IEEE P802.11
Wireless LANs

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| 802.11[LB240 CR for Various Unassigned Comments P.2](relative to P802.11az/D1.5 ) |
| Date: 2018-10-29 |
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**Abstract**

This submission contains proposals to resolve LB#240 CIDs 1155, 1156, 1245, 1246, 1365, 1480, 1557, 1772, 1773, 1779, 1809, 1891, 1895, 2132, 2254, 2464, 2465 and 2466.

1015 1109 1454 1456 1546 1571 2019 2025 2259 2315 2325 2397 2399 2406 2408 2409 2412 2427 2429

Comments:

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 1155 | 96 | 11.22.6.3.3 | The text describes UL and DL Rep field usage however not specific as to the AP behaviour for MU UL NDP and shared DL NDP. | Add a note or a sentence to indicate that AP should/shall select a UL Rep that is common for all STAs in MU UL NDP transmission and similarly for DL Rep common as a shared DL NDP (non secure). | Revised. section 11.22.6.3.3 refers to negotiation section not to measurement exchange in the MU part.Section 11.22.6.4.3.3 in D1.5 was modified to include specific reference to AP allowed range assignment, refer to D1.5 P.133 L.26-31 where different STA may have different repetition values. It is implementation specific for RSTA receiver to select between uniform repetition and differentiated repetition across UL participating ISTAs. No further action needed for editor. |
| 1156 | 98.11 | 11.22.6.3.3 | The RTT equation is based on ISTA's calculation. | Add a similar equation for the case when ISTA sends t1 and t4 and RSTA calculates RTT (RTT = [(t4'-t1') - (t3-t2)]. This could be added as part of the text in page 101 between line 10 and 11. | Revise.Agree in principal with commenter, equivalent clarification required for the NTB case as well.TGaz editor make changes depicted by 11-19-1812 as shown below. |

***TGaz Editor: Modify the subclause 11.22.6.4.3.3 P.135 L.1 (D1.5) as follows:***

The Round-Trip Time (RTT) observed by ISTA is defined as

RTTISTA = [(t4-t1) – (t3’-t2’)]

where t3’ and t2’ are the time at which the R2I NDP was transmitted and the time at which the I2R NDP was received, respectively, as converted by the ISTA from the RSTA’s time basis to its own time basis.

The mechanism by which the ISTA derives t3’ and t2’ from the ToD and TOA fields of the relevant LMR (see 9.6.7.37) are implementation dependent.

The Round-Trip Time (RTT) observed by RSTA is defined as

RTTRSTA = [(t4’-t1’) – (t3-t2)]

where t1’ and t4’ are the time at which the I2R NDP was transmitted and the time at which the R2I NDP was received, respectively, as converted by the RSTA from the ISTA’s time basis to its own time basis. RSTA shall consider the CFO as reported in the CFO Parameter field in I2R LMR.

The mechanism by which the RSTA derives t4’ and t1’ from the ToD and TOA fields of the relevant LMR (see 9.6.7.37**)** are implementation dependent. (#1156)

Note:

Refer to subclause 27.3.14.3 Pre-correction accuracy requirements for carrier frequency offset (CFO) correction requirement for HE TB PPDU transmission.

***TGaz Editor: Modify the subclause 11.22.6.4.4.2 P.141 L.14 (D1.5) as follows:***

The Round-Trip Time (RTTISTA) based on first path reporting is defined as:

RTTISTA = [(t4-t1) – (t3’-t2’)]

where t3’ and t2’ are the time at which the R2I NDP was transmitted and the time at which the I2R NDP was received, respectively, as converted by the ISTA from the RSTA’s time basis to its own time basis.

The mechanism by which the ISTA derives t3’ and t2’ from the TOD and TOA fields of the relevant LMR are implementation dependent.

The Round-Trip Time (RTTRSTA) based on first path reporting is defined as:

RTTRSTA = [(t4’-t1’) – (t3-t2)]

where t1 and t4 are the time at which the I2R NDP was transmitted and the time at which the R2I NDP was received, respectively, as converted by the RSTA from the ISTA’s time basis to its own time basis.

The mechanism by which the RSTA derives t1’ and t4’ from the TOD and TOA fields of the relevant LMR are implementation dependent.

The TOA field is a timestamp that represents the time, with respect to a time base, at which the start of the preamble of the corresponding NDP frame (#**2774**) arrived at the receive antenna connector. The TOD field contains a timestamp that represents the time, with respect to the same time base, at which the start of the preamble of the corresponding NDP frame appeared at the transmit antenna connector. (#**1160**, #**1161**)

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 1245 | 86.18 | 11.22.6.3.2 | "For EDMG ranging, the ISTA...." this text is replicating the text in page 84 L 16 | remove this paragraph. | Accept.Note to editor: duplicate text was removed from the D1.5 no further action needed. |
| 1246 | 87.01 | 11.22.6.3.3 | "the HEz specific subelement" - this has been renamed the TB specific subelement | Replace with "the TB specific subelelment" | Accept.D1.5 was modified to remove the use of HEz specific subelement. Refer to D1.5 P.116 L.9Note to editor: no further action needed. |
| 1365 | 84.19 | 11.22.6.3.2 | There is an improper reference to a non-existent table | There is a reference to a table x.1 in line 19 (which does not exist-I'm assuming that was a placeholder). I think the proper reference is Table 9.281.c in clause 9.4.2.167. There are 4 tables in that clause. Make sure you have the correct reference. | Revised.Agree with the commenter.Modification made to draft to refer to table 9-281b. Refer to D1.5 P.113 L.36. |

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 1480 | 88.26 | 11.22.6.3.3 | Which frame sets the Secure LTF Required subfield as 1 ? | Clarify | Reject.This is invalid comment, it seeks information and fails to identify any flaw or a problem with the spec, it does not propose any fix. As curtesy to commenter: the Secure LTF mode is requested by the ISTA and assigned by the RSTA based on the request in the Secure LTF Required subfield.  |
| 1557 | 88.30 | 11.22.6.3.3 | The option to feed back phase shift based TOAs should apply also to the Passive Location Ranging case. The description for this is missing. | Add specification that an ISTA and an RSTA may negotiate a phase shift feedback mode of the Passive Location Ranging protocol. | Rejected.The TG reviewed proposals to add phase shift based TOA to passive ranging and failed to reach a consensus. |
| 1772 | 84.17 | 11.22.6.3.2 | The ranging priority field does not have any normative behaviour and it is unclear how devices use such information. What does it mean that request is accommodated? Is this just an empty promise? | Clarify how the ranging priority is used, i.e. if 911 safety ranging or high priority ranging is indicated, then what kind of service these high priority ranging operations will get. | Rejected. This is an invalid comment.Fails to identify changes in sufficient detail so that the specific wording of the changes can be determined. Specifically, the ranging priority is not used for NTB because the originating STA is responsible for the triggering a measurement based on medium access rules and for the TB case all STAs are polled each round as agreed. The way an RSTA considers that is implementation dependent. E.g. consider the bit as part of admission control. |

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 1773 | 86.18 | 11.22.6.3.2 | The ranging priority field does not have any normative behaviour and it is unclear how devices use such information. What does it mean that request is accomodated? Is this just an empty promise? | Clarify how the ranging priority is used or delete the field. | Reject.The use of this field is implementation dependent by the RSTA, it may be used for admission control and it may be used for indication to higher layers. As a result there is no normative text because there is no normative behavior.  |
| 1779 | 87.06 | 11.22.6.3.3 | The count field should indicate the total number of availability bits or fields, it should not indicate time. | Please clarify the paragraph and especially count field meaning. | Reject.Section 9 deals with frame formats, section 11 refers to normative behavior as a result of this format.Section 9 specify what the comment is seeking:“The Count subfield in the ISTA Availability Information field indicates the total number of 7 Availability bits in this field.” D1.5 P. 67 L.7Section 11 derives off that format the meaning to the timing of the ISTA i.e. normative behaviour as a result of that. |
| 1809 | 83.08 | 11.22.6.3.1 | Incorrect sub-clause name. | The Sub-Clause name is "General" but should be "Range Measurement Negotiation". | Reject.These are WG TE instructions, 11.22.6.3.1 is a new section which is the general of the FTM negotiation, it explains the negotiations rule for all measurement exchange methods.  |

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| 1891 | 86.31 | 11.22.6.3.3 | The negotiation of NDP ranging through MU is not necessary. | Delete it from the spec. | Reject.There is no reference to negotiation of NDP ranging through MU in this section.The comment fails to identify any flaw or a problem with the spec, it does not propose any fix in a meaningful or sufficient manner.  |
| 1895 | 102.26 | 1.22.6.4.4 | Only UL NDP should be mentioned here since both of them indicate same BW. | As in comment | Revise.Agree with the commenter, in an NTB the NDPA set the transmit allocation for the RSTA and it’s the ISTA responsibility that the NDPA and I2R NDP matches in BW. The RSTA responsibility is to make sure that the R2I NDP matches that of the NDPA.TGaz editor make the changes identified below in 11-19-1812. |

***TGaz Editor: Modify the subclause 11.22.6.4.4.2 P.140 L.13 (D1.5) as follows:***

In the non-TB measurement exchange sequence, the ISTA shall transmit the NDPA frame with the same bandwidth as the I2R NDP to reserve the medium (#1829), set I2R Rep and R2I Rep subfields of the STA Info field to a value in the range of 0 to RSTA assigned I2R rep and 0 to RSTA assigned R2I rep respectively; the RSTA shall transmit the R2I NDP with the same bandwidth as the NDPA, while the LMR can be transmitted at a different bandwidth, according to the rules of multiple frame transmission in an EDCA TXOP (see 10.22.2.7), i.e., not exceeding the bandwidth of the NDPA, I2R NDP and R2I NDP. The allowed bandwidths for the NDPA I2R NDP and R2I NDP frames are specified in the Format and Bandwidth subfield of the Ranging Parameters field (see 9.4.2.279). (#1895)

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 2132 | 49.01 | 11.22.6.3.1 | [Re-raising this comment from the comment collection, as it is not possible to determine from 18/1544r8 whether/how it was addressed. References are to the CC draft and hence may be wrong against D1.0.]"FTM parameters element" | "Fine Timing Measurement Parameters" element | Reject.This is an invalid comment.It fails to locate and identify the issue. Fails to identify changes in sufficient detail so that the specific wording of the changes can be determined. |
| 2254 | 87.06 | 11.22.6.3.3 | Whis is there a restriction "Availability Window element shall be a multiple of the Beacon Interval of the RSTA in units of 10 TUs." - what if the Beacon interval is not a multiple of 10 Tus | Remove the restriction | Reject.Beacon intervals are in TUs which is part of the reason for selecting the TU as base for the availability window time base. Refer to baseline text below:“9.4.1.3 Beacon Interval fieldThe Beacon Interval field represents the number of time units (TUs) between target beacon transmissiontimes (TBTTs).” |
| 2464 | 86.18 | 11.22.6.3.2 | Correct Table x1 to a right reference. Seems to be Table 9-281c? | As in comment. | Revise.Agree with commenter in principal, in draft D1.5 the correct reference is table 9-281c for ranging priority in EDMG Ranging Priority subfield.TGaz editor make change identified in submission 11-19-1812 as shown below.  |

***TGaz Editor: Modify the subclause 11.22.6.4.4.2 P.140 L.13 (D1.5) as follows:***

**11.22.6.3.2 Negotiation for EDCA based ranging measurement exchange**

**…**

For EDCA based ranging where the value of the corresponding Format and Bandwidth subfield is in the range 31 through 41 (inclusive), the initiating STA shall indicate, in the Ranging Priority subfield of the Fine Timing Measurement Parameters field of the Fine Timing Measurement Parameters element in the initial Fine Timing Measurement Request frame, its ranging priority according to Table 9-281c Definition of EDMG Ranging Priority Subfield in subclause 9.4.2.167. (#2464)

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 2465 | 84.23 | 11.22.6.3.2 | Should Table 9-281b be Table 9-281d? Check and correct if necessary. | As in comment. | Revised.Agree with commenter.TGaz editor make changes identified in submission 11-19-1812 below. |

***TGaz Editor: Modify the subclause 11.22.6.4.4.2 P.140 L.13 (D1.5) as follows:***

**11.22.6.3.2 Negotiation for EDCA based ranging measurement exchange**

**…**

The responding STA shall indicate, in the Ranging Priority subfield of the Fine Timing Measurement Parameters field of the Fine Timing Measurement Parameters element in the initial Fine Timing Measurement frame, whether it accommodates the Ranging Priority request transmitted by the in initiating STA according to Table 9-281c (Definition of the EDMG Ranging Priority subfield when included in the 17 initial Fine Timing Measurement Request frame) in subclause 9.4.2.167.

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 2466 | 86.18 | 11.22.6.3.2 | Seems to be repeating the part starting from pp.ll 84.16. Delete it | As in comment. | Revised.Agree with commenter.Section 11.22.6.3.2 is EDCA based FTM negotiation (including EDMG which the functionality is relevant for). The previous occurrence of the same functionality is in D1.0 P.84 L.17 is the redundant one as it relates not only to EDMG but also to HT/VHT…. Legacy mode FTM which now becomes none compliant if left. TGaz Editor make the changes identified below in submission 11-19-1812. |

***TGaz Editor: Modify the subclause 11.22.6.3.2 P.113 L. 34 (D1.5) as follows:***

**11.22.6.3.2 Negotiation for EDCA based ranging measurement exchange**

**…**

If the request was successful

— The responding STA shall indicate, in the Format and Bandwidth field, a format and bandwidth that it supports. The responding STA should indicate the same format and bandwidth in the Format and Bandwidth field as that requested by the initiating STA, if the responding STA supports this. The responding STA shall not indicate a bandwidth wider than requested. The responding STA shall not indicate a VHT format if DMG, HT- mixed or non-HT format was requested. The responding STA shall not indicate an HT format if DMG or non-HT format was requested. The responding STA shall not indicate a DMG format if VHT, HT-mixed or non-HT format was requested. The responding STA shall indicate EDCA-based HE format only if EDCA-based HE was requested (see 26.17.2) and the STA is operating in the 6 GHz band; otherwise the STA shall not indicate EDCA-based HE format.

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 1015 | 86.18 | 6.3.56.2.4 | States the MLME returns an error to the SME if there is no active FTM session. Clarify what type of "error" and details on what conditions | Clarify as commented | Revised. |

***TGaz Editor: Modify the subclause 11.22.6.3.2 P.113 L. 34 (D1.5) as follows:***