IEEE P802.11  
Wireless LANs

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| 802.11  [LB249 CR for Various Comments]  (relative to P802.11az/D2.4) | | | | |
| Date: 2020-11-02 | | | | |
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**Abstract**

This submission contains proposals to resolve LB#249 CIDs 3375, 3885, 3995, 4008, 3106, 3276, 3282, 3411, 3412, 3424, 3921, 3122, 3128, 3134, 3442, 3578, 3579, 3828 (18 CIDs total).

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3375 | 27.20 | 6.3.56 | Figure 6-17 is missing from the spec, though it was not changed it needs be included, otherwise we get sections immediately after and before and no editor instructions indicating the missing figure. Note that the figure can be obtained from REVmd in a visio format - no redraw needed. | embed missing figure 6-17 of REVmd. | **Accept**. |
| 3885 | 45.18 | 9.3.1.22.1 | remove HE Ranging NDP as it is not valid for TB packets (table 9-31h ul target rssi encoding) | as in comment | **Reject**.  Refer to discussion in submission 11-20-1719? |

**Discussion**: (CID 3885)

The comment refer to the UL Target RSSI field which is used in TB operation to manage Tx power by the STAs. The comment indicates the HE Ranging NDP is not a valid response to a TF of type Ranging subtype Sounding subvariant, however the field is also used by the Passive TB Sounding subvariant.

The response to a Passive TB Sounding subvariant is an HE Ranging NDP.

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3995 | 54.6 | 9.4.2.21.10 | The instruction is not correct. The descriptions for Relative Compact LCI and Antenna Placement and Calibration should be added at the end of this subclause. | Change the instruction to read "Insert the following new paragraphs at the end of this subclause." Delete the pararaph starting from pp.ll 54.07. Delete the NOTE starting from pp.ll 55.11. Underline all the remaining paragraphs and figures starting from pp.ll 55.14. | **Accept.**  Note to TGaz editor (not part of the resolution): the change as identified by the proposed change was incorporated in D2.4. No further action needed. |

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 4008 | 101.2 | 10.23.2.8 | The instruction is not correct. | "Change the instruction to read ""Change the 1st paragraph as follows:"". Delete line 3 and insert instead the following: | Revised.  TGaz editor make changes as depicted below in document 11-20-1719r? to reflect the REVmd and P802.11ax latest baseline drafts. |

**Discussion:**

The commenter is correct, this is the result of baseline clause text from REVmd with changes from 11ax.

The editor instructions were insufficient because they only reflected REVmd as baseline text.

The below does not change the REVmd/11ax or 11az text and incorporates the new 11az sentence into the 11ax modified text of the clause.

**Resolution:**

**TGaz editor make the following changes (to REVmd and P802.11ax baseline text):**

***Change the 1st paragraph as follows:***

A frame exchange, in the context of multiple frame transmission in an EDCA TXOP, may be one of the following:

— A frame not requiring immediate acknowledgment (such as a group addressed frame or a frame

transmitted with an ack policy that does not require immediate acknowledgment) or an A-MPDU containing only such frames

— A frame requiring immediate acknowledgment (such as an individually addressed frame transmitted

with an ack policy that requires immediate acknowledgment) or an A-MPDU containing at least one

such frame, followed after SIFS by a corresponding acknowledgment frame

— A triggering frame or an A-MPDU containing at least one such frame, followed after SIFS by an HE

TB PPDU where the HE TB PPDU is optionally followed after SIFS by an acknowledgment

— Either

— a VHT NDP Announcement frame followed after SIFS by a VHT NDP followed after SIFS by a

PPDU containing one or more VHT Compressed Beamforming frames, or

— a Beamforming Report Poll frame followed after SIFS by a PPDU containing one or more VHT

Compressed Beamforming frames

— an HE NDP Announcement frame followed after SIFS by an HE sounding NDP followed after

SIFS by a PPDU containing one or more HE Compressed Beamforming/CQI frames, or

— a broadcast HE NDP Announcement frame followed after SIFS by an HE sounding NDP

followed after SIFS by a BFRP Trigger frame followed by HE TB PPDUs, or

— a BFRP Trigger frame followed after SIFS by an HE TB PPDU containing one or more HE

Compressed Beamforming/CQI frames

— a Ranging NDP Announcement frame followed after SIFS by an HE NDP followed after 11 SIFS by an HE NDP followed after SIFS by an LMR frame. (#1953)

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3106 | 76.4 | Figure 9-1007 | Need to also add "BSS Color" to the Non-TB specific subelement and its associated normative text in section 11. BSS color is useful for SR operation even in the case of ranging measurement operation. | As per comment |  |

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3276 | 29.32 | 6.3.56.2 | Missing note to cover the MLME-FINETIMINGMSMT.request behavior for the Passive Location Ranging case. | Add missing note to cover the MLME-FINETIMINGMSMT.request behavior for the Passive Location Ranging case. | **Revised**.  Agree in principle with the commenter.  TGaz editor make changes as depicted in 11-20-1719r?. |

**Resolution:**

**TGaz editor make the following changes:**

**6.3.56.4.1 Function**

***Change the paragraph below:***

This primitive requests the transmission of a Fine Timing Measurement frame to a peer entity to initiate an EDCA based ranging measurement exchange(see [11.21.6.4.2](#H11o21o6o4o2) ), a TB Ranging measurement exchange (see [11.21.6.4.3](#H11o21o6o4o3)), a Non-TB Ranging measurement exchange(see [11.21.6.4.4](#H11o21o6o4o4)) or a Passive TB Ranging Measurement exchange (see 11.21.6.4.8) ; with the specified peer entity.

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3282 | 27.15 | 6.3.56.1 | A figure showing the SME-MLME and ISTA-RSTA exchanges for Passive TB ranging, and associasted text, is missing. | Add missing figure and text as pointed out in comment. |  |

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3411 | 196.20 | 26.5.2.5 | What does the RSTA set the SC required subfield to when one of the conditions is met? Does it set it to 0 or is it more complicated? Please clarify the required behavior. | As in the comment. | **Reject.**  The language used in the text for 11az is equivalent to that of the baseline text, making changes to 11az and leaving the text in 11ax will confuse the reader as to a different behavior of the baseline text.  Alternatively making changes to 11ax is out of scope of 11az.  Refer to further discussion below in 11-20-1719r?.  The required behavior from 11az is similar to that of 11ax of Basic, BSRP, MU-BAR, BQRP or GCR MU-BAR.  The main issue being that interference from other STAs will cause range estimation error due to the increased noise. |

**Discussion**:

The comment discuss the virtual CS developed by **11ax in 26.5.2.5** UL U CS Mechanism.

Part of the mechanism is the definition of when CS Required subfiled is set to “1” (11ax D7.0):

“An AP that transmits a Basic, BSRP, MU-BAR, BQRP or GCR MU-BAR Trigger frame shall set the CS

Required subfield to 1 unless one of the following conditions is met:

— The RA of the Trigger frame is an individually addressed non-AP STA’s MAC address and a QoS

Data frame with HETP Ack ack policy and/or a Management frame that solicits an acknowledgment

are aggregated with the Trigger frame in an A-MPDU, and the UL Length subfield in the Common

Info field of the Trigger frame is less than or equal to 418.

— The Trigger frame is either an MU-BAR or GCR MU-BAR Trigger frame and the UL Length subfield

in the Common Info field of the Trigger frame is less than or equal to 418.

— The UL Length subfield in the Common Info field of the Trigger frame is less than or equal to 76.”

**11az D2.4** uses equivalent language:

“An RSTA that transmits a Ranging Trigger frame shall set the CS Required subfield to 1 unless one of the following conditions is met:

– The Ranging Trigger frame is of subvariant Poll, Sounding, Secure Sounding or Passive TB Sounding.

– The Ranging Trigger frame is of subvariant Report and the UL Length subfield in the Common Info field of the Trigger frame is less than or equal to 418 (#1366, #4019). “

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3412 | 196.28 | 26.15.2 | The edit to 26.15.2 PPDU format selection is not clear that it is modifying the final paragraph in the section. Also, the base line text says and "An HE STA should", shouldn't this be "An HE STA shall"? If not why is it a should? | Clarify the editing instructions so it is clear what paragraph is being edited.  Replace the ""should"" with a shall, or provide an explanation as to why is should be a ""should""." | **Revised.**  Agree with the comment regarding editing instruction.  Regarding the use of the term “Should” vs. “Shall”, this is baseline text, changing to a Shall will make STA deployed in the field non compliant. The Should statement puts the burden on the receiving STA to identify which of the two formats (VHT ACK or non HT Duplicate ACK) is used and perform the TOA measurement estimation accordingly.  TGaz Editor, make changes identified below in submission 11-20-1719r?. |

**Resolution**:

**26.15.2 PPDU format selection**

***Change the last paragraph in 26.15.2 PPDU format selection as follows:***

During an EDCA FTM session, an HE STA should send an Ack frame in the same PPDU format as the soliciting PPDU when the soliciting PPDU is #a VHT PPDU or HT PPDU containing an FTM frame. It shall also send the Ack frame in the HE SU PPDU format when the soliciting PPDU is an HE SU PPDU containing an FTM frame; see [26.17.2](#H26o17o2) (HE BSS operation in the 6 GHz band)).

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3424 | 22.24 | 4.3.9 | EDCA based ranging is not a good name since all the medium access of various ranging rpotocols (FTM, TB ranging, bob-TB ranging) are EDCA based method. | Change EDCA based ranging to one of FTM ranging, non-NDP ranging. | **Reject.**  The group discussed multiple name options, eventually for baseline (legacy) measurement exchange decided to use EDCA Based ranging, TB Measurement Exchange and Non-TB Measurement Exchange. No other options that balances unique properties of the measurement exchange operation (TF, RD and EDCA) vs. readability were identified. |
| 3921 | None | None | The unintentional beamforming places a void in the secure LTF for MIMO mode. | None | Rejected.  This is an invalid comment.  It fails to locate and identify a change in sufficient detail so that specific wording of the change can be determined. |

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3122 | 145.27 | 11.22.6.4.4.2 | Change "any AC" to "BE AC" in the sentence "An ISTA may use any AC to transmit the Ranging NDP Announcement frame." As it doesn't seem urgent for ISTA to use high priority ACs. The drawback of using high priority ACs is potentially an impact on network with high priority traffics such as VoIP. | As per comment | Reject.  The comment refers to the transmission of the Ranging NDP announcement frame, the timing of which dependent on the service.  The service may be high or low priority, for example use case may use the ranging service for augmented reality, for asset tracking or for indoor navigation. Each of the aforementioned usages have different latency and priority associated to it.  Thus depending on the service parameters the AC might be high (AC\_VO) or low (AC\_BE). The standard needs to support abroad set of usages. |
| 3128 | 205 | 27.3.17c | It is not clear if spec should indicate the Ntx in Secure R2I NDP to be the same for all users even if Nsts between users are different. | Add as a NOTE that Ntx can stay the same during secure R2I NDP transmissions while Qmatrix is used to de-select Nsts i.e., hence Ntx | ???  Group discussion needed. |
| 3134 | 73 | 23 | "set to 0 to indicate that the first path reporting in the ISTA2RSTA LMR" - what about first path Reproting - something is missing in this sentence. | "set to 0 to indicate that the first path reporting in the ISTA2RSTA LMR" - what about first path Reproting - something is missing in this sentence. | Reject.  Reporting refers to noun not verb.  There are two types of TOA reporting  First path Reporting and Phase Shift Reporting.  The value 0 refers to First path TOA Reporting.  TGaz editor make changes identified in 11-20-1719r? below. |

**Discussion**: (3134):

For reference the text from D2.5 is provided, the reference to reporting is a noun, not a vervb.

“The R2I TOA Type subfield is set to 1 in the IFTMR frame to set the TOA feedback type in the RSTA2ISTA LMR to phase shift which corresponds to the average linear phase across the subcarriers. Otherwise, the R2I TOA Type subfield is set to 0 and the RSTA2ISTA LMR TOA feedback type will be first path reporting. The R2I TOA Type subfield is set to 1 in the initial Fine Timing Measurement frame to indicate that the RSTA estimates TOA using phase shift; and set to 0 to indicate that the RSTA estimates TOA using first path reporting”

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3442 | 74.26 | 9.4.2.296 | In the initial Fine Timing Measurement frame the Immediate I2R Feedback should be reserved. | change the text per the comment. | **Reject.**  The comment fails to locate and identify an issue.  The setting of the I2R Feedback is detailed in the spec.  To the commenter:  it is advantageous to keep the current behavior as it allows the assignment to be parsed as a whole and not dependent on a bit setting in a previous message. That way the complete assignment from RSTA can be considered as one and there is no ambiguity as to the assignment made. Making the bit reserved does not provide benefit in terms of BW or more efficient message size. |
| 3578 |  |  | There are various references to types of session being "Trigger-Based, non-Trigger-Based or Fine Timing Measurement session", but these types of session are not defined anywhere. Also, surely a vanilla/legacy FTM session is a non-TB session? | As it says in the comment | **Revised**  Agree in principle with the commenter.  TGaz editor make changes as depicted in 11-20-1719r? . |

**Resolution:**

**Revise.**

TGaz editor make changes as depicted below to D2.5 P.121 as follows:

Prior to initiating a Fine Timing Measurement Procedure Negotiation for a Trigger-Based measurement exchange , non-Trigger-Based measurement exchange or a Fine Timing Measurement session using a Format And Bandwidth field value that indicates DMG or EDMG format, see Table 9-282 (Format And Bandwidth subfield) (#3572), with an RSTA if the RSTA has the Protection of Range Negotiation and Measurement Management Frames Required field in the RSNXE to 1, an ISTA shall establish a security context with the RSTA. (#3940) An ISTA initiating a Fine Timing Measurement Procedure Negotiation for a Trigger-Based measurement exchange, non-Trigger-Based measurement exchange or a Fine Timing Measurement session using a Format And Bandwidth field value that indicates DMG or EDMG format; see Table 9-282 (Format And Bandwidth subfield), with an RSTA if the RSTA has the Protection of Range Negotiation and Measurement Management Frames Required field in the RSNXE to 0 may establish a security context with the RSTA based on its operating policy setting. (#3940)

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| **CID** | **Page/**  **Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3579 | 117.7 | 11.22.6.3.2 | "the BSS operation BW ." not defined (and spurious space) | Change to "the BSS bandwidth" | Accept. |
| 3828 | 74.13 | 9.4.2.296 | "The Immediate R2I Feedback and Immediate I2R Feedback subfields are each one bit wide. The" is duplication of the figure | Change to "For the Immediate R2I Feedback and Immediate I2R Feedback subfields," | Revised.  Agree with the commenter, changes were made to D2.5 to remove this redundancy and the sentence does not include statement of the field width anymore. |