**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 Resolutions for UWB HRP PHY Comments:114, 885, 874, 173, 174, 175, 461, 462, 883 |
| Date Submitted | March 2024 |
| Sources | Vinod Kristem, Xiliang Luo (Apple) |
| Re: |  |
| Abstract |  |
| Purpose | To propose resolutions to comments for “*P802.15.4ab™/Draft (pre-ballot) C 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. |

# CID #114

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Pooria Pakrooh | 114 | Technical | 149 | 12.3.7 | 5 | In Table 12-8, second half, Range values for "phyUwbMmsRifNumberFrags" and "phyUwbMmsRsfNumberFrags" are not accurately listed (as per table 14 and 15). | Change the Table 12-8, Range values for "phyUwbMmsRifNumberFrags" to "0, 1, 2, 4, 8" and Range values for "phyUwbMmsRsfNumberFrags" to "0, 1, 2, 4, 8, 16". |

**Discussion:**

Agree with the comment. It aligns with the consensus document on NBA-UWB TFP https://mentor.ieee.org/802.15/dcn/23/15-23-0100-02-04ab-nba-uwb-technical-framework-for-draft0.docx.

**Disposition Status: Accepted**

**Proposed Resolution:**

Update the Draft-C spec as suggested in the proposed change:

Change the Table 12-8, Range values for "phyUwbMmsRifNumberFrags" to "0, 1, 2, 4, 8" and Range values for "phyUwbMmsRsfNumberFrags" to "0, 1, 2, 4, 8, 16".

# CID #885

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Rani Keren | 885 | Technical | 155 | 16.1 | 5, 6 | Why do additional data modulations better support ranging modes? | Clarify this sentence |

**Discussion:**

This has been discussed in the consensus document on 4ab devices and feature sets https://mentor.ieee.org/802.15/dcn/23/15-23-0308-03-04ab-4ab-device-s-and-feature-sets.pptx.

The additional data modes enables better link budget and lowers the airtime usage. These data modes could be used for in-band control and reporting.

**Disposition Status: Revised**

**Proposed Resolution:**

Update the Draft-C spec as below:

"The HRP UWB PHY includes optional HPRF modes with additional data modulation choices improving the link budget and airtime usage for in-band control and reporting, thereby better supporting the ranging modes."

# CID #874

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Carl Murray | 874 | Technical | 156 | 16.2.1 | 2 | This section states that SDEV supports optional packet formats with data. But the data rates supported are never explicitly specified anywhere."… with support for sensing packet formats two and three being optional." |  |

**Discussion:**

Proposed change seems to be missing.

HRP-SDEV is HRP-EMDEV by definition and all the data rates would carry over (Page 155 of Draft C). No need to explicitly specify the data rates.

**Disposition Status: Rejected**

**Proposed Resolution:**

No change to the Draft-C

# CID #173

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Benjamin Rolfe | 173 | Technical | 158 | 16.2.7.4.2 | 3 | is the codeword an unsigned integer? Only numbers have MSBs and LSBs. To remove any doubt is good (can't count the time's this one has bitten my tender posterior) | Change to: The codeword is an unsigned integer and transmitted with the most significant bit first in time. |

**Discussion:**

Agree with the comment in principle. However, a codeword cannot be a signed/unsigned integer.

**Disposition Status: Revised**

**Proposed Resolution:**

Update the Draft-C spec as below:

“The codeword represented by a numerical value, an unsigned integer, is transmitted with the most significant bit first in time.”

# CID #174

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Benjamin Rolfe | 174 | Technical | 159 | 16.2.7.4.3 | 4 | Do not need to describe "reserved" fields; this is defined in the standard already. A reserved field is always set to zero upon transmission and ignored upon receipt. | Delete "'The Reserved field is reserved for future extension and shall be set to zero." |

**Discussion:**

This is consistent with the description used in the 15.4z-2020 draft (Page 99) and does not contradict with the reserved field description in TG4me draft (page 46).

**Disposition Status: Rejected**

**Proposed Resolution:**

No change to the Draft-C

# CID #175

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Benjamin Rolfe | 175 | Technical | 159 | 16.2.7.4.3 | 5 | Remove extraneous redundant information. Also best to define the type (unsigned integer) to be brutally clear and to assure MSB first order means something. This completely defines the field (the relationship of PSDU to Payload to MPDU is already in the base standard; size is in the figure is 12 bits so we know the maximum value if we say it's an unsigned integer) | Change to: The PHY payload length field is an unsigned integer and shall be set to the number of octets in the PHY Payload Field. The PHY payload length field shall be passed to the modulator most significant bit first. |

**Discussion:**

Agree with the comment. It doesn't hurt to specify that the payload length is an unsigned integer.

**Disposition Status: Revised**

**Proposed Resolution:**

Update the paragraph as follows: "The PHY payload length field is an unsigned integer and shall be set to the number of octets in the PHY Payload Field, i.e., the length of the MAC frame. This allows for frames up to 4095 octets. The PHY payload length field shall be passed to the modulator most significant bit first."

# CID #461

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Bin Qian | 461 | Technical | 159 | 16.2.7.4.3 | 8 | The Rmarker is not defined in the dynamic data PPDU | As in the comment |

**Discussion:**

RMARKER position is defined in the TG4me draft (page 443, Line 38), and it applies to dynamic data PPDU as well. No need to define again.

**Disposition Status: Rejected**

**Proposed Resolution:**

No change to the Draft-C

# CID #462

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Bin Qian | 462 | Technical | 160 | 16.2.10 | 2 | It should be both the SENS packet configuration one and two | As in the comment |

**Discussion:**

**Disposition Status: Revised**

**Proposed Resolution:**

Update the text in Draft-C as follows: "The HRP-SDEV may optionally support an additional mode of sensing using the SENS packet configuration zero..."

# CID #883

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| **Name** | **Idx #** | **Cat.** | **Pg.** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** |
| Carl Murray | 883 | Technical | 180 | 16.7 | 4 | Is 1023 octets correct here? Should it be 4095? |  |

**Discussion:**

No proposed change is provided.

Table 61 applies only to 4z PHR, where the maximum mandatory payload length is 1023 octets, same as in 4z.

**Disposition Status: Rejected**

**Proposed Resolution:**

No change to the Draft-C