IEEE P802.11
Wireless LANs

|  |
| --- |
| 802.11[LB249 CR for Various Comments](relative to P802.11az/D2.4) |
| Date: 2020-10-27 |
| 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#249 CIDs 3375, 3885, 3995, 4008, 3106, 3276, 3282, 3411, 3412, 3424, 3921 (11 CIDs total).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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. |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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). “

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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)).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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 |   |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3365 | 35.19 | 6.3.38 | It is possible that multiple outstanding service requests exists for FTM service from upper layer, the STA needs to aggregate and generate a single service request to its peer. | Add MLME SAP support to enable a STA to aggregate multiple service request and generate a single FTM session to RSTA | Reject.The commenter withdrew the comment and will bring it at a later re-circulation ballot. |
| 3451 | 28.3 | 6.3.56.1 | Rename 6-17b and 6-17c to not include timestamp capture, since that is not done in this exchange (it's done on the NDP exchange). | Delete "and timestamps capture" from the titles of Figure 6-17b and Figure 6-17c. | Revise.TGaz editor make the following changes:1. change figure 6-17b title to:“Fine Timing Measurement primitives and timestamp reporting capture for Non-TB Ranging measurement exchange”2. Change figure 6-17c title to:“Fine Timing Measurement primitives and timestamps reporting capture for TBRanging measurement exchange” |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3477 | 19 | N/A | Not clear what the amendment is based on. 19.9 says "IEEE P802.11REVmd(TM)/D2.0, as amended by IEEE 9P802.11ax(TM)/D4.0, and IEEE P802.11ay(TM)/D4.0" but 1.2 says "IEEE P802.11REVmd(TM)/D3.0,IEEE P802.11ax(TM)/D6.0 IEEE P802.11ay(TM)/D5.0and IEEE P802.11ba(TM)/D5.0" | As it says in the comment | Revised TGaz editor make changes as depicted in 11-20-1437 below. |

**Discussion**:

This is a style issue and is not touching on the actual content of the document.

The commenter is correct however that the word template is out of style.

**Resolution:**

**Revise.**

TGaz editor make changes as depicted below to P.19 D2.3 as follows:

Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

Amendment 4: Enhancements for positioning

This amendment is based on IEEE P802.11REVmd™/D5.0, as amended by IEEE P802.11ax™/D2.4, IEEE P802.11ay™/D6.0, and IEEE P802.11ba™/D7.0

NOTE—The editing instructions contained in this amendment defines how to merge the material contained therein into the existing base standard and its amendments to form the comprehensive standard.

The editing instructions are shown in ***bold italic***. Four editing instructions are used: change, delete, insert, and replace. ***Change*** is used to make corrections in existing text or tables. The editing instruction specifies the location of the change and describes what is being changed by using strikethrough (to remove old material) and underscore (to add new material). ***Delete*** removes existing material. ***Insert*** adds new material without disturbing the existing material. Insertions may require renumbering. If so, renumbering instructions are given in the editing instruction. ***Replace*** is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one. Editing instructions, change markings, and this NOTE will not be carried over into future editions because the changes will be incorporated into the base standard.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3482 | 21.14 |  | "non-TB" does not need to be defined; its meaning is obvious | Delete the "non-TB" line | RejectTB may be a documented acronym for 11ax, however non-TB operation in the context of 11az is a noun meaning operation of specific nature it is not simply an FTM that does not use TF or Trigger Based operation. |
| 3529 |  |  | Change tracking seems dodgy. Here 11md/D3.0 says "being available at the beginning of the burst instance determined by the responding STA" but the unmodified text shown is "being available at the scheduled time window(s) for executing the ranging measurement exchange(s).." (also note double full stop) | Ensure change tracking is accurate throughout. If material is not shown as changed it will probably (a) not be reviewed and (b) not be incorporated by TGm | Revise.This is a style issue and as such outside the scope of the ballot.The editor instruction is replace the REVmd subclause not modify it, hence underline is not appropriate. There are couple of lines at the end of the clause that has underline and should be removed. |

**Resolution:**

TGaz editor remove “word underline” from the following sentences:

The FTM procedure provides mechanisms as described in 11.22.6.1.1 (EDCA based ranging and TB ranging overview) and 11.22.6.1.2 (Non-TB Ranging overview) to ensure that the ISTA is available to execute the ranging measurement exchange as scheduled.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3570 | 115.28 | 11.22.6.3.1 | Not clear what is new text and what is existing (possibly moved) text | As it says in the comment | **Reject**The commenter failed to identify an error in the draft, is asking for information.The editor instruction are clear to insert a new subclause heading and move text. The new subclause heading is identified as new text.“***Insert a new subclause heading 11.22.6.3.1 and move the first two and the fourth paragraph (along with the note) of 11.22.6.3 to 11.22.6.3.1”*** |
| 3643 | 126.25 | 11.22.6.3.6 | Why can't I request all four things, for example? | Add a row with Y in each cell | **Revise/Reject?** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3826 | None | None | Some comments on D1.0 were rejected on the basis that "The issue is no longer exist in D 1.5" or similar. If that's the case, then they should have been REVISED, with an explanation of the change that was made, since they were clearly valid on D1.0, which was what the ballot was on. Do not do the same thing again now with D2.0 | As it says in the comment | Reject.The comment does not identify any specific issue with the draft nor responding to the question of the ballot. To the commenter: in at least some cases moving from D1.0 to later draft complete clauses were re-written to not allow identification of the issue in the minor draft. Since changes were unable to be made it would be inappropriate to give it a revise. |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3850 | 55.28 | 9.4.2.21.10 | " the Number of Antenna subfield" -- no such subfield | Change to " the Number of Selected Antennas subfield" | **Revised**Agree in principle with the commenter. TGaz editor make changes identified in 11-20-1437 below. |

**Resolution:**

**TGaz editor make the following changes to D2.3 P.56 L.26**

The Antenna Information field is formatted as shown in Figure 9-256c (Antenna Information field format), where the Number of Selected Antenna subfield indicates NTx\_sel, the total number of the antennas selected for transmission.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3851 | 55.28 | 9.4.2.21.10 | "indicates N Tx\_sel" -- N Tx\_sel is not used anwyhere | Delete "N Tx\_sel," | **Revised – volunteer?**  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3851 | 55.28 | 9.4.2.21.10 | "indicates N Tx\_sel" -- N Tx\_sel is not used anwyhere | Delete "N Tx\_sel," | **Revised – volunteer?**  |
| 3852 | 55.28 | 9.4.2.21.10 | "indicates N Tx\_sel" -- the encoding is not clear (without further clarification it would only be able to encode 0 to 3 antennas) | Change "the total number of the antennas selected for transmission" to "the total number of antennas selected for transmission minus one" | **Revise/Accept?** |

**Discussion**:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3864 | 196.20 | 26.5.2.5 | "unless 20one of the following conditions is met:." -- suggests if both met then doesn't apply. Also spurious full stop | Change to "if none of the following conditions is met:" | **Reject**.The condition is that one of the following conditions is met and NOT “one *and only one”* of conditions.11az amendment changes the 11ax amendment which uses the same language for the CS required subfield, for consistency better to leave the same language as to not create ambiguity as to the intent.See discussion below.Recommend resolving the issue if any in TGax first and then percolate into later amendments.  |

**Discussion**:

11ax D7.0 P.383 L.45:

“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”

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3889 | 76.3 | 9.4.2.296 | In Figure 9-1007 immediate LMR feedback field is not required because Immediate R2I and I2R feedback is already included in Ranging parameters fields so need to include here | as in comment | RevisedSee also CID 3231.D2.3 removed the immediate LMR feedback field (B16) and made it reserved. Immediate R2IFeedback and Immediate I2RFeedback are part of the Ranging parameters field B22 and B23. TGaz editor no further action needed. |
| 3898 | 58.1 | 9.4.2.26 | Table 9-153, the note for the entry "AoA Measurements Available" does not link this entry to a STA capable of the TB or NTB operation, although the entry is only applicable to a STA that supports TB or NTB ranging. | Modify the note so that the entry is only applicable to a STA that supports TB or NTB ranging. |  |

**Discussion**:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3108 | 88.5 | Figure 9-1029 | The definition for "Passive TB Ranging Measurement Report Table" is missing from the text in this section. | If it is not needed then delete it from the frame format. | Reject/ReviseRedraw |

**Discussion**:

**Resolution:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Page/****Line** | **Clause** | **Comment** | **Proposed change** | **Resolution** |
| 3236 | 120.13 | 11.22.6.3.3 | "An RSTA shall reject a request, unless the request is for Passive TB Ranging, if it has set the" - why is it any different for passive TB Ranging? If there is no PASN negotiated can't use secured, also why would any of this apply to passive? | Remove subclause "unless the request is for Passive TB Ranging" to keep text concise | **Reject**. The “Protection of Range Negotiation” is used for so called “Active Ranging” not for passive ranging (DTOA). As such an AP STA may request STAs to establish “active ranging” only if secured whereas the passive ranging may still be unsecured. In general making the negotiation of passive ranging secure will not help, because there is still the possibility to impersonate the AP to STA measurement announcement in the unassociated mode, and anyway if non-STAs need to establish security context will turn the “independent of number of locating STAs” to dependent.  |
| 3238 | 121.11 | 11.22.6.3.3 | Re-raising CID 1413 of LB240, some implementations do not need repetition for secure LTF processing, as receiver implementation is not scope of this standard, not allowing a value of zero (meaning no repetition) as a valid value unnecessarily assumes certain implmenatation choices | Remove this paragraph, ISTA and RSTA can each request the number of repetitions that they see approriate for their secure LTF processing | **Revised / Reject**Redraw?Agree in principal with commenter.See discussion below.TGaz editor make changes as  |

**Discussion:**

Agree to the point the commenter is making, there could be multiple techniques to identify

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 3239 | 122.2 | 11.22.6.3.3 | Relates to CID 1413 of LB240, again there is no need to require a minimum of 1 for the Max I2R rep, also Max R2I Rep should not necessarily set to the same value as requested by the ISTA, what if the ISTA wants at least 2 repetitions, preferably 3? If it sets to 3, but the RSTA only supports 2, then the negotiation will fail. This seems inefficient | Remove this paragraph. | Reject/ReviseRedraw |

**Discussion**:

**Resolution:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 3270 | None provided | None provided | Follow-up to CID 2176: there should be something stating that "if it is delayed feedback, you'll never get the last measurement" | As it says in the comment | Resolution: Reject. See discussion in 11-20-1257 below.  |

**Discussion**:

It is true that in delayed reporting the last measurement is not reported, however there is no action (observable Shall or May statement) on ISTA or RSTA that needs to happen as a result.

It is simply a property of the message exchange flow.

There are many other properties the spec doesn’t specify which individuals may care for, specifying some will yield the question on why not others and will result in no better observable part.

**Resolution:**

Rejected.