**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | **DraftC comment resolution - MMS ranging phase offset - CIDs 206, 207, 695**  |
| Date Submitted | May 03, 2024 |
| Sources | Alex Krebs (Apple)krebs @ apple.com |
| Re: |   |
| Abstract |  |
| Purpose | To propose resolution for MMS related comments for “P802.15.4ab™/D (pre-ballot) C Draft Standard for Low-Rate Wireless Networks”. |
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| **Name** | **CID** | **p.** | **Sub-clause** | **l.** | **Comment** | **Proposed Change** | **Proposed Resolution** |
| Billy Verso | 206 | 51 | 10.38.5 | 23 | Figure 21 shows RSF exactly 1ms or 2ms start to start away from the NB packet, but this text is suggesting that the RSF position is variable using the RpRsfOffset configuration, which is itself confusing as it is offset from some a poorly defined start of the ranging phase | Delete RpRsfOffset. | Revise. (Accept, changes see below) |
| Carl Murray | 695 | 51 | 10.38.5 | 23 | Recommend replacing both RpRsfOffset and RpRifOffset with a single parameter as RpRifOffset is redundant, eg RpFirstFragmentOffset |  | Revise. (see #206, + MAC changes following DraftB #140 made RpRifOffset 2ms static) |

***Instructions to the editor: Change p.51 starting l.20 as follows:***

**10.38.5 UWB MMS ranging phase**

The UWB MMS ranging phase follows the control phase.

In the ranging phase, the initiator shall transmit *phyUwbMmsRsfNumberFrags* RSF fragments starting its

first fragment at *RpRsfOffset* into the ranging phase, with each subsequent RSF fragment starting 1200

RSTU from the start of the previous one.

The initiator may start transmitting a first RIF fragment at *RpRifOffset* slots into the ranging phase if no

RSF fragments are present, or *RpRifOffset* after the start of its last RSF fragment transmission otherwise.

The initiator may continue to send up to *phyUwbMmsRifNumberFrags* RIF fragments at regular intervals of

1200 RSTU.

The responder may start transmitting a first RSF fragment at 600 RSTU into the ranging

phase. The responder may continue to send up to *phyUwbMmsRifNumberFrags* RIF fragments at regular

intervals of 1200 RSTU.

The responder may start transmitting a first RIF fragment at 600 RSTU into the ranging

phase if no RSF fragments were transmitted, or *RpRifOffset* after the start of its last RSF fragment

transmission otherwise. The responder may continue to send up to *phyUwbMmsRifNumberFrags* RIF

fragments at regular intervals of 1200 RSTU.

The value of RpRifOffset is 2 ms if RSF fragments were transmitted, and 0 ms otherwise..

Figure 29 shows an example UWB MMS ranging phase. In the figure, X is *phyUwbMmsRsfNumberFrags*

and Y is *phyUwbMmsRifNumberFrags* either of which may be zero. The total duration of the UWB MMS

ranging phase is *macMmsRpDuration* slots. *macMmsRpDuration* shall be set at minimum to the required

duration for all RSF and RIF fragments to be transmitted and received but may be larger to provide

flexibility in scheduling the report phase.

After *macMmsRpDuration* and transmission and reception of all fragments, the device enters the reporting

phase if this is enabled, for sending/receiving the ranging reports as appropriate, otherwise the ranging

round is completed at this time, (e.g., when the ranging report is conveyed via an OOB mechanism).

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**Figure 29—Example UWB MMS ranging phase**

***Note to the editor: typo in Figure 29: RTSU-->RSTU .***

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| Billy Verso | 207 | 52 |  | 10 | This line is mandating that macMmsRpDuration be set to a certain value, which if this is being done by the upper layer, might be better being rephrased to dictate MAC behavior instead. Also this ranging phase should include the RpRsfOffset if it is still needed, (I proposed deleting in an earlier comment). | Reword to say macMmsRpDuration shall be ignored if it is less than RIF + RSF + whatever required in minimum duration case. | Revise: apply Option 1 as shown below |

**Option 1: Revise**

Discussion: Aims to to correct configuration error at receiver side

Disposition detail:

***Instructions to the editor: On p.68, assign bits 44-47 to "Reserved" in l.1, remove lines 30-31, and change l.27-29 as follows:***

The RpDuration field encodes the duration RpDuration of the MMS ranging phase (described in 10.38.5)

used by intiator and responders for transmission of RSF and RIF fragments in units of ranging slots in the

range 1 to 4095. If the value of the RpDuration field is smaller than the time difference between the start of the first fragment and the end of the last fragment, then the field value shall be ignored and macMmsRpDuration shall be set to the minimum number of slots needed to cover all UWB MMS fragment transmissions of the ranging round. The field value of 0 is reserved.

**Option 2: Reject**

Discussion: Correct initiator behavior is mandated, adding receiver error handling will set false precedent. p.52 l.10 states explicitly:

*"macMmsRpDuration* shall be set at minimum to the required duration for all RSF and RIF fragments to be transmitted and received but may be larger to provide flexibility in scheduling the report phase."