

[This foreword and the “Overview” on the following pages are not part of this Test Package. They are merely informative and do not contain requirements necessary for conformance to the Test Package.]

FOREWORD

The purpose of this addendum is to present current changes being made to the BTL Test Package. These modifications are the result of change proposals made pursuant to the continuous maintenance procedures and of deliberations within the BTL-WG Committee. The changes are summarized below.

BTL-TP14.0i-1: NM-RC-B Testing, pg 2. [wID00853]

In the following document, language to be added to existing clauses within the BTL Test Package 14.0 is indicated through the use of *italics*, while deletions are indicated by ~~striketrough~~. Where entirely new subclauses are proposed to be added, plain type is used throughout.

In addition, changes to BTL Specified Tests might also contain a **yellow** highlight to indicate the changes made by this addendum.

When this addendum is applied, all highlighting will be removed. Change markings on tests will remain to indicate the difference between the new test and an existing 135.1 test. If a test being modified has never existed in 135.1, the applied result should not contain any change markings. When this is the case, square brackets will be used to describe the changes required for this test.

Each addendum can stand independently unless specifically noted via dependency within the addendum. If multiple addenda change the same test or section, each future released addendum that changes the same test or section will note in square brackets whether or not those changes are reflected.

This addendum contains results of various clarification requests put forth to the BTL-WG that resulted in test package changes.

BTL-TP14.0i-1: NM-RC-B Testing

Overview:

Addendum 135-2012*al* added the B-RTR device profile supported by the NM-RC-B BIBB and Routing functionality that is outside of those configuration and connection BIBBs. There is mention of neither B-RTR nor NM-RC-B in the current BTL Test Plan. This document makes needed changes to provide for claiming the B-RTR device profile.

Changes:

[In BTL Checklist, rename major section 8 Device and Network Management BIBBS to Device Management BIBBS]

8 Device and Network Management BIBBs

[In BTL Checklist, rename major section 10 Routing to Network Management and change the Support code from O to C on footnoted options in the first section.]

10 Routing Network Management

Support	Listing	Option
Network Management - Routing		
	R	Base Requirements
	C ¹	Routes packets between physical BACnet LANs
	C ¹	Routes packets between a physical LAN and one or more virtual LANs
¹ One or more of these options is required in order to claim in this section.		

[In BTL Checklist, in major section Network Management, add new subsection **Network Management - Router Control - B**]

Network Management - Router Control - B		
	R	Base Requirements
	R	Supports Routing
	R ¹	Supports DS-WP-B
¹ Required if the device implements protocol revision 17 or higher.		

[In BTL Test Plan, formerly Routing, revise section 10 to support many Network Management BIBBs]

10 Routing Network Management

10.1 Network Management - Routing

10.1.1 Base Requirements

There are three classes of routing functionality: A BACnet Gateway, which connects a physical BACnet LAN and one or more virtual BACnet LANs (per clause H.1 and H.2 in ASHRAE 135).

We envision three classes of routing functionality:

- Routing between physical BACnet LANs
- Half-routing (as per clause 6.7 in ASHRAE 135)

- Routing between a physical BACnet LAN and a virtual BACnet LAN (as per clauses H.1 and H.2 in ASHRAE 135)

A device may support one or more of these classes.

There are no base requirements tests for this section.

[In BTL Test Plan, revise and rename existing clause 10.1 to 10.1.2, and eliminate one and add two tests in section 10.1.2]

10.1.2 Routes Packets between Physical BACnet LANs

A BACnet network router connects two or more BACnet networks at the network layer. The device can route BACnet packets between two or more physical (not virtual) BACnet LANs.

The tests are designed for testing routing devices that are connected to two BACnet LANs. The test device is required to send, receive, and “sniff” messages on both LANs at the same time. If a device is capable of routing between multiple combinations of BACnet LANs, then the tester shall use all possible LAN connections during testing, but it is not necessary to run all tests on all combinations of two LANs that the device supports.

If a routing device can be connected to three or more physical BACnet LANs at the same time, the tester shall construct a test network with at least three physical BACnet LANs directly connected to the routing device. Ideally the routing device should be connected to at least one network of each LAN type supported by the device, and more than one network of each LAN type if supported. See the “Test Conditionality” for specific requirements for certain tests.

Unless otherwise specified, the routing device shall be configured to decrement Hop Count by one when it routes a packet.

These requirements must be met by any IUT that can act, or can be made to act, as a BACnet router.

135.1-2013 - 10.2.1 - Startup		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed. Run this test a sufficient number of times to verify that the correct I Am Router To Network message is broadcasted on all LAN types supported by the routing device.
	Test Directives	Run this test a sufficient number of times to verify that the correct I-Am-Router-To-Network message is broadcasted on all LAN types supported by the routing device.
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.1 - Forward I-Am-Router-To-Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed. Run this test a sufficient number of times to exercise all supported LAN types.
	Test Directives	Run this test a sufficient number of times to exercise all supported LAN types.
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.2.1 - Execute Who-Is-Router-To-Network: No Specified Network Number		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed. Run this test a sufficient number of times to exercise all supported LAN types.
	Test Directives	Run this test a sufficient number of times to exercise all supported LAN types.
	Testing Hints	

	Notes & Results	
135.1-2013 - 10.2.2.2.2 - Execute Who-Is-Router-To-Network: A Known Remote Network Number is Specified		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.2.3 - Execute Who-Is-Router-To-Network: A Network Number is Specified and the Router Does Not Respond		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.2.4 - Execute Who-Is-Router-To-Network: An Unknown and Unreachable Network Number is Specified		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.2.5 - Execute Who-Is-Router-To-Network: An Unknown Network is Discovered		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.2.6 - Forwarding a Who-Is-Router-To-Network from a Remote Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	Use varying lengths for SADR (1-6 byte addresses).
	Notes & Results	
135.1-2013 - 10.2.2.3 - Forward I-Could-Be-Router-To-Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	

135.1-2013 - 10.2.2.4.1 - Forwarding Router-Busy-to-Network Information for Specific DNETs		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.4.2 - Forwarding Router-Busy-To-Network Information for all DNETs		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.4.3 - Receiving Messages for a Busy Router		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.4.4 - Router-Busy-To-Network: Timeout		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.5.1 - Execute Router-Available-To-Network: Restoring Specific DNETs		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.5.2 - Execute Router-Available-To-Network: Restoring All DNETs		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.6 - Execute Initialize-Routing-Table		
	Test Method	Manual

	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	If the IUT claims support for protocol revision 12 or greater, this test shall be skipped.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.7.1 - Unknown Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.2.2.7.2 - Unknown Network Layer Message Type		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.2.7.3 - Unknown Network Layer Message Type For Someone Else		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed on all devices that support BACnet revision 4 or higher.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.3.1 - Ignore Local Message Traffic		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed once for each LAN type supported by the device.
	Test Directives	Repeat for each LAN type supported by the device.
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.3.2 - Route Message from a Local Device to a Local Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed once for each LAN type supported by the device. (The test checks communication in both directions.) One of the tests 10.2.3.2 and 10.2.3.3 must be run by sending the message using a Local Broadcast destination, and the other test must be run by sending the message directly to the IUT's MAC address.
	Test Directives	Repeat for each LAN type supported by the device. (The test checks communication in both directions.) One of the tests 10.2.3.2 and 10.2.3.3 must be run by sending the message using a Local Broadcast destination, and the

	<p>other test must be run by sending the message directly to the IUT's MAC address. This test may be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.</p>
Testing Hints	<p>Also run this test by sending the message using a Local Broadcast destination instead of sending the message directly to the IUT's MAC address. This test may be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.</p>
Notes & Results	

135.1-2013 - 10.2.3.3 - Route Message from a Local Device to a Router

Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	<p>Must be executed twice for each LAN type supported by the device, once with the originating device connected to the LAN and once with the destination router connected to the LAN. One of the tests 10.2.3.2 and 10.2.3.3 must be run by sending the message using a Local Broadcast destination, and the other test must be run by sending the message directly to the IUT's MAC address.</p>
Test Directives	<p>Repeat twice for each LAN type supported by the device, once with the originating device connected to the LAN and once with the destination router connected to the LAN.</p> <p>One of the tests 10.2.3.2 and 10.2.3.3 must be run by sending the message using a Local Broadcast destination, and the other test must be run by sending the message directly to the IUT's MAC address.</p> <p>Use varying lengths for DADR (1-7 byte addresses). This test should be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.</p>
Testing Hints	<p>Use varying lengths for DADR (1-7 byte addresses). If it wasn't done for 10.2. Also run this test by sending the message using a Local Broadcast destination instead of sending the message directly to the IUT's MAC address. This test may be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.</p>
Notes & Results	

135.1-2013 - 10.2.3.4 - Route Message from One Router to Another Router

Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	<p>Must be executed twice for each LAN type supported by the device, once with the originating router connected to</p>

	the LAN and once with the destination router connected to the LAN.
Test Directives	Repeat twice for each LAN type supported by the device, once with the originating router connected to the LAN and once with the destination router connected to the LAN. Use varying lengths for DADR (1-7 byte addresses) and SADR (1-6 byte addresses). This test should be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.
Testing Hints	Use varying lengths for DADR (1-7 byte addresses) and SADR (1-6 byte addresses). This test may be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.
Notes & Results	

135.1-2013 - 10.2.3.5 - Route Message from a Router to a Local Device

Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed twice for each LAN type supported by the device, once with the destination device connected to the LAN and once with the source router connected to the LAN.
Test Directives	Repeat twice for each LAN type supported by the device, once with the destination device connected to the LAN and once with the source router connected to the LAN. Use varying lengths for SADR (1-6 bytes). This test should be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.
Testing Hints	Use varying lengths for SADR (1-6 byte addresses). This test may be varied by sending a BACnet-ComplexACK-PDU, a BACnet-Unconfirmed-Request-PDU or a BACnet-SimpleACK-PDU instead of a BACnet-Confirmed-Request-PDU; check the value of the data expecting reply bit.
Notes & Results	

135.1-2013 - 10.2.3.6.1 - Failed Attempt to Locate (Downstream) Router

Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	There should be a pause between the transmission of the Who-Is-Router-To-Network message and the transmission of the Reject-Message-To-Network message by the IUT. The BACnet standard does not say how long this pause should be, but one to ten seconds is probably a reasonable range.
Notes & Results	

135.1-2013 - 10.2.3.6.2 - Successful Attempt to Locate (Downstream) Router		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.4.1 - Ignore Local Broadcast Message Traffic		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed once for each LAN type supported by the device.
	Test Directives	Repeat for each LAN type supported by the device.
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.4.2 - Global Broadcast from a Local Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed once for each LAN type supported by the device.
	Test Directives	Repeat this test for each LAN type supported by the device. In addition, repeat this test by sending the message directly to the IUT using the IUT's MAC address as well as using a Local Broadcast destination.
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.4.3 - Global Broadcast from a Remote Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed at least twice , with the originating router connected to different types of LANs.
	Test Directives	Repeat at least twice, with the originating router connected to different types of LANs. Use varying lengths for SADR (1-6 bytes). In addition, repeat this test by sending the message directly to the IUT using the IUT's MAC address as well as using a Local Broadcast destination.
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.4.4 - Remote Broadcast from a Local Device to a Directly-Connected Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed twice for each LAN type supported by the device, once with the source device connected to the LAN and once with the LAN as the destination network for the remote broadcast. One of the tests 10.2.4.4 and 10.2.4.5 must be run by sending the message directly to the IUT using the IUT's MAC address, and the other test must be run by sending the message using a Local

	Broadcast destination.
Test Directives	Repeat twice for each LAN type supported by the device, once with the source device connected to the LAN and once with the LAN as the destination network for the remote broadcast. One of the tests 10.2.4.4 and 10.2.4.5 must be run by sending the message directly to the IUT using the IUT's MAC address, and the other test must be run by sending the message using a Local Broadcast destination.
Testing Hints	
Notes & Results	
135.1-2013 - 10.2.4.5 - Remote Broadcast from a Local Device to a Non-Directly-Connected Network	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed twice for each LAN type supported by the device, once with the source device connected to the LAN and once with destination router connected to the LAN. One of the tests 10.2.4.4 and 10.2.4.5 must be run by sending the message directly to the IUT using the IUT's MAC address, and the other test must be run by sending the message using a Local Broadcast destination.
Test Directives	Repeat twice for each LAN type supported by the device, once with the source device connected to the LAN and once with destination router connected to the LAN. One of the tests 10.2.4.4 and 10.2.4.5 must be run by sending the message directly to the IUT using the IUT's MAC address, and the other test must be run by sending the message using a Local Broadcast destination.
Testing Hints	Also run this test by sending the message directly to the IUT using the IUT's MAC address instead of using a Local Broadcast destination.
Notes & Results	
135.1-2013 - 10.2.4.6 - Remote Broadcast from a Remote Device to a Directly-Connected Network	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed twice for each LAN type supported by the device, once with the source router connected to the LAN and once with the LAN as the destination network for the remote broadcast.
Test Directives	Repeat twice for each LAN type supported by the device, once with the source router connected to the LAN and once with the LAN as the destination network for the remote broadcast. Also, vary the length of SADR (1-6 bytes).
Testing Hints	Vary the length of SADR (1-6 bytes).
Notes & Results	
135.1-2013 - 10.2.4.7 - Remote Broadcast from a Remote Device to a Remote Network	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed twice for each LAN type supported by the device, once with the source router connected to the LAN and once with destination router connected to the LAN.

	Test Directives	Repeat twice for each LAN type supported by the device, once with the source router connected to the LAN and once with destination router connected to the LAN. Also, vary the length of SADR (1-6 bytes).
	Testing Hints	Vary the length of SADR (1-6 bytes).
	Notes & Results	
135.1-2013 - 10.2.4.8 - Remote Broadcast that Should Be Ignored		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.5 - Hop Count Protection		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.2.6 - Network Layer Priority		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.2.X1 - Initiates Network-Number-Is on Startup		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	If the IUT supports Protocol Revision 11 or greater, this test must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.2.X2 - Routers Execute What-Is-Network-Number		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	If the IUT supports Protocol Revision 11 or greater, this test must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	

[In BTL Test Plan, add two tests at the end of section 10.1.3]

10.1.3 Routes packets between a physical LAN and one or more virtual LANs

The device can route BACnet packets between a physical BACnet LAN and one or more virtual BACnet LANs that contain one or more virtual BACnet devices. See H.1 and H.2 in the BACnet standard for a description of virtual BACnet LANs and virtual BACnet devices.

135.1-2013 - 10.8.1 - Startup	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed. Run this test a sufficient number of times to verify that the correct I Am Router To Network message is broadcasted on all LAN types supported by the routing device.
Test Directives	Run this test a sufficient number of times to verify that the correct I-Am-Router-To-Network message is broadcasted on all LAN types supported by the routing device.
Testing Hints	
Notes & Results	
135.1-2013 - 10.8.2.1.1 - Execute Who-Is-Router-To-Network: No Specified Network Number	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed. Run this test a sufficient number of times to exercise all supported LAN types.
Test Directives	Run this test a sufficient number of times to exercise all supported LAN types.
Testing Hints	
Notes & Results	
135.1-2013 - 10.8.2.1.2 - Execute Who-Is-Router-To-Network: A Known Remote Network Number is Specified	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	
Notes & Results	
135.1-2013 - 10.8.2.1.3 - Execute Who-Is-Router-To-Network: A Network Number is Specified and the Router Does Not Respond	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	
Notes & Results	
135.1-2013 - 10.8.2.1.4 - Execute Who-Is-Router-To-Network: An Unknown and Unreachable Network Number is Specified	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	

	Notes & Results	
135.1-2013 - 10.8.2.2.1 - Unknown Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.2.2.2 - Unknown Network Layer Message Type		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.8.3.1 - Route Request Message from a Local Device to a Virtual Device and Route Response Message from the Virtual Device to the Local Device		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.8.3.2 - Route Request Message from a Virtual Device to a Local Device		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed.
	Test Directives	This test should be run repeatedly in order to exercise all ways that the IUT can be configured or stimulated to send a unicast message to a device on a local network. Depending on the capabilities of the IUT this may involve sending a message from the target device to the IUT (unicast or broadcast), writing the network address of the target device to an object property in the IUT, writing the Device ID of the target device to an object property in the IUT, writing the Device Name of the target device to an object property in the IUT, or configuring the IUT using a proprietary method.
	Testing Hints	During the test, the TD shall answer any requests that the IUT generates while attempting to locate the route to the target device. The IUT may need to broadcast a Who-Is or Who-Has request in order to discover the network address of the target device if the network address is unknown.
	Notes & Results	
135.1-2013 - 10.8.3.3 - Route Request Message from a Remote Device to a Virtual Device and Route Response Message from the Virtual Device to the Remote Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	Repeat using varying lengths for DADR (1-7 byte addresses).
	Testing Hints	

	Notes & Results	
135.1-2013 - 10.8.3.4 - Route Request Message from a Virtual Device to a Remote Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	Repeat using varying lengths for DADR (1-7 byte addresses).
	Testing Hints	
	Notes & Results	
BTL - 10.8.3.5.1 - Unknown Network		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.3.5.2 - Network Reachable Through the Same Port		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.4.1 - Broadcasts that Should Be Ignored		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.4.2 - Route Global Broadcast from a Local Device to Virtual Devices		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.4.3 - Route Global Broadcast from a Remote Device to Virtual Devices		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	Use varying lengths for SADR (1-6 bytes).
	Testing Hints	Vary the length of SADR (1-6 bytes).
	Notes & Results	
135.1-2013 - 10.8.4.4 - Route Remote Broadcast from a Local Device to Virtual Devices		

	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.4.5 - Route Remote Broadcast from a Remote Device to Virtual Devices		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.4.6 - Route Global Broadcast Message from a Virtual Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.8.4.7 - Route Remote Broadcast Message from a Virtual Device to a Local Network		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.4.8 - Route Remote Broadcast Message from a Virtual Device to a Remote Network		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.5 - Hop Count Protection		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.6 - Network Layer Priority		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	

	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.7.1 - Who-Is Specifying Different Device ID		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed if the device supports DM-DDB-B.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.7.2 - Who-Has Specifying Different Device ID		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed if the device supports DM-DOB-B.
	Test Directives	
	Testing Hints	
	Notes & Results	
135.1-2013 - 10.8.7.3 - Read of Object Not Contained by Virtual Device		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.8.7.4 - Who-Is Specifying Unknown Device IDs		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed if the device supports DM-DDB-B.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.8.7.5 - Who-Has Specifying Unknown Device IDs		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed if the device supports DM-DOB-B.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.2.X1 - Initiates Network-Number-Is on Startup		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	If the IUT supports Protocol_Revision 11 or greater, this test must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 10.2.X2 - Routers Execute What-Is-Network-Number		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .

Test Conditionality	If the IUT supports Protocol_Revision 11 or greater, this test must be executed.
Test Directives	
Testing Hints	
Notes & Results	

[BTL Test Plan, add new section]

10.2 Network Management - Router Control - B

The tests are designed for testing routing devices which connect two or more BACnet networks at the network layer.

10.2.1 Base Requirements

There are no base requirements tests for this section, since all testing except as in the following specific sections, is specified in Network Management - Routing.

10.2.2 Supports Routing

The IUT supports the requirements for BACnet Routers.

Verify Checklist	
Test Method	Manual
Configuration	
Test Conditionality	Must be executed.
Test Directives	Verify that the IUT claims support for section 10.1 Network Management - Routing.
Testing Hints	
Notes & Results	

10.2.3 Supports DS-WP-B

The IUT supports DS-WP-B, to configure writable properties of any Network Port objects which it contains.

Verify Checklist	
Test Method	Manual
Configuration	
Test Conditionality	Must be executed if Protocol_Revision is 17 or greater.
Test Directives	Verify that the IUT claims support for DS-WP-B.
Testing Hints	
Notes & Results	

[In BTL Specified Tests, Add tests 10.2.X1 and 10.2.X2]

<See addenda 14.0c - 2>

