**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | IEEE 802.15.4z PHY LRP – Comment resolution LB161 |
| Date Submitted | 18-September-2019 |
| Source | David Barras (3db-technologies) Boris Danev (3db-technologies) Peter Sauer (Microchip) |
| Re: | Letter Ballot comment resolution of draft Standard document P802.15.4z-D2 |
| Abstract | This contribution proposes updated text for the baseline draft P802.15.4z-D2 |
| Purpose | Provision of the text to facilitate its incorporation into the draft text of the IEEE 802.15.4z standard currently under development in TG4z. |
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| Release |  |
| Patent Policy | The contributor is familiar with the IEEE-SA Patent Policy and Procedures:  <http://standards.ieee.org/guides/bylaws/sect6-7.html#6> and  <http://standards.ieee.org/guides/opman/sect6.html#6.3>.  Further information is located at <http://standards.ieee.org/board/pat/pat-material.html> and  <http://standards.ieee.org/board/pat>. |

***Comments Resolutions for the TG4z Recirculated Draft (P802.15.4z-D2.pdf, LB161)***

**r1-0876, r1-0877, r1-0879 *Resolution:***

***1) Modify 1st line/ 2nd column of Table 59 as proposed;***

***2) also modify section title***

**19.9.1 Receive-to-transmit ~~turnaround~~ reply time**

**Table 59 – Fixed reply times for the LRP-ERDEV**

|  |  |
| --- | --- |
| **Value of the *phyLrpUwbFixedReplyTime***  **attribute** | **Selected fixed reply time**  **~~[μs]~~**  **[in number of base chip period]** |
| FRT4 | 4 |
| FRT8 | 8 |
| FRT16 | 16 |
| FRT32 | 32 |

**Reminder**: base chipping rate (RSTU) is defined in 6.9.1.2 of first draft version (P802.15.4z-D1.pdf)

**Reminder:** timing accuracy has been defined in section 19.7.2 of first draft version (P802.15.4z-D1.pdf):

|  |
| --- |
| **19.7.2 Pulse timing**  ***Insert the following new paragraph in clause 19.7.2 after the first paragraph:***  For a LRP-SRDEV, the transmission time of any individual pulse shall not drift more than 2 ns from its nominal transmission time during 128 pulse periods transmitted at the lowest PRF of 1 MHz over the specified operating temperature range of the device. |

**r1-0852 *Resolution:***

***Modify lines 11 and 12, p. 142, as propsed below***

**19.2.4.2 Dual-frequency and extended dual-frequency (without EPC)**

The pulse is nominally sent in the center of the ~~symbol~~ chip period ~~Tdsym~~ Tchip as shown in Figure 19-1 for the base mode and Figure 19-2 for the extended mode,…

**r1-0388, r1-398, r1-0405, r1-405, r1-409, r1-423 *Resolution:***

***1) Modify text in rectangle boxes of Figures 38, 39, 41, 42, 44***

see contribution 15-19-0259-03-004z-lb-comment-resolution-clause-6.9.9

***2) Rewrite 19.9 as follows***

**19.9 LRP UWB ~~Return Time~~ Transmit and Receive Timing Requirements**

**19.9.1 ~~Receive-to-transmit~~ Fixed reply time**

The receive-to-transmit ~~turnaround~~ reply time for a device with *phyFixedReplyTimeSupported* attribute value of TRUE shall be the fixed reply time as specified in Table 59 selected by the *phyLrpUwbFixedReplyTime* attribute.

Provide a picture that accurately describes timing for fixed reply time

**19.9.2 ~~Transmit-to-receive~~ Turnaround times**

~~The transmit-to-receive turnaround times for a device with~~ *~~phyFixedReplyTimeSupported~~* ~~attribute value of TRUE set to true shall be less than the fixed reply time as specified in Table 59 selected by the~~ *~~phyLrpUwbFixedReply~~*~~Time attribute.~~

When *phyFixedReplyTimeSupported* attribute is set to true, the turnaround time for a device to be configured from receiver to transmitter mode and from transmitter to receiver mode shall be less than the fixed reply time as specified in Table 59 selected by the *phyLrpUwbFixedReply*Time attribute .

**Add Text for Reference [B4] and Table 60 in 19.10**

**Table 60 – Distance commitment level definition for authenticated ranging**

|  |  |  |
| --- | --- | --- |
| **DistanceCommitmentLevel** | **Tint,RF aperture time** | **Maximum distance manipulation** |
| DCL\_1\_4096 | RSTU/4096 | 0.075 m |
| DCL\_1\_2048 | RSTU/2048 | 0.15 m |
| DCL\_1\_1024 | RSTU/1024 | 0.29 m |
| DCL\_1\_512 | RSTU/512 | 0.59 m |
| DCL\_1\_256 | RSTU/256 | 1.17 m |
| DCL\_1\_128 | RSTU/128 | 2.34 m |
| DCL\_1\_64 | RSTU/64 | 4.7 m |
| DCL\_DISABLED | <Tsymb | <Tsymb∙c0 (?) |

See Section 2 of Authenticated Ranging of 802.15.4 [B24]