**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 resolution of SRM related CID for the LB158** | |
| Date Submitted | [16 September, 2019] | |
| Source | [] [Muroran IT, Landis+Gyr] [Hokkaido Japan, Alpharetta, GA USA] | Voice: [ ] Fax: [ ] E-mail: [kitazawa@ieee.org,  {ruben.salazar, chris.hett, hidetoshi.yokota}@landisgyr.com] |
| Re: |  | |
| Abstract | [SRM related comment resolution for the P802.15.4-REVd-D03.] | |
| Purpose | [] | |
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**Proposed resolution of SRM related CID for the 802.15.4md D03**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 132 | Sub-clause | 6.17 | Line | 16 |
| Comment | I suspect this sentence fragment is supposed to be a sub-bullett for the above items but not sure. | | | | |
| Proposed Change | Either fix the sentence or make it a sub bullet | | | | |

Resolution: Accept

Comment:

Memo: This sentence is sub-bullet in the IEEE 802.15.4s-2018.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 138 | Sub-clause | 6.17.1.2 | Line | Figure 6-79 |
| Comment | Section 6.17.1.2 Figure 6-79 This figure does not seem to have anything to do with maxTxFailTime. I think this is wrong figure. Replace with correct figure. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: D01 Figure 6-79 is a right figure.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 139 | Sub-clause | 6.17.1.3 | Line | Figure 6-80 |
| Comment | Section 6.17.1.3 Figure 6-80 Figure is bitmap, and is not searchable. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide original figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 141 | Sub-clause | 6.17.1.4 | Line | Figure 6-81 |
| Comment | Section 6.17.1.4 Figure 6-81 Figure is bitmap, and is not searchable. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide original figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 142 | Sub-clause | 6.17.1.5 | Line | Figure 6-82 |
| Comment | Section 6.17.1.5 Figure 6-82 Figure is bitmap, and is not searchable. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide original figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 152 | Sub-clause | 6.17.1.6 | Line | Figure 6-83 |
| Comment | Section 6.17.1.6 Figure 6-83 Figure is bitmap, and is not searchable. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide original figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 153 | Sub-clause | 6.17.1.7 | Line | Figure 6-84 |
| Comment | Section 6.17.1.7 Figure 6-84 Figure is bitmap, and is not searchable. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide original figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 162 | Sub-clause | 6.17.2.5 | Line | 11 |
| Comment | "Figure 6-88" There is no Figure 6-88. | | | | |
| Proposed Change |  | | | | |

Resolution: Revised

Comments: Insert “SRM Information flow with waiting for Acknowledgment” figure as a Figure 6-88.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 164 | Sub-clause | 6.17.1.9 | Line | Table 6-6 |
| Comment | Section 6.17.1.9 Table 6-6 The last line says "?55 < IPI", but I think it is supposed to say "IPI > -55". | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept.

Comments: Provide revised figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 172 | Sub-clause | 6.17.2.3 | Line | Figure 6-85 |
| Comment | Section 6.17.2.3 Figure 6-85 The figure has some font issues, where dashes go over the E of the MLME etc. It also has some arrows in red, and some text is in red too without any reason for color. Fix the figure. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide revised figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 173 | Sub-clause | 6.17.2.3 | Line | Figure 6-86 |
| Comment | Section 6.17.2.3 Figure 6-86 The figure has some font issues, where dashes go over the E of the MLME etc. It also has some arrows in red, and some text is in red too without any reason for color. Fix the figure. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide revised figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 174 | Sub-clause | 6.17.2.4 | Line | Figure 6-87 |
| Comment | Section 6.17.2.4 line 7 The figure 6-87 is missing, as the current Figure 6-87 should really be 6-88 as it is about SRM Infrmation Notification, not about SRM Report. Add the missing figure. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: D01 has right figure in Section 6.17.2.4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 177 | Sub-clause | 6.17.2.5 | Line | Figure 6-87 |
| Comment | Section 6.17.2.5 Figure 6-87 The figure does not need to have "(AckedConfirm=TRUE/FALSE)" text at all, as that parameter does not affect the resulting flow chart. This figure also has some font issues iwth MLME-SRM-INFORMATION parts. Remove the "(AckedConfirm=TRUE/FALSE)" and fix fonts. Also this is really a figure 6-88, and figure 6-87 is missing. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide revised figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 194 | Sub-clause | 7.4.2.17 | Line | Figure 7-46 |
| Comment | Section 7.4.2.17 Figure 7-46 The figure is in bitmap form and is not searchable. Convert to proper figure. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Accept

Comments: Provide original figure to the Editor.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 217 | Sub-clause | 7.5.26 | Line | 21, 26 |
| Comment | "Figure 7-141" underline with no link.  "Figure 7-142" underline and there is no "Figure 7-142" at link page. | | | | |
| Proposed Change |  | | | | |

Resolution: Accept

Comments: Cross reference issue will be fixed generation of next version draft.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 218 | Sub-clause | 7.5.26 | Line | Figure 7-141 |
| Comment | Section 7.5.26 Figure 7-141 Figure is missing header at all. Add "Figure 7-141 -- SRM Request command Content field Format" for the figure heading. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revise



**Figure 7-141 – SRM Request command Content field Format**

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 230 | Sub-clause | 7.5.26 | Line | Figure 7-141 |
| Comment | Section 7.5.26 Figure 7-141 Figure heading is above figure, when it should be below it. Move the heading to correct place. Also this should be figure 7-142, as Figure 7-141 should be the SRM Request command Content field figure, which does not have heading. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revised

Replace p. 275, below l.1, with the following:

****

**Figure 7-142 – Measurement Information field**

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 232 | Sub-clause | 7.5.26 | Line | Table 7-96 |
| Comment | Section 7.5.26 line 9 There is no Table 7-96, Fix the reference, or add the table. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revise

Change l.9 to the following:

The Start Time, which shall be formatted as described in Figure 7-99, indicates the time at which the

measurement is started.

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 75 | Sub-clause | 5.7.7 | Line | 18 |
| Comment | Document says: "Full measurement: the device conducts the measurement for a specified duration of time regardless of the channel." This statement is strange and liekly incomplete. | | | | |
| Proposed Change | The TSCH MAC allows the devices to stay in a channel for a defined period of time. If the duration of time for this request is bigger than the slot duration then the channel must change: what is supposed to happen to this request? Should it continue on the same channel or to jump to and through the channels according to the TSCH scheme? If it stays on the same channel, what is being measured? If it jumps, what is the meaning and value of the measurement? The document could say: "Full measurement: the device conducts the measurement for a specified duration of time follwing the channel sequence as necessary" or some more explicit statement | | | | |

Resolution: Revised.

Change the statement as follows:

Full measurement: the device conducts the measurement for a specified duration of time following the channel sequence as necessary.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 160 | Sub-clause | 6.17.1.8 | Line | Table 8-108 |
| Comment | Section 6.17.1.8 line 16 The text here says values are 0x00 and 0xff as shown in Table 8-108 and Table 8-108 for macRssi refers back to here in 6.17.1.8. I.e., what does the actual value 0x00 or 0xff mean? Add text explaining what the values actually mean. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revised.

[Current]

Subclause 6.17.1.8, Page 168, lines 14-17,

RSSI is a measure of the RF power received as described below. The RF power level at the input of the transceiver measured during the PHR and is valid after the SFD is detected. The minimum and maximum values are 0x00 and 0xff as shown in Table 8-108 and the values in between should be uniformly distributed.

Subclause 8.4.2.9, Page 413, line 1,

**Table 8-108 SRM Specific MAC PIB attributes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| macRssi | Integer | 0x00-0xff | The RF power level at the input of the transceiver. Refer to 6.17.1.8. | - |

[Changed]

RSSI is a measure of the RF power in dBm for the received packet. The RF power level at the input of the transceiver measured during the PHR and is valid after the SFD is detected. RSSI is represented as one octet of integer as shown in Table 8-108; therefore, the minimum and maximum values are -174 dBm (0) and 80 dBm (254), respectively. 255 is reserved. If any measured value less than -174 dBm is rounded up to -174 dBm.

**Table 8-108 SRM Specific MAC PIB attributes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| macRssi | Integer | 0-254 | The RF power level at the input of the transceiver. Refer to 6.17.1.8. | - |

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 135 | Sub-clause | 6.17.1.1 | Line | 22 |
| Comment | Not sure what the ED minimum and maximum are saying. The values from MLME-SCAN.confirm would indicate those should be 0x00 to 0xff | | | | |
| Proposed Change | Investigate and fix or explain what 0x0-0xf mean | | | | |

Resolution: Revised.

[Current]

Subclause 6.17.1.1, Page 164, lines 20-23,

ED capability is included in the fundamental features for PHY technologies as described in 10.2.5. In the

case that SRM capabilities is supported, the scaling of ED data shall abide by the following rule.

— The minimum and maximum values of ED are 0x0 and 0xf, respectively.

This range convers twice the range of 40 dB with the accuracy of 6 dB.

Subclause 8.4.2.9, Page 413, line 1,

**Table 8-108 SRM Specific MAC PIB attributes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| macEd | Integer | 0x0-0xf | The received signal power within the  bandwidth of the channel as defined  10.2.5. Refer to 6.17.1.1. | - |

[Changed]

ED capability is included in the fundamental features for PHY technologies as described in 10.2.5 (Receiver ED). In the case that SRM capabilities is supported, the ED value is represented as one octet of integer and referred to as *macEd* as shown in Table 8-108.

According to the definition in 10.2.5, the measured ED in dBm can be calculated as follows:

*macEd* = Measured ED [dBm] – (the lowest receiver sensitivity [dBm] + *10*).

**Table 8-108 SRM Specific MAC PIB attributes**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| macEd | Integer | 0-254 | An estimate of the received signal power within the  bandwidth of the channel as defined  10.2.5. 255 is reserved. | - |

Comments:

Memo:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 136 | Sub-clause | 6.17.1.1 | Line | 23 |
| Comment | Isn't this information just a rehash of what is stated in 10.2.5? Wondering why we need another copy here. | | | | |
| Proposed Change | Make this a reference if it is not different from what is in 10.2.5. If the line stays, then "convers" is not a word | | | | |

Resolution: Revised.

10.2.5 defined the Receiver ED, but doesn’t define the PIB attribute for it. 6.17.1.1 explains a new attribute “*macED*” for it and describes the relationship between the actual measured ED and this parameter based on the definition of 10.2.5.

Remove the sentence including the typo that was pointed out.

Comments:

Memo:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 149 | Sub-clause | 6.17.1.7 | Line | 16 |
| Comment | Section 6.17.1.7 line 16, RCPI-ANPI is not a defined acronyn, and this is only use for it, remove "(RCPI-ANPI)", especially as the text before does not even explain that acronym. Or is this trying to say RCPI - ANPI as an expression? | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revised.

“RCPI – ANPI” is an equation and should be written such.

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 220 | Sub-clause | 7.5.26 | Line | Table 8-81 |
| Comment | Section 7.5.26 line 24 Do not combine SrmHandle and SRM Token. Add separate SrmToken to the table 8-81 and change this to refer to SrmToken. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revised.

[Current]

Subclause 7.5.26, p.274, l.24-25,

The SRM Token shall be set to the value in SrmHandle as defined inTable 8-81 of MLME-SRM.request

primitive. The value is unique among SRM Request frames.

[Changed]

[Change#1]

The SRM Token shall be set to the value in SrmToken as defined in Table 8-81 of MLME-SRM.request primitive. SRM Token is a nonzero number that is unique among the SRM Request elements in a particular request primitive.

[Change#2] p.371 l.1,

MLME-SRM.request (

SrmHandle

SrmToken

DeviceAddrMode,

DeviceAddress,

PayloadIeList,

SrmMetricId,

ScopeId,

StartTime,

Duration,

ChannelPage,

ChannelNumber,

LinkHandle,

SecurityLevel,

KeyIdMode,

KeySource,

KeyIndex

)

[Change#3] p.371, l.21,

Add the following in table 8-81 below SrmHandle line:

**Table 8-81MLME-SRM.request parameters**

|  |  |  |  |
| --- | --- | --- | --- |
| SrmToken | Integer | 0x00-0xff | A unique number to identify the SRM request element between the sender and the receiver. |

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 221 | Sub-clause | 7.5.26 | Line | 2 |
| Comment | Section 7.2.26 line 2 If the Start Time field is not present, what value is assumed for Start Time field? I would guess value 0 would be best. Specify the value when it is not present. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution:

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 222 | Sub-clause | 7.5.26 | Line | 3 |
| Comment | SRM Duration, according to 7-141, is always present | | | | |
| Proposed Change | Either make SRM Duration in Figure 7-141 a "0/4" or reserve the SRM Duration present bit | | | | |

Resolution: Revised.

Change SRM Duration in Figure 7-141 from “4” to "0/4".

Comments:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 223 | Sub-clause | 7.5.26 | Line |  |
| Comment | Section 7.2.26 line 4 If the SRM Duration field is not present, what value is assumed for SRM Duration? | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Reject.

Comments: There are several SRM MAC PIB attributes that do not need those parameters. For example, existing attributes defined in 8.4.26 such as macRetryCount or macFcsErrorCount do not require Duration, Channel Number or Channel Page.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 224 | Sub-clause | 7.5.26 | Line |  |
| Comment | Section 7.2.26 line 6 If the Channel Page field is not present, what value is assumed for Channel Page field? I would guess current channel page would be best. Specify the value when it is not present. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Reject.

Comments: Same as #CID 223.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 226 | Sub-clause | 7.5.26 | Line |  |
| Comment | Section 7.2.26 line 84 If the Channel Number field is not present, what value is assumed for Channel Number field? I would guess current channel number would be best. Specify the value when it is not present. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Reject:

Comments: Same as #CID 223.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 227 | Sub-clause | 7.5.26 | Line |  |
| Comment | Actually this comment applies to lines 9-19. I don't see how Start Time, SRM Duration, Channel Page, Channel Number and Link Handle can be omitted (see 7-141). There is nothing in the primitives for SRM that would indicate how they would be set on the receiving side if omitted in the MAC command | | | | |
| Proposed Change | See comment | | | | |

Resolution: Reject.

When the receiver receives SRM Metric ID, the receiver should know whether the requested SRM Metric ID requires the information in the “Measurement Information” field. If SRM Metric ID requires “Measurement Information” and it is not present, then the request shall be rejected as described in Section 7.5.27.

Comments:

[Change#1] p.276, l.1,

Add name to figure as follow:



**Figure 7-143: SRM Response Command Content**

[Change#2] p.276, l.7,

Change “Figure 7-142” to “Figure 7-144”.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | 244 | Sub-clause | 7.5.27 | Line | 5 |
| Comment | Section 7.5.28 line 5 Combing SrmHandle parameter and SRM Token fields is bad idea. Add new parameter SrmToken to MLME-SRM-REPORT and use that for SrmToken, and keep SrmHandle as internal value. | | | | |
| Proposed Change | As specified in comment | | | | |

Resolution: Revised.

[Current #1]

Subclause 7.5.28, p.277, l.4-6,

The SRM Token field shall be set to the SRM Token in the corresponding the SRM Request element. If the

SrmHandle defined in Table 8-79 is provided via MLME-SRM-REPORT.request primitive. If the SRM

Report element is being sent autonomously, then the SRM Token is set to 0.

[Changed #1]

The SRM Token field shall be set to the SRM Token in the corresponding the SRM Request element. If the SRM Report element is being sent autonomously, then the SRM Token is set to 0.

[Current #2]

Subclause 7.5.28, p.277, l.16-18;

The SRsM Token field shall be set to the SRM Token in the corresponding the SRM Request element. If the

SrmHandle defined in Table 8-82 is provided via MLME-SRM-INFROMATION.request primitive. If the

SRM Information is being sent autonomously, then the SRM Token is set to 0.

[Changed #2]

The SRM Token field shall be set to the SRM Token in the corresponding the SRM Request element. If the

SRM Information is being sent autonomously, then the SRM Token is set to 0.

Comments: