

Clarification Request

Request from: Buddy Lott (blott@kmccontrols.com)

Reference: "BTL Specified Tests", "BTL Test Plan-v0.27", "ASHRAE 135-2004"

Background:

Section 10.2.6 'Is able to register as a foreign Device' in the BTL Test Plan for BBMD devices requires the tests 14.X1 Registering as a Foreign Device, 14.X2.1 Distribute-Broadcast-To-Network, and 14.X2.3 Original-Broadcast-NPDU to be run.

From the brief description, this test violates my understanding of how BBMDs and FDs work. In Annex J.4.3 in 135-2004, it is stated that ALL BBMDs in the same BACnet IP network have identical Broadcast Distribution Tables(BDT). Since FDs "Add" a device to the BACnet IP network, having a BBMD that can register as a FD with another BBMD would imply that both BBMDs are part of the same BACnet IP network. Since they are part of the same BIP network, they are suppose to have the same BDT so registration should be irrelevant at best or be denied at worst.

The same issue is found in section 10.2.8 'Is able to initiate broadcasts' found in the BTL Test Plan.

Question:

Can you provide a clarification for the test configuration for section 10.2.6 in the BTL Test Plan (revised Oct 24,2005)? What are the expected results for the test in the section?

Response:

Section 10.2.6 refers to the use-case where the network is configured as in Figure J-6, page 574 135-2004. This is the situation where two BACnet/IP networks, each containing one or more BBMDs are joined together through Foreign Device registration by a router contained in the same device.

Operation would be as follows:

A. Registration as a Foreign Device

The BBMD/Router on Net 1 registers as a Foreign Device with the BBMD on Net 2. The UDP port used in this registration must be a different port than the port used for B/IP addressed on Net 1.

B. Broadcasts originating on Net2

1. Broadcast on Net 2 is forwarded to Net 1 in a Forwarded-NPDU.
2. The BBMD/Router is able to distinguish that the Forwarded-NPDU received is not from a BBMD on the same BACnet network by the UDP port. The NPDU is processed by the network layer where SNET and SADR are added and possibly DNET is stripped. The BBMD/Router then forwards this message to all its networks and Foreign Devices in a Forwarded-NPDU.

C. Broadcasts originating on Net1

1. Broadcast on Net 1 is distributed to all of Net 1 as normal, but also is passed to the router in the BBMD/Router. The router adds SNET, SADR, and possibly strips DNET. The broadcast NPDU is then sent to the BBMD on Net 2 using a Distribute-Broadcast-To-Network BVLL.
2. The Net2 BBMD distributes the broadcast as normal to all its IP subnets.

D. Unicast Messages

Unicast messages between Net 1 and Net 2 will contain DNET and DADR info and will be routed by the BBMD/router.

The tests 14.X1 Registering as a Foreign Device and 14.X2.1 Distribute-Broadcast-To-Network are appropriate tests when the network is configured as described above. However, the test BTL - 14.X2.3 – Original-Broadcast-NPDU does not apply to Foreign Devices and will be removed from section 10.2.6.