**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | **Proposed Comment Resolutions for CID i-20** | |
| Date Submitted | 19 August 2016 | |
| Source | [Noriyuki Sato, Kiyoshi Fukui]  [OKI Electric Industry Co., Ltd.]  [2-5-7, Hommachi, Chuo-ku, Osaka, 541-0073 Japan] | Voice: [+81-6-6260-0700]  Fax: [+81-6-6260-0700]  E-mail: [sato652@oki.com] |
| Re: | Proposed comment resolutions related to the 802.15.10 Consolidated Comment Entry Form, CID i-20 | |
| Abstract | This document provides a proposed comment resolutions for the comments which are related to CID i-20 of SB1 of 802.15.10 | |
| Purpose | To propose | |
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**CID i-20**

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| i-20 | Rabarijaona, Verotiana | NICT | 68 | 5.4.3.1 | 1 | "The addressing mode used for broadcast routing depends on the addressing mode used in the L2R mesh." This paragraph describes the PAN broadcast change, in which case the mesh root adress in the L2R Routing IE is set to the broadcast address. What happens if different meshes use different addressing modes?  On a different issue, is the intention here to broadcast to all the devices of the PAN or all the devices belonging to at least one L2R mesh?  a) In the first case, a device that does not belong to a mesh cannot route a frame so what if some devices do not belong to any L2R mesh?  b) In the latter case, what if all the meshes do not have at least one common device with another mesh? | Describe the behavior in case different meshes operate with different addressing modes. Perhaps mention that the PAN broadcast uses 64 bit addresses or specify another way for broadcast accross different meshes not working with the same addressing mode.  As for the second issue, if the intention is a), I don't think it is possible since a non-L2R device cannot route anyway. If the intention is b), e.g. if there are two L2R meshes A and B with no common devices between them, if the PAN broadcast is initiated from a device in mesh A, the frame won't reach the devices in mesh B. In this case, starting a mesh broadcast in both meshes is a better way to ensure that the broadcast frames reach all the devices in all meshes.  If the assumption is that all devices part of the PAN should support L2R, say so in the document. |

**Proposed reaction: Revise**

A resolution was reviewed at the meeting in San Diego. A comment which suggested removing PAN broadcast functionality from the specification was raised to make it less complex. Remaining issue is comparing the resolutions. The necessity of PAN broadcast is a key factor to decide this issue.

An L2R device associated to PAN doesn’t necessarily join to a certain mesh. It happens, for example, in following cases.

Case 1: After association to a PAN, an L2R device may wait the join process until it discovers an appropriate mesh. So, an L2R device in the PAN doesn’t always join to any L2R mesh.

Case 2: A device is finding another mesh to join when the mesh was down.

PAN coordinator may need to send a message to whole the PAN. For example, when the PAN coordinator is going to stop its own PAN and it informs a message of stopping the PAN. This message is need to be sent to an L2R device described above. PAN broadcast helps this.

**Option 1: Allowing PAN broadcast**

To allow PAN broadcast, following modifications are required.

1. Insert the text which describes the usage of address mode for PAN broadcast in a regular mesh to the first paragraph in section 5.4.3.1.
2. Add the text which describes the additional process for a mesh root with PANC DC to the second paragraph in section 5.4.3.1.
3. The assumption that all devices of the PAN should support L2R is described by the resolution of CID i-120. PAN broadcast means broadcast among the devices supporting L2R. So, the text on p.68, l.9, "all devices forward" s/b replaced with "all devices supporting L2R forward"

The details are described as follows. (Red words are the difference from the original.)

**5.4.3 Broadcast routing**

**5.4.3.1 General case**

If the FnlDestAddr parameter of the L2R-DATA.request is the broadcast address, the DA of a data frame is set to the broadcast address. If the PANBroadcast parameter is TRUE, the mesh root address is set to the broadcast address. The addressing mode used for broadcast routing depends on the addressing mode used in the L2R mesh. If the PANBroadcast parameter is TRUE and joined mesh is regular, the 64 bit broadcast address is used for DA.

When the destination of a data frame is the broadcast address and the Mesh Root Address field in the L2R routing IE or the SLR IE does not contain the broadcast address, if a device is not the original source of the frame, it forwards the frame if and only if it has at least one neighbor other than the one from which it received the frame. When the destination of a data frame is the broadcast address and Mesh Root Address field contains the broadcast address, all devices supporting L2R forward the frame once but if the device is the mesh root with PANC DC, it also forwards the frame to the PANC by direct connection. The DA in the L2R Routing IE is set to the broadcast address. If a device is not the original source of the broadcast frame, after transmitting a broadcast frame, a device records the SA and the LSN and discards any subsequent frames with the same SA and LSN in order to avoid duplicate transmissions. If a device receives a broadcast frame where the original source address is the device's own address, the frame is discarded. This record is deleted after *l2rSnSaRecordTimeout*. The L2R-DATA.request is described in 7.2.1.

**Option 2: Removing PAN broadcast functionality**

To remove PAN broadcast functionality, following modifications need to be applied.

1. Delete the parameter ‘PanBroadcast’ from L2R-DATA.reauest primitive.
2. Delete the ‘PanBroadcast’ row from Table 48.
3. Delete the description regarding the PAN broadcast from the section 5.4.3.1 as follow.

**5.4.3 Broadcast routing**

**5.4.3.1 General case**

If the FnlDestAddr parameter of the L2R-DATA.request is the broadcast address, the DA of a data frame is set to the broadcast address. ~~If the PANBroadcast parameter is TRUE, the mesh root address is set to the broadcast address.~~ The addressing mode used for broadcast routing depends on the addressing mode used in the L2R mesh.

When the destination of a data frame is the broadcast address ~~and the Mesh Root Address field in the L2R routing IE or the SLR IE does not contain the broadcast address~~, if a device is not the original source of the frame, it forwards the frame if and only if it has at least one neighbor other than the one from which it received the frame. ~~When the destination of a data frame is the broadcast address and Mesh Root Address field contains the broadcast address, all devices forward the frame once.~~ The DA in the L2R Routing IE is set to the broadcast address. If a device is not the original source of the broadcast frame, after transmitting a broadcast frame, a device records the SA and the LSN and discards any subsequent frames with the same SA and LSN in order to avoid duplicate transmissions. If a device receives a broadcast frame where the original source address is the device's own address, the frame is discarded. This record is deleted after *l2rSnSaRecordTimeout*. The L2R-DATA.request is described in 7.2.1.