**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 LB207/D01 Comments Resolution for LE UWB PHY (Clause 33) CIDs 855, 865, 1289, 1291, 1292** |
| Date Submitted | September 2024 |
| Sources | Larry Zakaib (Spark Microsystems)  larry.zakaib@sparkmicro.com |
| Re: |  |
| Abstract | Proposed comment resolutions for the CIDs 855, 865, 1289, 1291, 1292 |
| Purpose | Proposed resolutions to Clause 33 comments for “P802.15.4ab™/D1.0 Draft Standard for Low-Rate Wireless Networks”. |
| Notice | This document does not represent the agreed views of the IEEE 802.15 Working Group or IEEE 802.15.4ab Task Group. It represents only the views of the participants listed in the “Sources” field above. It is offered as a basis for discussion and is not binding on the contributing individuals. The material in this document is subject to change in form and content after further study. The contributors reserve the right to add, amend or withdraw material contained herein. |

Introduction

This submission contains the proposed comment resolutions for the CIDs 855, 865, 1289, 1291 and 1292.

# CID 187

# CID 855 (Accepted)

|  |  |  |  |  |  |  |  |  |
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| **Name** | **Index #** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** | **Disposition Detail** | **Category** |
| Tero Kivinen | 855 | 217 | 33.2.6.2 | 4 | XNOR is not commonly used operation, explain what it is. | Add text explaining what XNOR operator does. | Add the following explanation of the XNOR after the sentence on line 4. “Note: The XNOR operation produces a high output (1) when its inputs are equal (all 1s or all 0s).” | PHYLE |

# CID 1289 (Revised)

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| Billy Verso | 1289 | 214 | 33.1 | 13.5 | It is not clear from the text what data rates are supported by this PHY. This should be clarified with the aid of a table. The end of the introduction clause is a good place to do this. | Insert a paragraph beginning "The data rates supported by the LE-PHY in its various modulation modes is given by Table X", and insert new Table X that lists the modulation modes and resultant PSDU bit rates available to the MAC after the PHY level coding is taken into account. | Insert the following paragraph at the end of the Introduction clause (33.1):  “The data rates supported by the LE-PHY in its various modulation modes is given by Table 77"  Replace Tables 77, 78 and 79 with revised Table 77 as described below. | PHYLE |

Replace Tables 77, 78 and 79 with this table:

**Table 77 – Modulation Parameter Options**

|  |  |  |  |
| --- | --- | --- | --- |
| Modulation | Symbol Rate (MHz) | FEC (k=5) | Data Rate  (Mb/s) |
| OOK | 20.48 | 4/5 | 16.384 |
| 2/3 | 13.653 |
| 4/7 | 11.703 |
| 1/2 | 10.240 |
| BPM | 10.24 | 4/5 | 8.192 |
| 2/3 | 6.827 |
| 4/7 | 5.851 |
| 1/2 | 5.120 |

# CID 865 (Revised)

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| **Name** | **Index #** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** | **Disposition Detail** | **Category** |
| Tero Kivinen | 865 | 223 | Annex E | 1 | The modifications to the Annex E PICS are missing. | Add PICS entries for all the new features specified in this amendment. | See table below with new PICS entries for the LE UWB PHY | PHYLE |

Insert the following reference(s) into Annex E, Table E.5

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Item Number | Item Description | Reference | Status | Support | | |
| NA | Yes | No |
| RF26 | LE UWB PHY | Clause 33 | O.3 |  |  |  |
|  |  |  |  |  |  |  |

# CID 1291 (Accepted)

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| Billy Verso | 1291 | 214 | 33.2.1 | 18 | For clarity, since there are no gaps in the PPDU between SHR, PHR and PSDU, these should be drawn as abutting each other. | Draw SHR, PHR and PSDU, boxes in contact with each other, | See the updated Figure 211 below | PHYLE |

A diagram of a number of objects

Description automatically generated with medium confidence

Figure 211—Illustration of the construction of the LE-UWB PPDU

# CID 1292 (Revised)

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| **Name** | **Index #** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** | **Disposition Detail** | **Category** |
| Billy Verso | 1292 | 221 | 33.4.3 | 19 | Both Pulse shape and PSD mask specifications refer to PSD mask and clause 16.4.5 in the base standard. Is this correct or should the pulse shape text be referring to the pulse shape clause of 16.4.4 or defining a pulse shape here. | Consider, see comment, to change to refer to clause 16.4.4. | As the LE PHY uses energy detection at the receiver, clause 33.4.3 is unnecessary and will be deleted. Clause 33.4.4 will change to 33.4.3 and will be amended as shown below. | PHYLE |

**33.4.3 Transmit spectrum mask**

The transmitted spectrum shall be less than –10 dB relative to the maximum spectral density of the signal for 400 MHz < |f – f*c*| < 500 MHz and –18 dB for |f – f*c*| > 500 MHz. The measurements shall be made using a 1 MHz resolution bandwidth and a 1 kHz video bandwidth.

Note that any pulse shape that complies with this mask is acceptable.