

[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-TP14.0c-1: Add new Read-Only properties Test, pg 2. [wID0887]

BTL-TP14.0c-2: Add Tests for What-Is-Network-Number and Network-Number-Is, pg 2. [wID0122]

BTL-TP14.0c-3: Clarify Properties to use for AE-ELV-A, pg 5. [wID0475]

BTL-TP14.0c-4: Clarify AE-N-A Requirements per Protocol Revision, pg 8. [wID0606]

BTL-TP14.0c-5: Add Who-Has Negative Tests, pg 11. [wID0721]

BTL-TP14.0c-6: Add EXTENDED Notification Requirements, pg 13. [wID0828]

In the following document, language to be added to existing clauses within the BTL Test Package 12.1 is indicated through the use of *italics*, while deletions are indicated by ~~strike through~~. 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-TP14.0c-1: Add new Read-Only properties Test

Overview:

Existing test 9.22.2.1 was noted at lab, when correctly applied to forbid the testing of a read-only property. Since some IUT are observed making other error code checks before checking whether the property is read-only, a test that specifies the allowed responses should be specified.

Changes:

[In BTL Specified Tests, add a new test, similar to existing test 9.22.2.1 as shown]

9.22.2.X1 Writing Non-Array Read-only Property with an Array Index

Reason for Change: Existing test 9.22.2.1 forbids the testing of a read-only property, to observe the response when an array index is included in the service request.

Purpose: This test case verifies that the IUT correctly responds to an attempt to write a property value when the property value is not an array but an array index is included in the service request, and the property specified in the service request is not writable.

Test Concept: Select an object, designated Object1, in the IUT that contains a non-writable scalar property designated P1. An attempt will be made to write to this property with an array index included. If no object supports non-writable scalar properties, then this test shall be omitted.

Test Steps:

1. TRANSMIT WriteProperty-Request,
 - 'Object Identifier' = Object1,
 - 'Property Identifier' = P1,
 - 'Property Value' = (any value of the correct datatype for this property)
 - 'Property Array Index' = (any positive integer)
2. IF (Protocol_Revision is present and Protocol_Revision ≥ 4) THEN
 - RECEIVE BACnet-Error PDU,
 - Error Class = PROPERTY,
 - Error Code = WRITE_ACCESS_DENIED | PROPERTY_IS_NOT_AN_ARRAY
 ELSE
 - RECEIVE (BACnet-Error PDU,
 - Error Class = SERVICES,
 - Error Code = INCONSISTENT_PARAMETERS) |
 - (BACnet-Error PDU,
 - Error Class = PROPERTY,
 - Error Code = WRITE_ACCESS_DENIED | PROPERTY_IS_NOT_AN_ARRAY)

[In BTL Test Plan, add reference to new test 9.22.2.X1 near the end of an existing section.]

4.6 Data Sharing - WriteProperty - B

4.6.1 Base Requirements

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

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BTL - 9.22.2.4 - Writing with a Property Value that is Out of Range	
Test Method	Manual
Configuration	The test shall be executed against a whole writable array property (no array index provided, and all elements written) in addition to configuration specified by <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.

	Test Directives	
	Testing Hints	
	Notes & Results	
BTL - 9.22.2.X1 - Writing Non-Array Read-only Property with an Array Index		
	Test Method	Manual
	Configuration	As per <i>BTL Specified Tests</i> .
	Test Conditionality	Must be executed.
	Test Directives	
	Testing Hints	
	Notes & Results	

BTL-TP14.0c-2: Add Tests for What-Is-Network-Number and Network-Number-Is

Overview:

Tests for the new NPDU What-Is-Network-Number and Network-Number-Is messages, which were added in Addendum 135-2008g. These shall be applied to routers claiming Protocol_Revision 11 or higher.

Changes:

[In BTL Specified Test, add these two tests]

10.2.X1 Initiates Network-Number-Is on Startup

References: 6.4.19, 6.4.20

Purpose: To verify that a router initiates Network-Number-Is on startup for each port with a known network number.

Test Concept: The IUT is reset and the tester verifies that the IUT broadcasts a Network-Number-Is message out each port. The vendor can specify a time, or physically observable event after reset, which marks the time at which IUT has completed its startup sequence, including the sending of the Network-Number-Is messages.

Configuration Requirements: The IUT is configured with a network number for each of its enabled ports. If the IUT claims a protocol revision of less than 11, this test shall be skipped.

Test Steps:

1. MAKE (the IUT reset)
2. BEFORE the IUT has completed its startup sequence
 REPEAT X = (for each enabled port) DO {
 RECEIVE PORT X,
 DESTINATION = LOCAL BROADCAST,
 Network-Number-Is,
 Network Number = (the configured Network Number for port X)
 }

10.2.X2 Routers Execute What-Is-Network-Number

References: 6.4.19, 6.4.20

Purpose: To verify that a router responds to a What-Is-Network-Number request within 10 seconds.

Test Concept: A What-Is-Network-Number is broadcast on the local network and the tester verifies that the IUT responds with a Network-Number-Is message within 10 seconds.

Configuration Requirements: The IUT knows its network number, N1. If the IUT claims a protocol revision of less than 11, this test shall be skipped.

Test Steps:

1. TRANSMIT What-Is-Network-Number,
 DESTINATION = LOCAL_BROADCAST
2. BEFORE 10s + **Internal Processing Fail Time**
 RECEIVE Network-Number-Is,
 Network Number = (the configured value),
 Configured = (any valid value)

[In BTL Test Plan in the Routing section, reference new tests 10.2.X1 and 10.2.X2]

10 Routing

10.1.2 Routes Packets between Physical BACnet LANs

The device can route BACnet packets between two or more physical (not virtual) BACnet LANs.

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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 claims a protocol revision of less than 11, this test shall be skipped.
	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 claims a protocol revision of less than 11, this test shall be skipped.
	Test Directives	
	Testing Hints	
	Notes & Results	

BTL-TP14.0c-3: Clarify Properties to use for AE-ELV-A

Overview:

AE-ELV-A does not have any properties listed in a table in the BIBB definition. That style of table driven property specification is only in AE-ELVM-A.

Changes:

[In BTL Test Plan, revise the test references to the intended test in existing section 5.12.1]

5.12 Alarm and Event - Event Log View - A

5.12.1 Base Requirements

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

BTL - 8.21.9 - Presents Log Records 135.1 2013 - 8.18.3 - Reading and Presenting Properties	
Test Method	Manual
Configuration	As per BTL Specified Tests <i>ASHRAE 135.1 2013</i> .
Test Conditionality	Must be executed.
Test Directives	Repeat the test for each of the properties listed in the table in the BIBB definition. The information conveyed to the user shall at minimum be as described in the AE-ELV-A BIBB or as described in AE-VN-A. Any other information conveyed to the user shall be consistent with the data contained in the notifications.
Testing Hints	
Notes & Results	

[In BTL Test Plan, revise the name and test references to the intended test in several sections of 7.1, and relocate the misplaced Testing Hints to Test Directives.]

7.1.3 Interoperates with Trend Logs ~~in Devices Claiming Protocol Revision 3 or Higher~~

The IUT can interoperate with Trend Log objects ~~in devices claiming Protocol Revision 3 or higher.~~

135.1 2013 BTL - 8.21.9 - Presents Log Records Containing a Specific Datatype	
Test Method	Manual
Configuration	This test shall be executed with a reference server device containing a Trend Log object claiming Protocol Revision 3 or higher.
Test Conditionality	Must be executed.
Test Directives	Repeat the test for Real, INTEGER, BOOLEAN, Bit-String, Enumerated, and NULL datatypes.
Testing Hints	Repeat the test for Real, INTEGER, BOOLEAN, Bit String, Enumerated, and NULL datatypes.
Notes & Results	

7.1.4 Interoperates with Trend Log Multiple Objects

The IUT can interoperate with Trend Log Multiple objects in devices claiming Protocol Revision 7 or higher .

135.1 2013 BTL - 8.21.9 - Presents Log Records Containing a Specific Datatype	
Test Method	Manual
Configuration	This test shall be executed with a reference server device containing a Trend Log Multiple object claiming Protocol Revision 7 or higher.

Test Conditionality	Must be executed.
Test Directives	Execute test against Trend Log Multiple that contains all required datatypes (Boolean, Real, Enumerated, Unsigned32, Integer32, Bit String, and NULL).
Testing Hints	Execute test against Trend Log Multiple that contains all required datatypes (Boolean, Real, Enumerated, Unsigned32, Integer32, Bit String, and NULL).
Notes & Results	

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7.1.12 Is able to present Double datatypes in trend logging objects

The IUT can present optional datatypes.

135.1-2013-BTL - 8.21.9 - Presents Log Records Containing a Specific Datatype	
Test Method	Manual
Configuration	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
Test Directives	For Protocol_Revision 3 or higher, perform the test using Double datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a Double datatype.
Testing Hints	
Notes & Results	

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7.1.17 Is able to present BACnetObjectIdentifier datatypes in trend logging objects

The IUT can present optional datatypes.

135.1-2013-BTL - 8.21.9 - Presents Log Records Containing a Specific Datatype	
Test Method	Manual
Configuration	For Trend Log objects, this test shall be executed with a reference server device claiming Protocol_Revision 3 or higher and for Trend Log Multiple objects, this test shall be executed with a reference server device claiming Protocol_Revision 7 or higher.
Test Conditionality	Must be executed and repeated if IUT claims Protocol_Revision 7 or higher.
Test Directives	For Protocol_Revision 3 or higher, perform the test using BACnet Object Identifier datatype and for Protocol_Revision 7 or higher, repeat the test using a Trend Log Multiple that contains a BACnet Object Identifier datatype.
Testing Hints	
Notes & Results	

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[In BTL Specified Tests, derive a revised test from 135.1-2013 - 8.21.9 as indicated]

8.21.9 Presents Log Records ~~Containing a Specific Datatype~~

Purpose: To verify that the IUT can initiate one or more ReadRange requests that access and present a tester-specified portion of log records ~~having a specific datatype, using any valid range~~. It is a generic test used to test data presentation requirements.

Test Concept: Run test ~~in Clause 135.1-2013 - 8.21.8X3~~ and verify that the data presentation meets the criteria specified by the BIBB being tested.

Note to Tester: The values presented by the IUT may differ from the values transmitted on the wire due to rounding, truncation, formatting, language, conversion, etc.

Note to Tester: The IUT is not required to display records containing log-status values.

[In BTL Checklist, in **Trending - Viewing - A**, revise section name as indicated.]

Support	Listing	Option
Trending - Viewing - A		
	R	Base Requirements
	R	Interoperates with Trend Logs in devices claiming Protocol Revision 3 or higher
	R	Initiates ReadRange
	C ^{1,2}	Interoperates with Trend Log Multiple Objects
	C ³	Supports reading items by Time with a positive count
	C ³	Supports reading items by Time with a negative count
	C ³	Supports reading items by Position with a positive count
	C ³	Supports reading items by Position with a negative count
	C ³	Supports reading items by Sequence Number with a positive count
	C ³	Supports reading items by Sequence Number with a negative count
	O	Supports reading items with no range
	O	Is able to present Double datatypes in trend logging objects
	O	Is able to present Octet String datatypes in trend logging objects
	O	Is able to present Character String datatypes in trend logging objects
	O	Is able to present Date datatypes in trend logging objects
	O	Is able to present Time datatypes in trend logging objects
	O	Is able to present BACnetObjectIdentifier datatypes in trend logging objects
¹ Must be able to present REAL, Unsigned, INTEGER, BOOLEAN, Bit String, Enumerated, and NULL datatypes. ² Required if the device claims support for Protocol_Revision 7 or higher. ³ At least one of these options is required in order to claim conformance to this BIBB.		

BTL-TP14.0c-4: Clarify AE-N-A Requirements per Protocol Revision

Overview:

AE-N-A footnote(s) need to be added as ‘1/2/3 Required if the device implements protocol revision X or higher’. Move sentences inappropriately in Test Conditionality sections into the adjacent Test Directives section. Revise the sentences inappropriately mentioning To-Fault, and using unusual format for TO_NORMAL and TO_OFFNORMAL, and move them into the adjacent Test Directives section.

wID0024 added DOUBLE_OUT_OF_RANGE, SIGNED_OUT_OF_RANGE, and UNSIGNED_OUT_OF_RANGE for Protocol_Revision 10 added these alarm and event algorithms for the primitive value objects.

wID0724 added CHANGE_OF_STATUS_FLAGS and CHANGE_OF_RELIABILITY, as Protocol_Revision 11 added the CHANGE_OF_STATUS_FLAGS and Protocol_Revision 13 added the CHANGE_OF_RELIABILITY notification formats. The behavior of executing these should be required in AE-N-A, but only if the device implements protocol revision X or higher.

wID0300 moved some sentences in Testing Hints sections into the adjacent Test Directives section, but did not do that in Alarm and Event sections of the Test Plan, and also did not move sentences that were inappropriately in Test Conditionality sections into the adjacent Test Directives section.

Changes:

[In BTL Test Plan, make changes in six existing sections as indicated]

5.1 Alarm and Event - Notification - A

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5.1.17 Processes DOUBLE_OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey a DOUBLE_OUT_OF_RANGE event transition.

135.1-2013 - 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	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher. At least one of the tests must be executed with the Event Type set to DOUBLE_OUT_OF_RANGE.
Test Directives	At least one of the tests must be executed with the Event Type set to DOUBLE_OUT_OF_RANGE. The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.
Notes & Results	

5.1.18 Processes SIGNED_OUT_OF_RANGE Notifications

The IUT is capable of executing event notifications that convey a SIGNED_OUT_OF_RANGE event transition.

135.1-2013 - 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	

Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher. At least one of the tests must be executed with the Event Type set to SIGNED_OUT_OF_RANGE .
Test Directives	At least one of the tests must be executed with the Event Type set to SIGNED_OUT_OF_RANGE . The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.
Notes & Results	

5.1.19 Processes ~~UNSIGNED_OUT_OF_RANGE~~ Notifications

The IUT is capable of executing event notifications that convey a ~~UNSIGNED_OUT_OF_RANGE~~ event transition.

135.1-2013 - 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	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher. At least one of the tests must be executed with the Event Type set to UNSIGNED_OUT_OF_RANGE .
Test Directives	At least one of the tests must be executed with the Event Type set to UNSIGNED_OUT_OF_RANGE . The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.
Notes & Results	

5.1.20 Processes ~~CHANGE_OF_CHARACTERSTRING~~ Notifications

The IUT is capable of executing event notifications that convey a ~~CHANGE_OF_CHARACTERSTRING~~ event transition.

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	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed if the device claims conformance to protocol revision 10 or higher. At least one of the tests must be executed with the Event Type set to CHANGE_OF_CHARACTERSTRING .
Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_CHARACTERSTRING . The test should be repeated for TO_NORMAL and TO_OFFNORMAL transitions.
Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions.
Notes & Results	

5.1.21 Processes CHANGE_OF_STATUS_FLAGS Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_STATUS_FLAGS event transition.

135.1-2013 - 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	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed if the device claims conformance to protocol revision 11 or higher.
Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_STATUS_FLAGS.
Testing Hints	
Notes & Results	

5.1.22 Processes CHANGE_OF_RELIABILITY Notifications

The IUT is capable of executing event notifications that convey a CHANGE_OF_RELIABILITY event transition.

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	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed if the device claims conformance to protocol revision 13 or higher.
Test Directives	At least one of the tests must be executed with the Event Type set to CHANGE_OF_RELIABILITY.
Testing Hints	
Notes & Results	

[In BTL Checklist, in Alarm and Event - Notification - A, add three footnotes on lineitems as indicated.]

Alarm and Event - Notification - A	
R	Base Requirements
...	...
R ¹	Processes DOUBLE OUT OF RANGE notifications
R ¹	Processes SIGNED OUT OF RANGE notifications
R ¹	Processes UNSIGNED OUT OF RANGE notifications
R ²	Processes CHANGE OF CHARACTER STRING notifications
R ²	Processes CHANGE OF STATUS FLAGS notifications
R ³	Processes CHANGE OF RELIABILITY notifications
¹ Required if the device implements protocol revision 10 or higher. ² Required if the device implements protocol revision 11 or higher. ³ Required if the device implements protocol revision 13 or higher.	

BTL-TP14.0c-5: Add Who-Has Negative Tests

Overview:

No test exists for functionality where Who-Has is reporting non-existent objects. This test is not contained in any SSPC proposal.

The sole requirement on I-Have content that is found in the current Test plan is that if IUT responds with I-Have request consisting of incorrect Object-Name--not containing the corresponding Object-Name, and instead containing some other string value--that is already a violation of one or more existing tests in the Test Plan.

Changes:

[In BTL Specified Tests, add new tests]

9.32.2.X3 - Who-Has for Non-existent Object_Name

Reason for Change: No test exists for this functionality. This test is not contained in any SSPC proposal.

Purpose: Verifies correct responses to Who-Has service requests by 'Object Name' when the object does not exist in the IUT.

Test Concept: The test verifies the correct non-response to Who-Has service request with 'Object Name' when that named object does not exist in the IUT.

Configuration Requirements: Choose any character string value V1, which is not the Object_Name of any object in the IUT. The IUT shall be placed in a state where it is not producing I-Have spontaneously.

Test Steps:

1. TRANSMIT Who-Has-Request,
'Object Name' = V1
2. WAIT **Internal Processing Fail Time**
3. CHECK (the IUT does not respond with an I-Have request with 'Object Name' containing V1)

9.32.2.X5 Who-Has for Non-existent Object_Identifier

Reason for Change: No test exists for this functionality. This test is not contained in any SSPC proposal.

Purpose: Verifies correct responses to Who-Has service requests when the object does not exist in the IUT.

Test Concept: The test verifies the correct non-response to Who-Has request with that 'Object Identifier' parameter for an object which does not exist.

Configuration Requirements: Choose any standard object (Object1) that does not exist within the IUT, i.e. any unsupported Object Type or any supported Object Type for which the instance does not exist. The IUT shall be placed in a state where it is not producing I-Have spontaneously.

Test Steps:

1. TRANSMIT ReadProperty-Request,
'Object Identifier' = Object1,
'Property Identifier' = Object_Identifier
2. RECEIVE BACnet-Error-PDU,
'Error Class' = OBJECT,
'Error Code' = UNKNOWN_OBJECT
3. TRANSMIT Who-Has-Request,
'Object Identifier' = Object1
4. WAIT **Internal Processing Fail Time**
5. CHECK (the IUT does not respond with an I-Have request with 'Object Identifier' containing Object1)

[In BTL Test Plan, add references to these new tests.]

8.4 Device Management - Dynamic Object Binding - B

8.4.1 Base Requirements

All BACnet devices must meet these base requirements.

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BTL - 9.32.2.X3 - Who-Has for Non-existent Object Name	
Test Method	Manual
Configuration	As per <i>BTL Specified Tests</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	
Notes & Results	
BTL - 9.32.2.X5 - Who-Has for Non-existent Object Identifier	
Test Method	Manual
Configuration	As per <i>BTL Specified Tests</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	
Notes & Results	

BTL-TP14.0c-6: Add EXTENDED Notification Requirements

Overview:

135-2010af at Protocol_Revision 13 added the Alert Enrollment object, utilizing the EXTENDED BACnetNotificationParameters format. The EXTENDED BACnetNotificationParameters format itself was added in the standard at Protocol_Revision 4, specifying that it is for event conditions based on a proprietary event algorithm. The behavior of executing these should be required in AE-N-A.

Changes:

[In BTL Test Plan, add a Test Directive to existing sections as indicated]

5.16 Alarm and Event - View Notification - A

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5.16.1 Base Requirements

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

BTL - 9.4.5 - ConfirmedEventNotification Simple Presentation	
Test Method	Manual
Configuration	As per <i>BTL Specified Tests</i> .
Test Conditionality	Must be executed.
Test Directives	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. Execute at least once with a Message_Text 32 or more characters in length.
Testing Hints	
Notes & Results	
135.1-2013 - 9.5.1 - UnconfirmedEventNotification Simple Presentation	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. Execute at least once with a Message_Text 32 or more characters in length.
Notes & Results	

5.18 Alarm and Event - Advanced View Notification - A

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5.18.1 Base Requirements

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

BTL - 9.4.6 - ConfirmedEventNotification Full Presentation	
Test Method	Manual

Configuration	As per <i>BTL Specified Tests</i> .
Test Conditionality	Must be executed.
Test Directives	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. For notifications using the CHOICE format of EXTENDED, the presentation must show all the fields which were in the notification. Execute at least once with a Message_Text 256 or more characters in length.
Testing Hints	
Notes & Results	
135.1-2013 - 9.5.2 - UnconfirmedEventNotification Full Presentation	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	Must be executed.
Test Directives	
Testing Hints	Repeat the test for each of the standard event types, including EXTENDED if IUT claims Protocol_Revision 13 or higher, and each of the transitions defined for those event types. For notifications using the CHOICE format of EXTENDED, the presentation must show all the fields which were in the notification. Execute at least once with a Message_Text 256 or more characters in length.
Notes & Results	

[In BTL Test Plan, add another section as indicated]

5.1 Alarm and Event - Notification - A

...

5.1.13 Processes **Complex/Proprietary** Notifications **that convey a proprietary Event Type**

The IUT is capable of executing event notifications that convey a proprietary event type.

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	
Test Method	Manual
Configuration	As per <i>ASHRAE 135.1-2013</i> .
Test Conditionality	At least one of the tests must be executed with the Event Type set to a proprietary value.
Test Directives	
Testing Hints	This test should be repeated for To-Normal, To-OffNormal and To-Fault transitions. This test should be repeated for each of the standard off-normal event state values, and at least 1 proprietary event state value. The test should be repeated with the list of BACnetPropertyValue empty and non-empty.
Notes & Results	

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5.1.17 Processes EXTENDED Notifications that convey a proprietary set of Event Values

The IUT is capable of executing event notifications that use the EXTENDED event notification CHOICE. EXTENDED Notifications convey an Alert or proprietary set of Event Values.

135.1-2013 - 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		
	Test Method	Manual
	Configuration	As per <i>ASHRAE 135.1-2013</i> .
	Test Conditionality	Must be executed.
	Test Directives	At least one of the tests must be executed with the Event Type set to EXTENDED.
	Testing Hints	
	Notes & Results	

[In BTL Test Plan, Renumber existing sections 5.1.18 and after, for the added section.]

5.1.18 Processes DOUBLE_OUT_OF_RANGE Notifications

etc.

[In BTL Checklist, in Alarm and Event - Notification - A, rename one and add another lineitem as indicated.]

.Alarm and Event - Notification - A		
	R	Base Requirements

	R	Processes Complex/Proprietary N otifications that convey a proprietary Event Type
	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	Processes EXTENDED notifications that convey a proprietary set of Event Values
	R ¹	Processes DOUBLE_OUT_OF_RANGE notifications
	R ¹	Processes SIGNED_OUT_OF_RANGE notifications
	R ¹	Processes UNSIGNED_OUT_OF_RANGE notifications
	R ¹	Processes CHANGE_OF_CHARACTER_STRING notifications
	R ²	Processes CHANGE_OF_STATUS_FLAGS notifications
	R ³	Processes CHANGE_OF_RELIABILITY notifications
¹ Required if the device implements protocol revision 10 or higher. ² Required if the device implements protocol revision 11 or higher. ³ Required if the device implements protocol revision 13 or higher.		