

## Clarification Request

**References:** BTL Specified Tests-23.0.Final.pdf

**Date of BTL-WG Response:** 2023-07-20

### Background:

Following is the snapshot of “AB.3.1.4 Header Options Processing and 'Must Understand' form ANSI/ASHRAE Standard 135-2020.pdf

#### **AB.3.1.4 Header Options Processing and 'Must Understand'**

The destination BACnet/SC node shall process the header options present in 'Destination Options'. Destination options whose 'Must Understand' flag is cleared (0) shall be ignored when not supported.

If a destination option is present whose 'Must Understand' flag is set (1) but the option is unknown or not supported by the BVLL entity of the destination node, then if the original message was a unicast BVLC message, a BVLC-Result NAK for the

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BVLC message shall be returned indicating an 'Error Class' of COMMUNICATION and an 'Error Code' of HEADER\_NOT\_UNDERSTOOD. If the original message was a broadcast BVLC message, no BVLC-Result message shall be returned. The broadcast BVLC message shall be ignored.

For the handling of 'Data Options' see Clause AB.3.4. The hub function and the source and destination node's BVLL entity shall forward and not alter any of the data options.

The remaining parts of the BVLC message shall be processed as required.

**AB.2.1 General BVLC Message Format**

The following table shows the general BVLC message format for BACnet/SC.

**Table AB-2 BACnet/SC BVLC Messages Structure**

Field	Length	Description
BVLC Function	1-octet	BVLC function
Control Flags	1-octet	Determines presence of optional fields.
Message ID	2-octets	The message identifier

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Originating Virtual Address	6-octets	Optional field, originating node VMAC address
Destination Virtual Address	6-octets	Optional field, destination VMAC address
Destination Options	Variable	Optional field, list of header options for the destination node
Data Options	Variable	Optional field, list of header options accompanying a payload containing data for upper layers
Payload	Variable	Optional field, the payload of the BVLC message

**AB.2.4.1 BVLC-Result Format**

The BVLC-Result message consists of the following fields:

BVLC Function	1-octet	X'00'	BVLC-Result
Control Flags	1-octet		Control flags.
Message ID	2-octets		The message identifier of the message for which this message is the result.
Originating Virtual Address	0 or 6-octets		If absent, message is from connection peer node
Destination Virtual Address	0 or 6-octets		If absent, message is for connection peer node
Destination Options	Variable		Optional, 0 to N header options
Data Options	0-octets		Shall be absent.
Payload			
Result For BVLC Function	1-octet	Function	BVLC function for which this is a result
Result Code	1-octet	X'00'	ACK: Successful completion. The 'Error Header Marker' and all subsequent parameters shall be absent.
		X'01'	NAK: The BVLC function failed. The 'Error Header Marker', the 'Error Class', the 'Error Code', and the 'Error Details' shall be present.
Error Header Marker (Conditional)	1-octet		The header marker of the destination option that caused the BVLC function to fail. If the NAK is unrelated to a header option, this parameter shall be X'00'.
Error Class (Conditional)	2-octets		The 'Error Class' field of the 'Error' datatype defined in Clause 21.
Error Code (Conditional)	2-octets		The 'Error Code' field of the 'Error' datatype defined in Clause 21.
Error Details (Conditional)	Variable		UTF-8 reason text. Can be an empty string using no octets. Note that this string is not encoded as defined in Clause 20.2.9, has no character set indication octet, and no trailing zero octets. See BVLC-Result examples in Clause AB.2.17.

The data option and header option fields are optional as per 135-2020. However, 14.YY.1.1.13 Unknown 'Must Understand' is the false message test, and 14.YY.1.1.14 Multiple Header Options Test is the must-execute test case for the BACnet/SC node. In addition to it, for the handling of "data options," see Clause AB.3.4. The hub function and the source and destination node's BVLL entities shall forward and not alter any of the data options, which seem to be hub or BACnet SC to SC Router requirements not a BACnet/SC node. It is also contradictory with 14.YY.1.1.12 Unknown 'Must Understand' is True Message Test, which data option shall be absent.

In my opinion, the BACnet/SC node need not respond with data option when it receives the encapsulated NPDU message with data option. Which means its optional field and local network entity matter.

**Question:**

Is my interpretation correct?

**Response:**

**No.**