Time Stamp' = (T1, the current local time or sequence number),  
 'Notification Class' = (the configured notification class),  
 'Priority' = (the value configured to correspond to a TO-OFFNORMAL transition),  
 'Event Type' = CHANGE\_OF\_STATE,  
 'Message Text' = (optional, any valid message text),  
 'Notify Type' = EVENT | ALARM,  
 'AckRequired' = TRUE | FALSE,  
 'From State' = NORMAL,  
 'To State' = OFFNORMAL,  
 'Event Values' = (pMonitoredValue, pStatusFlags)

6. TRANSMIT BACnet-SimpleACK-PDU
7. VERIFY pStatusFlags = (TRUE, FALSE, ?, ?)
8. VERIFY pCurrentState = OFFNORMAL
9. VERIFY Event\_Time\_Stamps = (T1, \*, \*)
10. MAKE (pMonitoredValue (Passenger\_Alarm) = FALSE)
11. WAIT (pTimeDelayNormal)
12. BEFORE Notification Fail Time

RECEIVE ConfirmedEventNotification-Request,

'Process Identifier' = (any valid process ID),  
 'Initiating Device Identifier' = IUT  
 'Event Object Identifier' = (the intrinsic reporting object being tested or the EventEnrollment object being tested),  
 'Time Stamp' = (T2, the current local time or sequence number),  
 'Notification Class' = (the configured notification class),  
 'Priority' = (the value configured to correspond to a TO-NORMAL transition),  
 'Event Type' = CHANGE\_OF\_STATE,  
 'Message Text' = (optional, any valid message text),  
 'Notify Type' = EVENT | ALARM,  
 'AckRequired' = TRUE | FALSE,  
 'From State' = OFFNORMAL,  
 'To State' = NORMAL,  
 'Event Values' = (pMonitoredValue, pStatusFlags)

13. TRANSMIT BACnet-SimpleACK-PDU
14. VERIFY pStatusFlags = (FALSE, FALSE, ?, ?)
15. VERIFY pCurrentState = NORMAL
16. VERIFY Event\_Time\_Stamps = (T1, \*, T2)

### 7.3.2.X46.1.8 CHANGE\_OF\_STATE for Passenger\_Alarm (UnconfirmedEventNotification)

Purpose: To verify the correct operation of the CHANGE\_OF\_STATE event algorithm. This test applies to Event Enrollment objects with an Event\_Type of CHANGE\_OF\_STATE and to intrinsic event reporting for Escalator and Lift objects.

Test Concept: The object begins the test in a NORMAL state. pMonitoredValue is set to TRUE. After pTimeDelay the object shall enter the OFFNORMAL state and transmit an event notification message. pMonitoredValue is set to FALSE corresponding to a NORMAL state. After pTimeDelayNormal the object shall enter the NORMAL state and transmit an event notification message

Configuration Requirements: The IUT shall be configured such that the Event\_Enable property has a value of TRUE for the TO-OFFNORMAL, TO-FAULT and TO-NORMAL transitions. The Issue\_Confirmed\_Notifications parameter shall have a value of FALSE. The event-generating objects shall be in a NORMAL state at the start of the test. If a Notification Class object is being used to configure recipient information the value of the Transitions

parameter for all recipients shall be (TRUE, TRUE, TRUE). If present in the object being tested, the Event\_Detection\_Enable property shall have a value of TRUE, Event\_Algorithm\_Inhibit shall have a value of FALSE.

Test Steps: The test steps for this test are identical to the test steps in 7.3.2.X46.1.7 except that the ConfirmedEventNotification requests are UnconfirmedEventNotification requests and the TD does not acknowledge receiving the notifications.

[Elevator Group, Escalator, and Lift Object Tests]  
[In BTL Specified Tests, add clause 7.3.2.X47.1 Lift Object Tests]

### **7.3.2.X47.1 Lift Object Tests**

#### **7.3.2.X47.1.1 Elevator\_Group property of Lift Object linking with Group\_Members property of Elevator Group Object**

Purpose: This test verifies that Elevator\_Group property of Lift object shall have reference of Elevator Group object whose Group\_Members property contains a reference of Lift object.

Test Concept: Lift object falls under one specific Elevator Group object. The reference of Elevator Group object should be mentioned in Elevator\_Group property of Lift object. If there is no such Elevator Group object, Elevator\_Group property shall contain an object instance of 4194303.

Configuration Requirements: The Lift (L1) should present under the Elevator Group (EG1). OBJECT is any valid object type.

Test Steps:

1. VERIFY (L1), Elevator\_Group = (EG1)
2. VERIFY (EG1), Group\_Members = ((L1), .... Ln)
3. IF (IUT does not have reference of any such Elevator Group object) THEN  
VERIFY (L1), Elevator\_Group = (OBJECT, 4194303)

#### **7.3.2.X47.1.2 Car\_Moving\_Direction and Car\_Assigned\_Direction Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Car\_Moving\_Direction and Car\_Assigned\_Direction property and it does not control the lift operation from these properties.

Test Concept: When Out\_Of\_Service is set to TRUE, writing Car\_Moving\_Direction and Car\_Assigned\_Direction property shall not make lift to serve specified direction. Also, making lift to serve any direction shall not be updated in Car\_Moving\_Direction and Car\_Assigned\_Direction property of Lift object. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If Car\_Assigned\_Direction property is not present, then the respective test steps shall be skipped.

Configuration Requirements: 'X' and 'Y' are any valid directions supported by IUT. Tester shall select any car moving direction and car assigned direction supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
WRITE Out\_Of\_Service = TRUE  
ELSE  
MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)



4. WRITE Car\_Moving\_Direction = Direction X
5. VERIFY Car\_Moving\_Direction = Direction X
6. CHECK (the lift is not serving as per the Car\_Moving\_Direction property)
7. MAKE (the lift to move in Direction Y)
8. VERIFY Car\_Moving\_Direction = Direction X
9. WRITE Car\_Assigned\_Direction = Direction X
10. VERIFY Car\_Assigned\_Direction = Direction X
11. CHECK (the lift is not serving as per the Car\_Assigned\_Direction property)
12. MAKE (the lift assigned towards Direction Y)
13. VERIFY Car\_Assigned\_Direction = Direction X
14. IF (Out\_Of\_Service is writable) THEN  
     WRITE Out\_Of\_Service = FALSE  
   ELSE  
     MAKE (Out\_Of\_Service = FALSE)
15. VERIFY Out\_Of\_Service = FALSE
16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### 7.3.2.X47.1.3 Car\_Door\_Status and Landing\_Door\_Status Tracking Test

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Car\_Door\_Status and Landing\_Door\_Status property and it does not control the lift operation from these properties.

Test Concept: When Out\_Of\_Service is set to TRUE, writing Car\_Door\_Status and Landing\_Door\_Status property shall not make lift and landing doors to operate. Also, making lift and landing doors to operate shall not be updated in Car\_Door\_Status and Landing\_Door\_Status property when the Out\_Of\_Service is set to TRUE. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If Landing\_Door\_Status property is not present, then the respective test steps shall be skipped.

Configuration Requirements: Lift's Door starts in OPEN State. ARRAY INDEX = (any valid value N;  $1 \leq N \leq$  number of doors of a car). Universal floor number = (X = any valid floor number of the lift connected to the IUT) Tester shall select any car door status and landing door status values supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
     WRITE Out\_Of\_Service = TRUE  
   ELSE  
     MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Car\_Door\_Status = CLOSED, ARRAY INDEX = N
5. VERIFY Car\_Door\_Status = CLOSED, ARRAY INDEX = N
6. CHECK (the lift's car door is not operating as per the Car\_Door\_Status property)
7. MAKE (the lift's car door N to OPEN)
8. VERIFY Car\_Door\_Status = CLOSED, ARRAY INDEX = N
9. WRITE Landing\_Door\_Status = CLOSING, ARRAY INDEX = N, Universal floor number = X
10. VERIFY Landing\_Door\_Status = CLOSING, ARRAY INDEX = N
11. CHECK (the specified landing door is not serving as per the Landing\_Door\_Status property)
12. MAKE (the landing door for car door N to OPEN at Universal floor number X)
13. VERIFY Landing\_Door\_Status = CLOSING, ARRAY INDEX = N, Universal floor number = X
14. IF (Out\_Of\_Service is writable) THEN  
     WRITE Out\_Of\_Service = FALSE  
   ELSE  
     MAKE (Out\_Of\_Service = FALSE)
15. VERIFY Out\_Of\_Service = FALSE

16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

#### **7.3.2.X47.1.4 Car\_Position and Next\_Stopping\_Floor Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made in Car\_Position and Next\_Stopping\_Floor property and also it does not control the lift operation from these properties.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Car\_Position and Next\_Stopping\_Floor property shall not make lift to update its car position and next stopping floor. Also, while making lift's car position and next stopping floor change from current value, it shall not get updated to Car\_Position and Next\_Stopping\_Floor property of the Lift object. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If Next\_Stopping\_Floor property is not present, then the respective test steps shall be skipped.

Configuration Requirements: Lift's current position (floor) is A. Universal floor number = (X, Y, A, B, C = any valid floor number of the lift connected to the IUT). Tester shall select any floor number supported by IUT for this test.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Car\_Position = Y
5. VERIFY Car\_Position = Y
6. CHECK (the lift still stands at the floor A)
7. MAKE (the lift to stand at the floor X)
8. VERIFY Car\_Position = Y
9. WRITE Next\_Stopping\_Floor = C
10. VERIFY Next\_Stopping\_Floor = C
11. CHECK (the lift is not moving towards floor C and it still stands at floor X)
12. MAKE (the lift to move from floor X to reach floor B)
13. VERIFY Next\_Stopping\_Floor = C
14. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
ELSE  
    MAKE (Out\_Of\_Service = FALSE)
15. VERIFY Out\_Of\_Service = FALSE
16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

#### **7.3.2.X47.1.5 Passenger\_Alarm and Fault\_Signals Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Passenger\_Alarm and Fault\_Signals property and it does not control the lift operation from these properties.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Passenger\_Alarm and Fault\_Signals property shall not make lift to update its alarm and fault status. Also, while making lift's fault and alarm status change from current value, it shall not get updated to Passenger\_Alarm and Fault\_Signals property of the Lift object. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If Fault\_Signals property is not present, then the respective test steps shall be skipped.

Configuration Requirements: Lift has no alarm or fault at the start of test. Tester shall select any value for Fault\_Signals property testing that is supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. WRITE Passenger\_Alarm = TRUE
4. VERIFY Passenger\_Alarm = TRUE
5. CHECK (the lift's alarm is not triggered)
6. MAKE (the lift to move from Alarm to normal state)
7. VERIFY Passenger\_Alarm = TRUE
8. WRITE Fault\_Signals = CALL\_BUTTON\_STUCK
9. VERIFY Fault\_Signals = CALL\_BUTTON\_STUCK
10. CHECK (the lift does not have any fault into it)
11. MAKE (the lift to have POSITION\_LOST fault)
12. VERIFY Fault\_Signals = CALL\_BUTTON\_STUCK
13. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
ELSE  
    MAKE (Out\_Of\_Service = FALSE)
14. VERIFY Out\_Of\_Service = FALSE

#### **7.3.2.X47.1.6 Making\_Car\_Call, Car\_Mode & Car\_Door\_Command Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Making\_Car\_Call, Car\_Mode & Car\_Door\_Command property and also it does not control the lift operation from these properties.

Test Concept: When Out\_Of\_Service is set to TRUE, writing Making\_Car\_Call, Car\_Mode & Car\_Door\_Command property shall not make lift to serve specified floor, to set the mode and to execute car door commands. Also, making lift to serve different floors, to operate at different modes and for various car door commands shall not be updated in Making\_Car\_Call, Car\_Mode & Car\_Door\_Command properties of Lift Object. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If any of the Making\_Car\_Call, Car\_Mode or Car\_Door\_Command property is not present, then the test steps for that specific property shall be skipped.

Configuration Requirements: Car\_Mode is NORMAL and Car\_Door\_Command is CLOSE at the start of the test. ARRAY INDEX = (any valid value N;  $1 \leq N \leq$  number of doors of a car). Universal floor number = (X, Y = any valid floor number of the lift connected to the IUT). Tester shall select any car door command or car mode supported by IUT while testing.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Making\_Car\_Call = any valid floor X, ARRAY INDEX = N
5. VERIFY Making\_Car\_Call = X, ARRAY INDEX = N
6. CHECK (the lift is not serving as per value X in Making\_Car\_Call property)
7. MAKE (the lift to serve call at floor Y for car door N)

8. VERIFY Making\_Car\_Call = X, ARRAY INDEX = N
9. WRITE Car\_Door\_Command = OPEN, ARRAY INDEX = N
10. VERIFY Car\_Door\_Command = OPEN, ARRAY INDEX = N
11. CHECK (the lift's car door N is not opening as per the Car\_Door\_Command property)
12. MAKE (the lift to CLOSE at the car door N from OPEN or NONE)
13. VERIFY Car\_Door\_Command = OPEN, ARRAY INDEX = N
14. WRITE Car\_Mode = HOMING
15. VERIFY Car\_Mode = HOMING
16. CHECK (the lift is not moving into HOMING mode)
17. MAKE (the lift into PARKING mode)
18. VERIFY Car\_Mode = HOMING
19. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
ELSE  
    MAKE (Out\_Of\_Service = FALSE)
20. VERIFY Out\_Of\_Service = FALSE
21. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### 7.3.2.X47.1.7 Assigned\_Landing\_Call and Registered\_Car\_Call Tracking Test

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Assigned\_Landing\_Call and Registered\_Car\_Call property and it does not control the lift operation from these properties.

Test Concept: When Out\_Of\_Service is set to TRUE, writing Assigned\_Landing\_Call and Registered\_Car\_Call property shall not make lift to serve specified floors and direction. Also, making lift to serve any floors and direction shall not be updated in Assigned\_Landing\_Calls and Registered\_Car\_Call property of Lift object. . Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If any of the Assigned\_Landing\_Calls and Registered\_Car\_Call property is not present, then the test steps for that specific property shall be skipped.

Configuration Requirements: ARRAY INDEX = (any valid value N;  $1 \leq N \leq$  number of doors of a car). Universal floor number = (A, B, X1...n, Y1...n = any valid floor number of the lift connected to the IUT). P, Q is any valid direction supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Assigned\_Landing\_Calls = (Floor A, Direction P), ARRAY INDEX = N
5. VERIFY Assigned\_Landing\_Calls = (Floor A, Direction P), ARRAY INDEX = N
6. CHECK (the lift is not serving as per the values of Assigned\_Landing\_Calls property)
7. MAKE (the lift to serve landing call at Floor B, Direction Q for car door N)
8. VERIFY Assigned\_Landing\_Calls = (Floor A, Direction P), ARRAY INDEX = N
9. WRITE Registered\_Car\_Call = (X1, X2, X3, X4...Xn), ARRAY INDEX = N
10. VERIFY Registered\_Car\_Call = (X1, X2, X3, X4...Xn), ARRAY INDEX = N
11. CHECK (the lift is not serving as per the Registered\_Car\_Call property)
12. MAKE (the lift to serve calls at Floor (Y1, Y2, Y3...Yn) for car door N)
13. VERIFY Registered\_Car\_Call = (X1, X2, X3, X4...Xn), ARRAY INDEX = N
14. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
ELSE  
    MAKE (Out\_Of\_Service = FALSE)

15. VERIFY Out\_Of\_Service = FALSE
16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### **7.3.2.X47.1.8 Car\_Door\_Zone and Car\_Load Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Car\_Door\_Zone and Car\_Load property and it does not control the lift operation from these properties.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Car\_Door\_Zone and Car\_Load property shall not make lift update its car door zone and its load. Also, while making lift's car to enter to a particular door zone where door opening is permitted and having a specific weight of lift car shall not get updated to Car\_Door\_Zone and Car\_Load properties of the Lift object. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If any of the Car\_Door\_Zone and Car\_Load property is not present, then the test steps for that specific property shall be skipped.

Configuration Requirements: Lift is stopped at any floor in the specified car door zone and having X units of weight. Tester shall select any weight within the permissible limit of the IUT while testing the Car\_Load property.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
    ELSE  
        MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Car\_Door\_Zone = FALSE
5. VERIFY Car\_Door\_Zone = FALSE
6. CHECK (the lift's car door zone remains unchanged independent of value written)
7. MAKE (the lift's car door to door opening permitted zone)
8. VERIFY Car\_Door\_Zone = FALSE
9. WRITE Car\_Load = X+1 units
10. VERIFY Car\_Load = X+1 units
11. CHECK (the car load is X units)
12. MAKE (the lift car load to X+2)
13. VERIFY Car\_Load = X+1 units
14. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
    ELSE  
        MAKE (Out\_Of\_Service = FALSE)
15. VERIFY Out\_Of\_Service = FALSE
16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### **7.3.2.X47.1.9 Energy\_Meter and Car\_Drive\_Status Tracking Test**

Purpose: To verify that when Out\_Of\_Service property is set to TRUE for the monitored Lift object, it does not track the changes made for Energy\_Meter and Car\_Drive\_Status property and it does not control the lift operation from these properties.

Test Concept: When the Out\_Of\_Service is set to TRUE, writing Energy\_Meter and Car\_Drive\_Status property shall not make lift to update its energy value and car drive status. Also, while making lift's energy and car drive status change from current value, it shall not get updated to Energy\_Meter and Car\_Drive\_Status property of the Lift object. Out\_Of\_Service property of the Lift object is set to TRUE in the beginning of the test. If any of the Energy\_Meter and Car\_Drive\_Status property is not present, then the test steps for that specific property shall be skipped.

Configuration Requirements: Lift is stopped at any floor, i.e. car drive status is stationary. Lift is having energy meter value = X. Tester shall select any value for energy meter Y;  $Y < 99999$  or permitted by IUT. Tester shall select any car drive status supported by IUT.

Test Steps:

1. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = TRUE  
ELSE  
    MAKE (Out\_Of\_Service = TRUE)
2. VERIFY Out\_Of\_Service = TRUE
3. VERIFY Status\_Flags = (?, ?, ?, TRUE)
4. WRITE Energy\_Meter = Y
5. VERIFY Energy\_Meter = Y
6. CHECK (the lift's energy consumption is having value = X or value other than Y)
7. MAKE (the lift's energy consumption value = Z)
8. VERIFY Energy\_Meter = Y
9. WRITE Car\_Drive\_Status = BRAKING
10. VERIFY Car\_Drive\_Status = BRAKING
11. CHECK (the lift's car drive status is STATIONARY)
12. MAKE (the lift's car drive status to ACCELERATE)
13. VERIFY Car\_Drive\_Status = BRAKING
14. IF (Out\_Of\_Service is writable) THEN  
    WRITE Out\_Of\_Service = FALSE  
ELSE  
    MAKE (Out\_Of\_Service = FALSE)
15. VERIFY Out\_Of\_Service = FALSE
16. VERIFY Status\_Flags = (?, ?, ?, FALSE)

### **7.3.2.X47.1.10 Making\_Car\_Call and Registered\_Car\_Call Test**

Purpose: To verify that the values written into Making\_Car\_Call property of lift object reflects in its Registered\_Car\_Call property at the same door side array index.

Test Concept: Making\_Car\_Call property of Lift (L1) object being tested is subjected for car calls provided by means of passenger requesting for car stop or by means of writing the property. The Registered\_Car\_Call property value at a specified array index is checked to verify that it is same as that of value provided to Making\_Car\_Call property.

Configuration Requirements: For below steps 'Array Index' = (any valid value N;  $1 \leq N \leq$  number of doors of a car) and 'Property Value' = (any valid value X;  $X \leq$  highest universal floor number of the lift)

Test Steps:

1. IF (Making\_Car\_Call is writable) THEN  
    WRITE (L1), Making\_Car\_Call = X, ARRAY INDEX = N  
ELSE  
    MAKE (Making\_Car\_Call = (Value of X), ARRAY INDEX = N)
2. VERIFY (L1), Making\_Car\_Call = X, ARRAY INDEX = N
3. VERIFY (L1), Registered\_Car\_Call = X, ARRAY INDEX = N

Notes to Tester: Registered\_Car\_Call property may contain other additional entries.

### **7.3.2.X47.1.11 Array Size of the Lift Object properties based on car door size.**

Purpose: To verify that the size of the Car\_Door\_Text, Assigned\_Landing\_Calls, Making\_Car\_Call, Registered\_Car\_Call, Car\_Door\_Status, Car\_Door\_Command and Landing\_Door\_Status array corresponds to the number of car doors present in the lift car and all are of same size.

Test Concept: Above properties will be verified for the array index 0 equals the number of car doors present in the Lift (L1). If change of car door size is possible, change and REPEAT all the steps else skip. If any of above properties are not present, then skip and proceed with the test for available properties.

Test Steps:

1. VERIFY (L1), Car\_Door\_Text = (Number of car doors present in the Lift), ARRAY INDEX = 0
2. VERIFY (L1), Assigned\_Landing\_Calls = (Number of car doors present in Lift), ARRAY INDEX = 0
3. VERIFY (L1), Making\_Car\_Call = (Number of car doors present in the Lift), ARRAY INDEX = 0
4. VERIFY (L1), Registered\_Car\_Call = (Number of car doors present in the Lift), ARRAY INDEX = 0
5. VERIFY (L1), Car\_Door\_Status = (Number of car doors present in the Lift), ARRAY INDEX = 0
6. VERIFY (L1), Car\_Door\_Command = (Number of car doors present in the Lift), ARRAY INDEX = 0
7. VERIFY (L1), Landing\_Door\_Status = (Number of car doors present in the Lift), ARRAY INDEX = 0
8. CHECK (Array index 0 of all these properties shall be same)

### **7.3.2.X47.1.12 Landing\_Door\_Status Tracks Car\_Door\_Status Test**

Purpose: To verify that the status of Car\_Door\_Status property of lift is as same as that of the Landing\_Door\_Status property at a particular floor.

Test Concept: Car\_Door\_Status property of Lift (L1) object is subjected for different BACnetDoorStatus provided by changing the door status of real time lift connected to IUT or writing to it. The door side and floor number of the lift is considered in this case. The Landing\_Door\_Status property value at a specified array index (door size) for a particular floor (where lift car is currently present) is checked to verify that it is same as that of the status provided to Car\_Door\_Status property. If Landing\_Door\_Status property is not present, then this test shall be skipped.

Configuration Requirements: For below steps 'Array Index' = (any valid value N;  $1 \leq N \leq$  number of doors of a car). Y = (any valid floor number of the lift connected to the IUT). Tester shall select any value X for Car\_Door\_Status supported by IUT.

Test Steps:

1. IF (Car\_Door\_Status is writable) THEN  
    WRITE (L1), Car\_Door\_Status = X, ARRAY INDEX = N  
ELSE  
    MAKE (Car\_Door\_Status = (Value of X), ARRAY INDEX = N)
2. VERIFY (L1), Car\_Door\_Status = X, ARRAY INDEX = N
3. VERIFY (L1), Car\_Position = Y,
4. VERIFY (L1), Landing\_Door\_Status = X, ARRAY INDEX = N
5. CHECK (Landing\_Door\_Status property value is X only for the Universal floor number Y)

### **7.3.2.X47.1.13 Highest Universal floor number linking to Car\_Position and Next\_Stopping\_Floor properties**

Purpose: This test verifies that the highest universal floor number of the Lift object can be the maximum value of above properties depending on the floor numbers

Test Concept: Lift Object (L1) Properties Car\_Position and Next\_Stopping\_Floor will be written with the value of highest universal floor number and greater. If there is a physical lift or any alternate way for changing the highest universal floor number, change and REPEAT all the steps else omit. If any of the dependable properties are not writable, then skip the specific property from the test.

This test shall be skipped if Floor\_Text property is not present.

Configuration Requirements: For below steps 'Property Value' = (Y = highest universal floor number of the lift connected to the IUT). If Next\_Stopping\_Floor property is not present, then respective steps shall be skipped.

Test Steps:

1. VERIFY (L1), Floor\_Text = Y, ARRAY INDEX = 0
2. IF (Car\_Position is writable) THEN  
    WRITE (L1), Car\_Position = Y  
    VERIFY (L1), Car\_Position = Y
3. TRANSMIT WriteProperty-Request,  
    'Object Identifier' = (L1),  
    'Property Identifier' = Car\_Position,  
    'Property Value' = Y+1
4. RECEIVE BACnet-Error-PDU,  
    'Error Class' = PROPERTY,  
    'Error Code' = VALUE\_OUT\_OF\_RANGE
5. IF (Next\_Stopping\_Floor is writable) THEN  
    WRITE (L1), Next\_Stopping\_Floor = Y  
    VERIFY (L1), Next\_Stopping\_Floor = Y
6. TRANSMIT WriteProperty-Request,  
    'Object Identifier' = (L1),  
    'Property Identifier' = Next\_Stopping\_Floor,  
    'Property Value' = Y+1
7. RECEIVE BACnet-Error-PDU,  
    'Error Class' = PROPERTY,  
    'Error Code' = VALUE\_OUT\_OF\_RANGE

#### **7.3.2.X47.1.14 Highest Universal floor number linking to Assigned\_Landing\_Calls, Making\_Car\_Call and Registered\_Car\_Call properties**

Purpose: This test verifies that the highest universal floor number of the Lift object can be the maximum value of above properties depending on the floor numbers

Test Concept: Lift Object (L1) Properties Assigned\_Landing\_Calls, Making\_Car\_Call and Registered\_Car\_Call will be written with the value of highest universal floor number and greater. If there is a physical lift or any alternate way for changing the highest universal floor number, change and REPEAT all the steps else omit. If any of the dependable properties are not writable, then skip the specific property from the test. This test shall be skipped if Floor\_Text property is not present.

Configuration Requirements: For below steps 'Array Index' = (any valid value N;  $1 \leq N \leq$  number of doors of a car) and 'Property Value' = (Y = highest universal floor number of the lift). If any of the dependable properties are not writable, then MAKE Out\_Of\_Service TRUE and then write, else skip the specific property from the test.

Test Steps:

1. VERIFY (L1), Floor\_Text = Y, ARRAY INDEX = 0
2. IF (Making\_Car\_Call is writable) THEN  
    WRITE (L1), Making\_Car\_Call = Y, ARRAY INDEX = N  
    VERIFY (L1), Making\_Car\_Call = Y, ARRAY INDEX = N,
3. TRANSMIT WriteProperty-Request,  
    'Object Identifier' = (L1),  
    'Property Identifier' = Making\_Car\_Call,  
    'Property Value' = Y+1
4. RECEIVE BACnet-Error-PDU,  
    'Error Class' = PROPERTY,



- 'Error Code' = VALUE\_OUT\_OF\_RANGE
5. IF (Registered\_Car\_Call is writable) THEN  
WRITE (L1), Registered\_Car\_Call = Y, ARRAY INDEX = N
  6. VERIFY (L1), Registered\_Car\_Call = Y, ARRAY INDEX = N,
  7. TRANSMIT WriteProperty-Request,  
'Object Identifier' = (L1),  
'Property Identifier' = Registered\_Car\_Call,  
'Property Value' = Y+1
  8. RECEIVE BACnet-Error-PDU,  
'Error Class' = PROPERTY,  
'Error Code' = VALUE\_OUT\_OF\_RANGE
  9. IF (Assigned\_Landing\_Call is writable) THEN  
WRITE (L1), Assigned\_Landing\_Call = (Y, at Z Direction), ARRAY INDEX = N
  10. VERIFY (L1), Assigned\_Landing\_Call = (Y, at Z Direction), ARRAY INDEX = N
  11. TRANSMIT WriteProperty-Request,  
'Object Identifier' = (L1),  
'Property Identifier' = Assigned\_Landing\_Call,  
'Property Value' = (Y+1, at Z Direction)
  12. RECEIVE BACnet-Error-PDU,  
'Error Class' = PROPERTY,  
'Error Code' = VALUE\_OUT\_OF\_RANGE

### 7.3.2.X47.1.15 Energy\_Meter\_Ref Property Tests

Purpose: To verify linking of Energy\_Meter property and Energy\_Meter\_Ref property.

Test Concept: If the Energy\_Meter\_Ref property of Lift object (L1) is present and initialized (contains an instance other than 4194303), then the Energy\_Meter property, if present, shall have a value of 0.0. If Energy\_Meter\_Ref is present and is un-initialized, then the value of Energy\_Meter property shall have any valid value.

Test Steps:

1. IF (Energy\_Meter\_Ref is present and initialized with instance other than 4194303) THEN  
VERIFY Energy\_Meter = 0.0  
ELSE  
VERIFY Energy\_Meter = (Any Valid Value)

### 7.3.2.X47.1.16 Higher\_Deck and Lower\_Deck Tests

Purpose: To verify that the Higher\_Deck and Lower\_Deck property of the Lift Object is referencing the Lift object that refers the car deck above and below the car deck represented by this Lift object.

Test Concept: The IUT under test is configured to have a 3-deck lift having 3 Lift Objects. The Higher\_Deck and Lower\_Deck Property of the Lift object is then read to verify that it is representing the correct Lift Object instances. If there is no higher deck or lower deck, then the object instance shall be 4194303.

Configuration Requirements: The IUT under test is configured to have a 3-deck lift having 3 Lift Object instances: higher deck (L1), middle deck (L2) and lower deck (L3). If the IUT have 2 Deck lift having 2 Lift Objects, then the test steps shall be modified accordingly and executed.

Test Steps:

1. VERIFY (L1), Higher\_Deck = (OBJECT, 4194303),
2. VERIFY (L1), Lower\_Deck = (L2),
3. VERIFY (L2), Higher\_Deck = (L1),
4. VERIFY (L2), Lower\_Deck = (L3),

5. VERIFY (L3), Higher\_Deck = (L2),
6. VERIFY (L3), Lower\_Deck = (OBJECT, 4194303)

### **7.3.2.X47.1.17 Linking of Assigned\_Landing\_Calls property of Lift Object to Landing\_Calls property of Elevator Group**

Purpose: To verify that the Landing\_Calls property of Elevator Group also represents the active calls present in the Assigned\_Landing\_Calls property of the Lift object.

Test Concept: An Elevator Group is available, supports Landing\_Calls property, and it contains at least one Lift object within this group. Assigned\_Landing\_Calls property of the Lift is updated with the Floor number and direction for the lift. Landing\_Calls property of the Elevator Group object shall have the value as per the Assigned\_Landing\_Calls represented by this Lift object. For implementations where it is not possible to write to Assigned\_Landing\_Calls, this test shall be skipped.

Configuration Requirements: The Lift (L1) should be present in the Group\_Members property of Elevator Group (EG1). Lowest universal floor number of the lift < A < Highest universal floor number of the lift. Lowest universal floor number of the lift <= X <= Highest universal floor number of the lift. B = (UP | DOWN | UP\_AND\_DOWN) and C = (B | UP\_AND\_DOWN).

Test Steps:

1. IF (Assigned\_Landing\_Calls is writable) THEN  
    WRITE Assigned\_Landing\_Calls = (Floor Number A, Direction B)
2. VERIFY (L1), Assigned\_Landing\_Calls = (Floor Number A, Direction B)
3. VERIFY (EG1), Landing\_Calls = (Floor Number A, Direction C | Destination X)

Notes to Tester: Landing\_Calls property may contain other entries from same lift or different lifts connected under same Elevator Group.

[Elevator Group, Escalator, and Lift Object Tests]  
[In BTL Specified Tests, add to Clause 8.5.X1]

### 8.5.X1 CHANGE\_OF\_RELIABILITY Tests

#### 8.5.X1.15 Change\_Of\_Reliability FAULT-to-FAULT transitions in FAULT\_LISTED

Purpose: To verify the correct operation of FAULT-to-FAULT transitions in FAULT\_LISTED event algorithm.

Test Concept: Select a fault detecting object O1 which is configured to use the FAULT\_LISTED algorithm. Ensure that a fault condition exists in the object. Set pMonitoredList to FV1, any set of non-empty values different from the current set of values. Verify the correct transition is generated. The fault condition is removed by setting pMonitoredList to empty, a value which indicates NO\_FAULT\_DETECTED and verify the correct transition is generated.

Configuration Requirements: O1 is configured to detect faults and to report those using unconfirmed event notifications. O1 is initially configured to have a fault conditions present by pMonitoredList containing a non-empty value, and has an Event\_State of FAULT. FV1 is a value or set of values for pMonitoredList, and which the IUT will support in the pMonitoredList value. An empty pMonitoredList does not indicate a fault condition.

Test Steps:

1. VERIFY pCurrentReliability = FAULTS\_LISTED
2. VERIFY Event\_State = FAULT
3. IF (pMonitoredList is writable) THEN  
    WRITE pMonitoredList = FV1  
ELSE  
    MAKE (pMonitoredList = FV1)
4. BEFORE **Notification Fail Time**  
    RECEIVE UnconfirmedEventNotification-Request,  
        'Process Identifier' = (any valid process Identifier),  
        'Initiating Device Identifier' = IUT  
        'Event Object Identifier' = O1  
        'Time Stamp' = (the current local time or sequence number),  
        'Notification Class' = (the notification class configured for O1),  
        'Priority' = (the value configured for the transition),  
        'Event Type' = CHANGE\_OF\_RELIABILITY,  
        'Message Text' = (optional, any valid message text),  
        'Notify Type' = ALARM | EVENT,  
        'AckRequired' = TRUE | FALSE,  
        'From State' = FAULT,  
        'To State' = FAULT,  
        'Event Values' = ( FAULT\_LISTED,  
                          (T, T, ? ?),  
                          (A list of valid values for properties required to be reported  
                          for O1, and 0 or more other properties of O1)  
    )
5. VERIFY pCurrentReliability = FAULTS\_LISTED
6. VERIFY Event\_State = FAULT
7. IF (pMonitoredList is writable) THEN  
    WRITE pMonitoredList = { }  
ELSE  
    MAKE (pMonitoredList = { })
8. BEFORE **Notification Fail Time**  
    RECEIVE UnconfirmedEventNotification-Request,  
        'Process Identifier' = (any valid process Identifier),

'Initiating Device Identifier' = IUT  
 'Event Object Identifier' = O1  
 'Time Stamp' = (the current local time or sequence number),  
 'Notification Class' = (the notification class configured for O1),  
 'Priority' = (the value configured for the transition),  
 'Event Type' = CHANGE\_OF\_RELIABILITY,  
 'Message Text' = (optional, any valid message text),  
 'Notify Type' = ALARM | EVENT,  
 'AckRequired' = TRUE | FALSE,  
 'From State' = FAULT,  
 'To State' = NORMAL,  
 'Event Values' = ( NO\_FAULT\_DETECTED,  
 (F, F, ? ?),  
 (A list of valid values for properties required to be reported  
 for O1, and 0 or more other properties of O1)  
 )

9. VERIFY pCurrentReliability = NO\_FAULT\_DETECTED
10. VERIFY Event\_State = NORMAL

[Network Port Object Tests]  
 [Add into clause 9.18.1]

### 9.18.1 Positive ReadProperty Service Execution Tests

#### 9.18.1.X5 ReadProperty of the Network Port Object using the Unknown Instance

Purpose: Verify that the IUT selects the correct object when it receives Network Port with special object instance of 4194303.

Test Concept: Execute a Read service request specifying 'Object Identifier' = (Network Port, 4194303). The responding BACnet-user shall treat the Object Identifier as if it correctly matched the local Network Port object representing the network port through which the request was received.

Configuration Requirements: Let X be the instance numbers of Network Port object (can be same or different objects) for the IUT. If the Protocol\_Revision claimed is less than 17, this test shall be skipped.

Test Steps:

1. TRANSMIT ReadProperty-Request,  
     'Object Identifier' = (Network Port, 4194303),  
     'Property Identifier' = Object-Identifier
2. RECEIVE ReadProperty-ACK,  
     'Object Identifier' = (Network Port, X),  
     'Property Identifier' = Object-Identifier,  
     'Property Value' = (Network Port, X)
3. TRANSMIT ReadProperty-Request through the same port as above,  
     'Object Identifier' = (Network Port, 4194303),  
     'Property Identifier' = (P: any valid property which is present in the same local Network Port object as above)
4. RECEIVE ReadProperty-ACK,  
     'Object Identifier' = (Network Port, X),  
     'Property Identifier' = P,  
     'Property Value' = (value of P from the local Network Port object representing the network port through which the request was received)

Passing Result: The IUT shall respond as indicated conveying the value from a local Network Port object representing the network port through which the request was received.

[Network Port Object Tests]

[In BTL Specified Tests, add test into 14.3]

[All other 14.3 Write-BDT tests need to have a conditionality added to them based on the IUT's Protocol\_Revision being less than 17]

### **14.3 Broadcast Distribution Table Operations**

#### **14.3.X1 Write-BDT service is required to return Write-BDT-NAK**

Reason for Change: Clause J.4.4.2 mandates a change and that all devices claiming Protocol\_Revision  $\geq 17$ , shall behave in this changed way.

Purpose: To verify that any IUT with Protocol\_Revision claimed as 17 or higher, will return Write-Broadcast-Distribution-Table NAK to every Write-Broadcast-Distribution-Table request.

Configuration Requirements: If the Protocol\_Revision claimed is less than 17, this test shall be skipped.

Test Steps:

1. TRANSMIT Write-Broadcast-Distribution-Table
2. RECEIVE BVLC-Result,  
'Result Code' = Write-Broadcast-Distribution-Table NAK

[Network Port Object Tests]

[In BTL Specified Tests, add test into 14.3]

#### **14.3.X2 Broadcast-Distribution-Table Holds at Least 5 Entries**

Reason For Change: NM-BBMDC-B specifically mandates this capacity behavior is supported by the product.

Purpose: Verify that IUT implements capacity mandated for the product by NM-BBMDC-B.

Test Concept: Fill the Broadcast\_Distribution\_Table with at least five distinct peer BBMDs entries (in addition to the entry containing the address of itself in the table).

Configuration Requirements: In a device claiming Protocol\_Revision 16 or less, the means by which the product's Broadcast-Distribution-Table is configured is not restricted to BACnet network transmissions, and can be through the product's end-user interface.

Test Steps:

1. MAKE (IUT enter mode functioning as a BBMD implementation)
2. MAKE (Broadcast\_Distribution\_Table = (its own entry and entries for at least 5 other BBMDs))
3. TRANSMIT Read- Broadcast-Distribution-Table
4. RECEIVE Read-Broadcast-Distribution-Table-Ack,  
'List of BDT Entries' = (the table as configured, in any order)

#### **14.3.X3 BBMD\_Broadcast\_Distribution\_Table Holds at Least 5 Entries**

Reason For Change: NM-BBMDC-B specifically mandates this capacity behavior is supported by the product.

Purpose: Verify that the IUT supports at least 5 peer BBMD entries in its broadcast distribution table.

Test Concept: Fill the BBMD\_Broadcast\_Distribution\_Table with at least five distinct peer BBMDs entries (in addition to the entry containing the address of itself in the table).

Configuration Requirements: the IUT is configured to operate as a BBMD.

Test Steps:

1. WRITE BBMD\_Broadcast\_Distribution\_Table = (its own entry and entries for at least 5 other BBMDs)
2. MAKE (that configuration active)
3. TRANSMIT Read- Broadcast-Distribution-Table
4. RECEIVE Read-Broadcast-Distribution-Table-Ack,  
'List of BDT Entries' = (the table as configured, in any order)

[Network Port Object Tests]

[In BTL Specified Tests, add test into 14.6]

## 14.6 Foreign Device Management

### 14.6.X1 Holds at Least 5 Foreign Device Registrations

Reason For Change: NM-BBMD-C-B specifically mandates this capacity behavior is supported by BBMDs.

Purpose: Verify that when configured to accept foreign device registrations, the IUT supports at least five simultaneous foreign device registrations.

Test Concept: The IUT is configured to support foreign device registrations. Five Register-Foreign-Device requests are sent from 5 different devices, to verify that it supports five registrations simultaneously in the FDT.

Configuration Requirements: Set BBMD\_Accept\_FD\_Registrations in the Network Port object representing the port operating as a BBMD to TRUE. The TD will be configured to emulate 5 devices.

Test Steps:

1. REPEAT X = 1 to 5 {  
    TRANSMIT Register-Foreign-Device  
        SOURCE = (device X)  
        'Time-to-Live ' = (a value longer than the length of the test)  
    RECEIVE BVLC-Result,  
        'Result Code' = Successful completion  
}

### 14.6.X2 Negative Foreign Device Registration when FD\_Supported is FALSE

Reason For Change: The standard specifically mandates that BBMD\_Accept\_FD\_Registrations property is writable if present in BBMDs.

Purpose: Verify that when BBMD\_Accept\_FD\_Registrations is configured as FALSE, the BBMD will accept no more foreign device registrations.

Test Concept: The IUT is configured with BBMD\_Accept\_FD\_Registrations property as FALSE. Then it is verified that no more Register-Foreign-Device registrations succeed, though those already in the FDT operate as normal.

Configuration Requirements: BBMD\_Accept\_FD\_Registrations in the Network Port object representing the port is initially TRUE. If no Network Port object contains the BBMD\_Accept\_FD\_Registrations property, then this test shall be skipped.

Test Steps:

1. WRITE BBMD\_Accept\_FD\_Registrations = FALSE
2. TRANSMIT Register-Foreign-Device
3. RECEIVE BVLC-Result,  
    'Result Code' = Register-Foreign-Device NAK