**IEEE P802.15**

**Wireless Personal Area Networks**

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| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) |
| Title | **LB207/D01 comment resolution -- Revise -- CIDs 243, 244, 514, 546, 653, 654, 929, 1000, 1005, 1011, 1135, 1136, 1213, 1395** |
| Date Submitted | Sep 26, 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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# Simple revise without discussion

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| **Name** | **Index #** | **Page** | **Sub-clause** | **Line #** | **Comment** | **Proposed Change** | **Proposed Resolution. Disposition Detail** |
| Billy Verso | 1213 | 86 | 10.38.9.3.12 | 27 | Seems to be an extraneous "RpDuration" in the middle of the line. | Delete it, or should it be something different like macMmsRpDuration | Change "The RpDuration field encodes the duration RpDuration " to "The RpDuration field encodes the duration macMmsRpDuration" |
| Li-Hsiang Sun | 243 | 93 | 10.38.9.5 | 21 | There should also be a similar language that if message control is 0x00 for ADV RESP, then compact frame ID 0~6 with message ctrl 0x00 are supported | as in comment | Revise. Between line 14 and 15 add the following sentence: "A Message Control field value of 0x00 signals support by the responder for MMS messages with Compact Frame ID field values of 0x00 to 0x06 with a Message Control field value of 0x00." |
| Carlos Aldana | 1011 | 125 | 10.38.10.1 | 1 | in Description of macMmsXReportNslots, there is text that says "2 slots =1ms". That is not necessarily the case, as it depends on the value of macMmsRangingSlotDuration. Please fix | As in comment | Revise. Replace "2 slots = 1 ms" by "Number of slots" in for all 3 lines referring to macMms{1st,2nd,3rd}ReportNSlots |

# 3rd response slot in MMS MAC configuration field

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| Carlos Aldana | 1000 | 87 | 10.38.9.3.12 | 5 | The concept of MrpThirdSlots seems to work for 2 responders. What happens where there are more than 2 responders? Do we need to define MrpFourthSlots, MrpFifthSlots,etc? We probably need a more scalable solution. | Please clarify |
| Youngwan So | 929 | 85 | 10.38.9.3.12 | 13 | The management MAC Configuration Field seems to be 8 octets long, not 7 octets. And reference is wrong. | Change from "This seven-octet field is formatted as shown in Figure 53." To "This eight-octet field is formatted as shown in Figure 54." |
| Alex Krebs | 1395 | 85 | 10.38.9.3.12 | 13 | This says its a seven octet field, but Figure 54 shows a 8 octet field, newly carrying a one-to-many configuration field. This field can never be used for one-to-one ranging hence unnecessarily prolonging OTA configuration, and the 400 RSTU slots required for time efficient O2M cannot be configured using the O2O definitions hence depicted configuration does not work for O2M anyways. So this change from DraftC is a lose/lose situation. If the proponents of time-efficient O2M desire OTA configuration, a separate O2M MAC management config field should be specified (e.g. via a different message id and/or message control). | Revert this change to preballot-C state by removing bits 56-63 again, and delete p87 lines 3-5. |
| Tero Kivinen | 514 | 85 | 10.38.9.3.12 | 13 | The Management MAC Configuration field is eight octets long, not seven. | Change seven to eight. |
| Tero Kivinen | 546 | 94 | 10.38.9.5 | 1 | The Management MAC Configuration field is 8 octets long. | Change 0/7 to 0/8. |

Discussion: see comment #1395. Regarding #546, that is referring to the presence bitmap version of the Advertising Response Compact frame, which would be the suitable place to put a "O2M MAC configuration" supported by Presence Bitmap.

Proposed resolution: ~~Accept #1395 proposed change, Revise #514, #546, #1000 and #929 with #1395 resolution.~~

Reassign all above CIDs to Bin Q.

# NbaChannelMap is not a MAC variable

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| Tero Kivinen | 653 | 124 | 10.38.10.1 | 16 | The macMmsNbChannelMap description has wrong reference. That reference is for macMmsNbChannelAllowList. | Fix the reference to 10.38.9.3.7. |
| Tero Kivinen | 654 | 124 | 10.38.10.1 | 16 | The macMmsNbChannelAllowList is directly constructed from the macMmsNbChannelMap, so why store it in the pib separately? | Remove macMmsNbChannelAllowList as it is not possible to construct macMmsNbChannelMap from the macMmsNbChannelAllowList without loosing information, but it is possible to do the reverse, and the section 10.38.9.3.7 describes how to do that. |
| Carlos Aldana | 1005 | 124 | 10.38.10.1 | 16 | There is no normative text associated with macMmsNbChannelMap variable | Please add |

Discussion: see comment #654

Proposed resolution: Revise. Remove macMmsNbChannelMap row from Table.

# Discussion/clarification with group

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| Li-Hsiang Sun | 244 | 125 | 10.38.10.1 | 1 | The default value for macMmsRangingBlockDuration seems much longer than the 100ms typicaly assumed in 4ab discussions | Revise the default value if necessary |

Discussion: Agree that group should discuss its preference. Rationale for current default value (1008ms) was use-case similarity to GPS. Unless group decides that typical operation would require a lower value, ~1s is proportional to balance the extended operational range vs airtime/energy consumption compromise of 8 fragment MMS over 802.15.4z at 125ms block duration.

Proposed resolution: Reject

# Update wrt offline discussion on 15-24/514r0

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| Billy Verso | 1135 | 60 | 10.38.3.4 | 2 | "choose the values" is not very clear to me in what it means. | Not sure what is intended so I am not sure what change is needed, but I would be happy to work with the originating author to come up with a better description of the process. |

Discussion: See below evolution of offline discussion

Proposed resolution DCN 514r0 (Alex#1): spell out the meaning of "choose":

Revise: The Advertising Response Compact frame is defined in 10.38.9.5 and the Start of Ranging Compact frame is defined in 10.38.9.6 and contain common fields: NB Channel Map, Management PHY Configuration, Management MAC Configuration, Ranging PHY Configuration and Ranging MAC Configuration. For these fields, the initiator should choose the values proposed by the responder by setting the Start of Ranging Compact frame field values to the field values received via the Advertising Response Compact frame. ~~from the responder before transmitting the field values in the Start of Ranging Compact frame.~~

Offline proposed resolution (Billy#2): "use" is less confusing than "choose":

Revise: The Advertising Response Compact frame is defined in 10.38.9.5 and the Start of Ranging Compact frame is defined in 10.38.9.6 and contain common fields: NB Channel Map, Management PHY Configuration, Management MAC Configuration, Ranging PHY Configuration and Ranging MAC Configuration. For these fields, the initiator should use the values proposed by the responder in the Advertising Response Compact frame for subsequent interactions with the responder, i.e., set the field values within the Start of Ranging Compact frame to the values received in the Advertising Response Compact frame, and continue to use these values in subsequent ranging rounds.

Offline proposed resolution (Alex#3): "use" is used twice in the sentence with different meaning, use "apply" for the second occurence:

Revise: The Advertising Response Compact frame is defined in 10.38.9.5 and the Start of Ranging Compact frame is defined in 10.38.9.6 and contain common fields: NB Channel Map, Management PHY Configuration, Management MAC Configuration, Ranging PHY Configuration and Ranging MAC Configuration. For these fields, the initiator should use the values proposed by the responder in the Advertising Response Compact frame for subsequent interactions with the responder, i.e., set the field values within the Start of Ranging Compact frame to the values received in the Advertising Response Compact frame, and apply these values in subsequent ranging rounds.

Proposed resolution: Revise following (Alex#3)

# Related to before comment #1135

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| Billy Verso | 1136 | 60 | 10.38.3.4 | 8 | "If the initiator changes the value of the NB Channel Map field received from the Advertising Response Compact frame, it shall change the value...", i think should be reworded since it is not really changing the received field. | Change the sentence to "If the initiator wishes, it may choose an alternate channel map to that specified in the NB Channel Map field of the received Advertising Response Compact frame, in which case it shall choose a channel map that is a subset of the channels requested by the responder." |  |

Discussion: Proposed change is technically correct, but desires, wishes, feelings of device roles are a little too much for heart- and soulless IEEE 802 standards. Also "choose" is proposed now in #1136, while being discouraged in #1135. Less emotional, simplified wording suggested.

Proposed resolution: Revise: Replace sentence by:

The initiator shall set the value of the NB Channel Map field of the Start of Ranging Compact frame such that only channels are selected that are also selected in the NB Channel map field of the Advertising Reponse compact frame.

# Range of MAC variables missing in table

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| Tero Kivinen | 661 | 125 | 10.38.10 | 1 | The macMmsRangingSlotDuration is missing a range. | Add range to the macMmsRangingSlotDuration. |
| Tero Kivinen | 662 | 125 | 10.38.10 | 1 | The macMmsRangingRoundDuration is missing a range. | Add range to the macMmsRangingRoundDuration. Also I assume there is relation between slot duration and round duration, describe that relation in description. |
| Tero Kivinen | 663 | 125 | 10.38.10 | 1 | The macMmsRangingBlockDuration is missing a range. | Add range to the macMmsRangingBlockDuration. Also I assume there is relation between round duration and round duration, describe that relation in description. |
| Mickael Maman | 74 | 125 | 10.38.10.1 | 1 | Value 14 is missing in the range of macmmsReportPhaseMode | as in comment |
| Mickael Maman | 76 | 125 | 10.38.10.1 | 1 | according to management MAC configuration (line 2 page 86), macMmsRangingSlotDuration is 300\*(N+1) 0<=N<=7 RSTU. | add "300\*(N+1) 1<=N<=7" in range |
| Mickael Maman | 77 | 125 | 10.38.10.1 | 1 | range of ranging round duration is missing | add "1-255" in range and change RSTU to ranging slot |
| Mickael Maman | 78 | 125 | 10.38.10.1 | 1 | range of ranging block duration is missing | add "1-255" in range and change RSTU to ranging round |
| Carlos Aldana | 1006 | 125 | 10.38.10.1 | 1 | In description of macMmsResportPhaseMode, values 1-9 are referred to, but Table 58 only has values 1-8. Please fix. | As in comment |
| Carlos Aldana | 1007 | 125 | 10.38.10.1 | 1 | In description of macMmsResportPhaseMode, values 14 is referred to, but is not listed in Range. Please fix. | As in comment |
| Carlos Aldana | 1009 | 125 | 10.38.10.1 | 1 | In decription of macMmsNbInitMode, the Range is 1-9, but Table 58 only has 8 values. Please fix. | As in comment |
| Carlos Aldana | 1010 | 125 | 10.38.10.1 | 1 | There is no normative text associated with macMmsRangingSlotDuration, macMmsRangingRoundDuartion, and macMmsRangingBlockDuration variables | Please fix. |
| Pooria Pakrooh | 1374 | 125 | 10.38.10.1 | 1 | In Table 20, specify ranges of value for "Ranging round duration" and "ranging block duration" | As in the comment |
| Pooria Pakrooh | 1375 | 125 | 10.38.10.1 | 1 | In Table 20, specify Round and block duration in units of slot and round duration respectively, nor RSTU. | As in the comment |

Discussion: Agree with comments and spirit of proposed resolutions, but also references on p.88 to these variables need fixing. Start value of #76 seems incorrect?

Proposed resolution: Revise: Add the following values to the Range column:

*macMmsRangingSlotDuration* : 300x(N+1), 0<=N<=7 (2ms)

*macMmsRangingRoundDuration:* 300 to 612000 (510ms)

*macMmsRangingBlockDuration:* 300 to 156060000 (2m 10.05s)

*macMmsReportPhaseMode and macMmsControlPhaseMode:* remove value 9 from Range column and Description column, add 14 to the latter. On page 88 change to the following text:

8  The Control Phase Config field defines the value of *macMmsControlPhaseMode* which corresponds to the PHY layer modulation for the MMS control phase. Control

9  Phase Config field values 1 to 8 select a modulation mode from Table 58 (also numbered 1 to 8), value 14

10  selects UWB modulation according to set #1 from Table 74, while the value 15 selects UWB modulation

11  according to set #2 from Table 74. All other Control Phase Config field values are reserved.

12  The Report Phase Config field defines the value of *macMmsReportPhaseMode* which corresponds to the PHY layer modulation for the MMS report phase. Report Phase

13  Config field values 1 to 8 select a modulation mode from Table 58, value 14 selects UWB modulation

14  according to set #1 from Table 74, while the value 15 selects UWB modulation according to set #2 from

15  Table 74. All other Report Phase Config field values are reserved.

Change p.86 l.2-7 to:

The Ranging Slot Duration field encodes the value of *macMmsRangingSlotDuration*. The ranging slot duration in RSTU is given by: (Ranging Slot Duration field value + 1) × 300.

The Ranging Round Duration field encodes the value of *macMmsRangingRoundDuration* in units of ranging slots in the range 1 to 255. The value of zero is reserved.

The Ranging Block Duration field encodes the value of *macMmsRangingBlockDuration* in units of ranging rounds in the range of 1 to 255. The value of zero is reserved.