IEEE P802.15  
Wireless Personal Area Networks

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| One-to-many CIDs 55, 56, … | | | | |
| Date: Nov 10, 2024 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Jinjing Jiang | Apple Inc. |  |  | jinjing @ apple.com |
| Alex Krebs | Apple Inc. |  |  | a\_krebs @ apple.com |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This document discusses and proposes resolutions for the following CIDs: 55, 56, 57, 277, 584, 590, 593, 594, 1166, 1178.

The discussion and proposed changes are based on P802.15.4ab™ D01 Draft Standard for Low-Rate Wireless Networks.

Revision history:

R0 – Initial version

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 55 | 86 | 24 | RcpPollSlots field can be used by the initiator form transmission of the One-To-May Poll compact Frame | add "or One-to-many" | Accepted. |

## CIDs 55

Revise Line 24 of Page 86 as the following:

…transmission of the One-to-one or One-to-many Poll Compact frame in units of ranging slots in the range 0 to 15.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 56 | 86 | 26 | RcpResponseSlots field can be used by the initiator form transmission of the One-To-May Response compact Frame | add "or One-to-many" | Accepted. |

## CIDs 56

Revise Line 26 of Page 86 as the following:

…transmission of the One-to-one or One-to-many Response Compact frame in units of ranging slots in the range 0 to 15.

xxx.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 57 | 86 | 27 | RpDuration shall be fixed for one-to-many MMS in order to avoid a shift of the subround | add, In One-to-Many MMS Ranging, the RpDuration field shall be keept and the number of UWB MMS fragment transmissions of the ranging round shall be adjusted. | Revised |

## CIDs 57

This CID has been addressed in CID 46.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 277 | 111 | 6 | In the last comment resolution process, there was a discussion of a corner case that if multiple responders choose to transmit O2M response in the same ranging sub-round in a contention-based O2M ranging, and the initiator receives one of them, and because the responding O2M poll frame’s IRK only identifies the initiator, there could be multiple responders sending RSF fragments at the same time. It was concluded that the ranging procedure still works because the near responder’s first path and control/report message can be still be recognized by the initiator.   However, in the above corner case, the O2M initiator report compact frame still uses initiator’s IRK and the far responder who has transmitted RSF and failed ctrl/report messages, could think the initiator report is for itself and get wrong ranging result. | For one-to-many initiator report in a contention-based O2M ranging sub-round, the RPA hash should be calculated using the IRK of the responder winning the contention. | Revised. |

## CIDs 277

Discussion: Yes, it is necessary to provide a solution such that the Responders can figure out the NB Report message is for itself.

Make the following changes in 10.38.9.15:

|  |  |  |  |
| --- | --- | --- | --- |
| Octets: 3 | 1 | Variable | 2 |
| Responder RPA Hash | Message Control | Message Content | FCS |

The Responder RPA Hash shall be calculated as specified in 10.38.9.2.1 using the responder’s IRK respectively.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 584 | 104 | 7 | The slot index fields are limited to 8-bits because of the security, but here they are sent as 16-bit fields. | Change Start and End Slot Index fields to be one octet long. |  |
| 590 | 107 | 1 | The slot index fields are limited to 8-bits because of the security, but here they are sent as 16-bit fields. | Change Start and End Slot Index fields to be one octet long. |  |
| 593 | 108 | 1 | The slot index fields are limited to 8-bits because of the security, but here they are sent as 16-bit fields. | Change Start Slot Index field to be one octet long. |  |
| 594 | 108 | 5 | The slot index fields are limited to 8-bits because of the security, but here they are described as 16-bit fields. | Change Start Slot Index field to be one octet long. |  |

## CIDs 584, 590, 593, 594

Discussion: Propose to expand the field size of Slot Index in Figure 3 of page 30 to 2 octets.

Notes to Editor: it is necessary to check the whole document whether other places need such change.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 1166 | 67 | 21 | Clause 10.38.8 is covering Procedures for one-to-many MMS ranging, and I am wondering the content from 10.38.4 to 10.38.7 shou be combined under a single umbrella of "Procedures for one-to-one MMS ranging" | Consider whether this makes sense to help the read/user better understand the standard, and if so provide instructions to the editor to guide which parts would be appropriate to a common general section, and which parts should be made one-to-one case specific. | Accepted. |

## CIDs 1166

Editor will make the changes.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page** | **Line** | **Comment** | **Proposed Change** | **Proposed resolution** |
| 1178 | 71 | 25 | This sentence says the channel switching occurs per ranging block. Is this the case that irrespective of how many active ranging rounds, or sub-rounds there are (e.g., there might be quite a few transmissions from initiator in the one-to many cases), that the swich only occurs before the next ranging block, | Consider one-to-many and hyper-block cases and clearly specify what switching is appropriate, and especially for any regulatory domains where such hopping is required. (another reason for higher layer to be in control of this). | Revised. |

## CIDs 1178

Discussion: the channel switch follows the same rules for one-to-one ranging, which is per-block based.

Add the following text at the end of 10.38.8.1:

In terms of channel switching, one-to-many ranging follows the same mechanism as described in 10.38.7.4.