

IEEE P802.15 Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)	
Title	CID 109 Comment Resolution	
Date Submitted	July, 2019	
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Re:	[]	
Abstract	Comment resolution for CID 109, which addresses passing beacons up to the next higher layer	
Purpose	Resolve CID 109 for 802.15.4Rev-md.	
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1. CID 109

1.1 Comment

Page:108, sub-clause: 6.5.2, line: 10

Comment: Document says: "If a Beacon frame is received, the MLME shall discard the Beacon frame if the Source Address and the Source PAN ID fields of the MHR of the Beacon frame do not match the coordinator source address (*macCoordShortAddress* or *macCoordExtendedAddress*, depending on the addressing mode) and the PAN ID of the device (*macPanId*). This specification should not mandate this discarding behavior.

Proposed change: Document should say: "If a Beacon frame is received and if the Source Address and the Source PAN ID fields of the MHR of the Beacon frame do not match the coordinator source address (*macCoordShortAddress* or *macCoordExtendedAddress*, depending on the addressing mode) and the PAN ID of the device (*macPanId*), the beacon frame can be discarded.

Summary of issue: The commenter (and others) don't want to automatically discard beacons as receiving beacons from other coordinators or PAN IDs can be useful.

1.2 Relevant text (from D03)

6.5.2 Synchronization with beacons

...

If a protected Beacon frame is received (i.e., the Security Enabled field is set to one), the device shall attempt to unsecure the Beacon frame using the unsecuring process described in 9.2.3.

If the Status from the unsecuring process is not SUCCESS, the MLME shall issue an MLME-COMM-STATUS indication primitive, as described in 8.2.5.2, with the Status parameter set to the Status from the unsecuring process, indicating the error.

The security-related elements of the PAN descriptor corresponding to the beacon, as defined in Table 8-12, shall be set to the corresponding parameters returned by the unsecuring process. The SecurityStatus element of the PAN descriptor shall be set to SUCCESS if the Status from the unsecuring process is SUCCESS and set to one of the other Status codes indicating an error in the security processing otherwise.

If a Beacon frame is received, the MLME shall discard the Beacon frame if the Source Address and the Source PAN ID fields of the MHR of the Beacon frame do not match the coordinator source address (*macCoordShortAddress* or *macCoordExtendedAddress*, depending on the addressing mode) and the PAN ID of the device (*macPanId*).

If a valid Beacon frame is received and *macAutoRequest* is set to FALSE, the MLME shall indicate the beacon parameters to the next higher layer by issuing the MLME-BEACON-NOTIFY indication primitive. If a Beacon frame is received and *macAutoRequest* is set to TRUE, the MLME shall first issue the MLME-BEACON-NOTIFY indication primitive if the beacon contains any payload. The MLME shall then compare its address with those addresses in the Address List field of the Beacon frame. If the Address List field contains the short address or extended address of the device and the source PAN ID matches *macPanId*, the MLME shall follow the procedure for extracting pending data from the coordinator, as described in 6.7.3.

If beacon tracking is activated, the MLME shall enable its receiver at a time prior to the next expected Beacon frame transmission, i.e., just before the known start of the next superframe. If the number of consecutive beacons missed by the MLME reaches *aMaxLostBeacons*, the MLME shall respond with the MLME-SYNC-LOSS.indication primitive with a loss reason of BEACON_LOST.

1.3 Desired functionality

The desired functions to be defined in this section are:

- a) If a beacons is secured, security processing is performed and the results made available to the MAC and next higher layer
- b) The next higher layer has the ability to configure if it is notified of contents of all beacons received or just the ones for which the MAC is tracking.
- c) The MAC tracks only those beacons that pass security processing with SUCCESS and for which the coordinator source address and PAN ID match the PIB values
- d) The MAC keeps track of lost beacons that it is tracking and reports too many errors with an MLME-SYNC-LOSS
- e) A beacon frame that fails security processing should be discarded and the next higher layer notified..

2. Suggested change

The suggested changes are shown with strike-through and underline.

If a protected Beacon frame is received (i.e., the Security Enabled field is set to one), the device shall attempt to unsecure the Beacon frame using the unsecuring process described in 9.2.3.

If the Status from the unsecuring process is not SUCCESS, the MLME shall issue an MLME-COMM-STATUS. indication primitive, as described in 8.2.5.2, with the Status parameter set to the Status from the unsecuring process, indicating the error.

The security-related elements of the PAN descriptor corresponding to the beacon, as defined in Table 8-12, shall be set to the corresponding parameters returned by the unsecuring process. The SecurityStatus element of the PAN descriptor shall be set to SUCCESS if the Status from the unsecuring process is SUCCESS and set to one of the other Status codes indicating an error in the security processing otherwise.

If the Status from the unsecuring process is not SUCCESS, the MAC shall then discard the beacon frame.

~~If a Beacon frame is received, the MLME shall discard the Beacon frame if the Source Address and the Source PAN ID fields of the MHR of the Beacon frame do not match the coordinator source address (*macCoordShortAddress* or *macCoordExtendedAddress*, depending on the addressing mode) and the PAN ID of the device (*macPanId*), then the Beacon frame is a tracking Beacon frame.~~

If the Beacon frame that was received is a tracking Beacon frame or if *macNotifyAllBeacons* is TRUE, then the MLME shall indicate the beacon parameters to the next higher layer by issuing the MLME-BEACON-NOTIFY.indication primitive.

~~If a valid Beacon frame is received and *macAutoRequest* is set to FALSE, the MLME shall indicate the beacon parameters to the next higher layer by issuing the MLME-BEACON-NOTIFY.indication primitive. If a Beacon frame is received and *macAutoRequest* is set to TRUE, the MLME shall first issue the MLME-BEACON-NOTIFY.indication primitive if the beacon contains any payload. The MLME shall then compare its address with those addresses in the Address List field of the Beacon frame. If the Address List field contains~~

the short address or extended address of the device and the source PAN ID matches *macPanId*, the MLME shall follow the procedure for extracting pending data from the coordinator, as described in 6.7.3.

If beacon tracking is activated, the MLME shall enable its receiver at a time prior to the next expected Beacon frame transmission, i.e., just before the known start of the next superframe. If the number of consecutive tracking Beacon frames missed by the MLME reaches *aMaxLostBeacons*, the MLME shall respond with the MLME-SYNC-LOSS.indication primitive with a loss reason of BEACON_LOST.

Add the following rows to Table 8-94 (the entire table is not shown):

Table 8-94—MAC PIB attribute

Attribute	Type	Range	Description	Default
<i>macNotifyAllBeacons</i>	Boolean	TRUE, FALSE	If TRUE, all Beacon frames that have a Status of SUCCESS of success from the unsecuring process will be notified to the next higher layer. If FALSE, only tracking Beacon frames with a Status of SUCCESS from the unsecuring process will be notified to the next higher layer, as described in 6.2.5	FALSE

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