

Clarification Request

References: “e.g” Specified Tests 18.1 14.YY.1.2.2

Date of BTL-WG Response: July 8, 2021

Background: “e.g” 135-2020 Annex AB 3.1.5

1.1.1.1 14.YY.1.2.2 Malformed BVLC Test

Reference 135-2020 Annex ABYY.3.1.5

Purpose: Verify that device NAKs malformed / unknown unicast BVLC and ignores malformed / unknown broadcast BVLC.

Test Concept: With the IUT connected to the BACnet/SC network, send a sequence of malformed unicast and broadcast BVLCs to the IUT. Verify that the IUT responds with an appropriate NAK to each unicast one and does not process nor route the messages.

Configuration Requirements: The IUT is connected to the BACnet/SC network as a node or hub.

Test Steps:

-- Invalid BVLC function

1. TRANSMIT

'BVLC Function' = (IV: an invalid 1-octet value),
'Message ID' = (M1: any valid value),

-- 'Originating Virtual Address' absent
-- 'Destination Virtual Address' absent
-- 'Destination Options' absent
-- 'Data Options' absent

2. RECEIVE BVLC-Result,

'Message ID' = M1,

-- 'Originating Virtual Address' absent
-- 'Destination Virtual Address' absent
'Destination Options' =
-- 'Data Options' absent

(absent or a valid list of options),

'Result for BVLC Function' = IV, -- the supplied invalid

BVLC function from the request

'Result Code' = X'01', -- NAK
'Error Header Marker' = X'00', -- not a header option problem
'Error Class' = COMMUNICATION,
'Error Code' = BVLC_FUNCTION_UNKNOWN

3. CHECK(that the IUT did not process nor forward the request)

-- Inclusion of an Originating Virtual Address when it is required to be absent

4. TRANSMIT Disconnect-Request,

'Message ID' = (M2: any valid value),

'Originating Virtual Address' = D3,

-- 'Destination Virtual Address' absent

'Destination Options' = (absent or a valid list of options),

-- 'Data Options' absent

5. RECEIVE BVLC-Result,

'Message ID' = M2,

-- 'Originating Virtual Address' absent

'Destination Virtual Address' = D3

- 'Destination Options' = (absent or a valid list of options),
 -- 'Data Options' absent
 'Result for BVLC Function' = X'08', -- Disconnect-Request
 'Result Code' = X'01', -- NAK
 'Error Header Marker' = X'00', -- not a header option problem
 'Error Class' = (absent or COMMUNICATION),
 'Error Code' = (absent or OTHER)
6. CHECK(that the IUT did not process the request)
- Inclusion of a 'Destination Virtual Address when it is required to be absent
7. TRANSMIT Disconnect-Request,
 'Message ID' = (M3: any valid value),
 -- 'Originating Virtual Address' absent,
 'Destination Virtual Address' = (IUT's VMAC),
 'Destination Options' = (absent or a valid list of options),
 -- 'Data Options' absent
8. RECEIVE BVLC-Result,
 'Message ID' = M3,
 -- 'Originating Virtual Address' absent
 -- 'Destination Virtual Address' absent
 'Destination Options' = (absent or a valid list of options),
 -- 'Data Options' absent
 'Result for BVLC Function' = X'08', -- Disconnect-Request
 'Result Code' = X'01', -- NAK
 'Error Header Marker' = X'00', -- not a header option problem
 'Error Class' = (absent or COMMUNICATION),
 'Error Code' = (absent or OTHER)
9. CHECK(that the IUT did not process the request)
- A truncated message
10. TRANSMIT Encapsulated-NPDU,
 'Message ID' = (M4: any valid value),
 'Originating Virtual Address' = (OVA: absent, or D3 if IUT is configured as
 a hub),
 'Destination Virtual Address' = (IUT's VMAC),
 -- 'Destination Options' absent
 -- 'Data Options' absent
 -- no NPDU included in the message
11. RECEIVE BVLC-Result,
 'Message ID' = M4,
 -- 'Originating Virtual Address' absent
 'Destination Virtual Address' = OVA,
 'Destination Options' = (absent or a valid list of options),
 -- 'Data Options' absent
 'Result for BVLC Function' = X'01', -- Encapsulated-NPDU
 'Result Code' = X'01', -- NAK
 'Error Header Marker' = X'00', -- not a header option problem
 'Error Class' = COMMUNICATION,
 'Error Code' = MESSAGE_INCOMPLETE /
- PAYLOAD_EXPECTED**
12. CHECK(that the IUT did not process the request)
- A message with extra octets added on
13. TRANSMIT Disconnect-Request,
 'Message ID' = (M5: any valid value),

```

-- 'Originating Virtual Address' absent
-- 'Destination Virtual Address' absent
-- 'Destination Options' absent
-- 'Data Options' absent
(extra octets) = ({ X'E1', --a
bunch of octets that look like valid data options.

X'BF0003000012',
X'3F0003000034'}})
14. RECEIVE BVLC-Result,
    'Message ID' = M5,
    -- 'Originating Virtual Address' absent
    -- 'Destination Virtual Address' absent
    'Destination Options' = (absent or a valid list of options),
    -- 'Data Options' absent
    'Result for BVLC Function' = X'08', -- Disconnect-Request
    'Result Code' = X'01', -- NAK
    'Error Header Marker' = X'00', -- not a header option problem
    'Error Class' = COMMUNICATION,
    'Error Code' = UNEXPECTED_DATA
15. CHECK(that the IUT did not process the request)

-- A truncated broadcast message
16. TRANSMIT Encapsulated-NPDU,
    DESTINATION = GLOBAL_BROADCAST,
    'Message ID' = (M6: any valid value),
    -- 'Originating Virtual Address' absent,
    'Destination Virtual Address' = (local broadcast VMAC),
    -- 'Destination Options' absent
    'Data Options' = ({ X'41' -- Secure Path,
more follows (but
none are present)
}))

17. CHECK(that the IUT does not send a BVLC-Result, did not process the message,
nor route the message)

```

Problem:

Some of the error patterns are overlapping so the IUT could use different error codes but the test tries to specify exactly one error code. Specifically for the error pattern in step 10 the accepted error response in step 11 should also include PAYLOAD_EXPECTED.

Question:

In step 11, should Payload_Expected be added as an acceptable error code?

Response:

Yes