IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 802.11  [LB253 CR for various comments by TGaz]  (relative to P802.11az/D3.0) | | | | |
| Date: 2021-07-12 | | | | |
| Author(s): | | | | |
| Name | Company | Address | Phone | Email |
| Jonathan Segev | Intel Corporation | 2200 Mission College Blvd |  | jonathan.segev@intel.com |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**Abstract**

This submission contains proposals to resolve LB#253 CIDs 5431, 5265, 5308, 5206, 5208, 5173, 5366, 5389, 5390, 5448 (10 CIDs total).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 5431 | 30.7 | 6.3.56.1 | "In Figures 6-17b (Fine timing measurement primitives and timestamps capture for Non-TB Ranging measurement exchange) and 6-17c (Fine timing measurement primitives and timestamps capture for TB Ranging measurement exchange), t2  and t4 correspond to the point in time at which the incoming HE TB Ranging NDP and/or HE Ranging NDP arrives at the receive antenna connector. The points where the timestamps are captured are therefore not shown for the Non-TB and TB Measurement Exchanges." The Figures need to show the respective time points of t1, t2, t3 and t4, which are the time when the NDPs arrive or depart the antenna, same as the Figure for EDCA based ranging measurement exchange. | Modify Figure 6-17b and 6-17c to indicate that t1, t2, t3 and t4 are the time when the NDPs arrive or depart antenna. | **Reject** Clause 6 describes the MLME SAP interface, the times t1, t2 etc. are measured over NDP frames which are PHY entities and are transparent to the MAC, the results are transferred in the MAC management messages (LMR) which are shown in the figure, this is unlike the REVmc FTM. |
| 5265 | 35.14 | 6.3.56.4.3 | Not sure if the Note is correct or even needed. | This note most likely is not correct -- the MLME at the other end is the one that responds to the Location Poll Trigger frame (not the local MLME). In addition, the intent of this note is expressed in the next clause 6.3.56.4.4 Effect of receipt. Delete this note. | **Accept** |
| 5380 | 57.3 | 9.4.2.21.10 | There is confusion on the value of N\_Tx\_Sel -- zero based or one based numbering. This is because the "indication" and "encoding" are jumbled. Separate meaning from encoding. The format figures describe only format and should not include other information | Remove the bracketed N\_Tx\_Sel in Figure 9-256c. Change the size of the last field in 9-256b to "variable" and change the name of the field to "Antenna Placement And Calibration List". Change the paragraph at 56.28 to read: "The format of the Antenna Information field is defined in Figure 9-256c. The Number Of Selected Antennas" field indicates the total number of antennas selected, N\_Tx\_Sel, and is set to N\_Tx\_Sel - 1."  Change Figure 9-256d to so that it illustrates settings for 1 antenna.  Insert a new sentence at 57.6: "The Antenna Placement And Calibration List field consists of N\_Tx\_Sel Antenna Placement And Calibration fields."  If the antenna number has meaning then define the field order. | **Revise**  The relevant text in D3.1 was modify to clarify the field value equals the actual number of selected antennas -1 .  TGaz editor - no further change needed. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 5206 | 175.14 | 11.21.6.4.6 | "The TXOP\_DURATION parameter is set to either 127 or a value defined in Equation (27-2)" - the link is incomplete or missing | Clarify | **Revised**.  This is a duplicate of 5208.  The link to Eq. 27-3 is not missing, as equation 27-3 is an 802.11ax equation. However the correct reference to Tx OP duration is not eq. 27-3 but eq 26-3.  TGaz editor make change identified in <https://mentor.ieee.org/802.11/dcn/21/11-21-1139-02-00az-lb253-july-tg-cr-accompany-to-1084.docx>  below. |
| 5208 | 175.14 | 11.21.6.4.6 | "The TXOP\_DURATION parameter is set to either 127 or a value defined in Equation (27-2)" - the link is incomplete or missing | Clarify | **Revised**.  This is a duplicate of 5208.  The link to Eq. 27-3 is not missing, as equation 27-3 is an 802.11ax equation. However the correct reference to Tx OP duration is not eq. 27-3 but eq 26-3.  TGaz editor make change identified in <https://mentor.ieee.org/802.11/dcn/21/11-21-1139-02-00az-lb253-july-tg-cr-accompany-to-1084.docx>  below. |

**Resolution:**

**TGaz editor delete lines of D.3.0 P115L.27 to 31. (note to editor: highlighted yellow for ease of identification in some of the changes below)**

The TXOP\_DURATION parameter is set to either 127 or a value defined in Equation ( 26 - 3), replacing DHE\_NDPA by DRanging\_NDP\_Announcement which is the value of the Duration/ID field in the MAC header of the preceding Ranging NDP Announcement frame

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 5173 | 59.2 | 9.4.2.26 | Table 9-153 - I2R LMR Feedback Policy, this is not really complete. There are really three cases, I) the AP does not support I2R reporting, II) the AP requires I2R reporting, III) the AP supports I2R reporting, but does not require it. I suggest adding a second bit. | Change to two separate bits "I2R LMR Supported - A STA sets the I2R LMR Supported field to 1 if dot11ISTA2RSTALMR Supported is true" and "I2R LMR Required - A STA sets the I2R LMR Supported field to 1 if dot11ISTA2RSTALMR Required is true"; accordingly replace dot11 ISTA2RSTALMRFeedbackPolicy with dot11 ISTA2RSTALMRSupported and dot11 ISTA2RSTALMRRequired | Reject. The I2R LMR Feedback Policy is not the complete RSTA's I2R LMR policy , additional information may be provided by additional bits but this information will again not be complete. The TG considered the different options and a single indication of policy behaviour was provided. |
| 5366 | 115.27 | 11.21.6.1 | The first to paragraphs a this location look out-of-place with respect to earlier text in this sub-clause | Move the two paragraphs at the cited location into their own sub-clause, called "FTM timestamp derivation" | **Revise**. Agree in principle with the commenter, 11.21.6.1 is the overview section of the FTM, as such describes the purpose and high level behaviour of the FTM while the requirements derived from P.115L.27 are low level ones dealing with TOA.  Furthermore under measurement exchange, the requirement is identical to all PHYs and measurement exchange sequences (EDCA, TB, NTB, 60GHz). TGaz make changes identified in <https://mentor.ieee.org/802.11/dcn/21/11-21-1139-02-00az-lb253-july-tg-cr-accompany-to-1084.docx> below. |

**Resolution:**

TGaz editor delete lines of D.3.0 P115L.27 to 31.

TGaz editor change 11.21.6.4 D3.0 P.136 L. and insert the deleted text of P115L.27 to end of 11.21.6.4 as shown below:

**11.21.6.4 Measurement exchange**

*Insert the following subclauses in 11.21.6.4 as shown below:*

11.21.6.4.1 FTM measurement exchange overview

FTM measurement has three basic ranging mechanisms:

— EDCA based ranging described in 11.21.6.4.2 (EDCA based ranging measurement exchange)

— TB Ranging described in 11.21.6.4.3 (TB Ranging measurement exchange), and 11.21.6.4.8 (Measurement exchange in Passive TB Ranging mode)

— Non-TB Ranging described in 11.21.6.4.4 (Non-TB Ranging measurement exchange)

For the measurement of RTT the FTM measurement exchange sequences make use of TOA and TOD measurements of a local FTM timestamps. The frequency of the clock for the FTM timestamps shall be derived from the same reference oscillator as the transmit center frequency and the symbol clock frequency. (#3279)

NOTE – The transmit center frequency and symbol clock frequency are derived from the same reference oscillator, as per the specifications for the different PHYs. (#3279)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 5389 | 115.10 | 11.21.6.4.4.3 | The meaning of range in this context is not clear. Also the distinction between range and relative range is not clear. Clarification needed. | Maybe: "determine the absolute distance between the STA and another STA, determine the relative distance between the STA and two or more other STAs, or determine direction of another STA" | Revise.  TGaz editor make changes identified in <https://mentor.ieee.org/802.11/dcn/21/11-21-1139-02-00az-lb253-july-tg-cr-accompany-to-1084.docx>  below. |

**Resolution:**

TGaz editor make changes below to D.3.0 P115L.10 as follows:

“The FTM procedure allows a STA to determine its range (#1699), relative range and its direction to or from another STA using Time Of Flight (TOF), time difference of arrival and phase measurement. In order for a STA to obtain its location, the STA may perform this procedure with multiple STAs whose locations are known.”

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 5390 | 115.27 | 11.21.6.1 | Is it the frequency of the clock (a numerical value) or is it the clock itself that is derived from the reference oscillator? Needs clarification. | Change to: "The FTM timestamp shall be derived from the same reference oscillator as that used to derive the transmit center frequency and symbol clock frequency of a transmitted PPDU." | **Reject**.  The comment does not identify a problem but ask a question in seek of information. The comment fails to identify ambiguity in the text.  The original text: “The frequency of the clock for the FTM timestamps shall be derived from the same reference oscillator as…” seems accurate and concise.  Never the less as courtesy to the commenter the requirement correlates between frequency of the clock for timestamp and frequency of the baseband oscillator such that the TOA (and resulting RTT) can be estimated based on this correlation. |
| 5448 | 122.10 | 11.21.6.2 | "A STA in which either dot11NonTriggedBasedRangingRespImplemented is true or dot11TriggerBasedRangingRespImplemented is true shall set the I2R LMR Feedback Policy field of the Extended Capabilities element to 1 if dot11I2RLMRFeedbackPolicy is true. The STA shall set the I2R LMR Feedback Policy field of the Extended Capabilities element to 0 if dot11 ISTA2RSTALMRFeedbackPolicy is false." The text in red refers to the same MIB variable, but use two different terms. | Please use "dot11 ISTA2RSTALMRFeedbackPolicy" for this MIB variable throughout the 11az spec. | **Revise.**  P802.11az D3.1 already made some fixes .  TGaz editor: replace all occurrences of ISTA2RSTALMRFeedbackPolicy with dot11I2RLMRFeedbackPolicy. (D3.1 P.124L.13 and P.265L.29 ). |