IEEE P802.11  
Wireless LANs

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| 802.11  [LB249 CR for Various Comments without clause number]  (relative to P802.11az/D2.0) | | | | |
| Date: 2020-01-28 | | | | |
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**Abstract**

This submission contains proposals to resolve LB#249 CIDs 3862, 3878, 3892, 3854, 3855, 3489, 3511, 3533, 3535, 3566, 3592, 3630, 3708,3709.

Comments:

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 3862 | P. 111  L. 4 | 11.22.6.1.2 | "availability window instance " is not defined | Change to "availability window" | Revised.  TGaz editor make the changes identified by submission 11-20-0159 below. |

**Discussion:**

The referred text is a descriptive text of a figure which is illustrative and not normative for NTB operation and window scheduling.

“The initiating STA in Figure 11-35a (Non-TB ranging concurrent FTM sessions), establishes sessions with RSTA 1 and RSTA 2 on different channels. Scheduling of each availability window instance is determined by the timing of the previous measurement instance with the 1 corresponding RSTA. The constraints for an ISTA to initiate the Non-TB Ranging measurement 2 exchange with each RSTA may be different. The RSTAs shall remain available within the entire 3 availability window instance for the ISTA to initiate the Non-TB Ranging measurement exchange. “

The term “availability window” in the context of NTB is defined in 11.22.6.1.1where:

“In Non-TB ranging measurement exchange the ISTA determines the measurement timing, based on its scheduling conflicts with other activities and the parameters of the availability window which is a time window referenced to the previous measurement instance”.

However to the last definition as the measurement window changes from frame to frame the definition should be to a window instance.

**TGaz Editor: Modify the subclause 11.22.6.1.2 Non-TB Ranging Overview P.110 L.13 (D2.0) as follows:**

In Non-TB ranging measurement exchange the ISTA determines the measurement timing, based

on its scheduling conflicts with other activities and the availability window (#3862) parameters to identify (#3862) the availability window instance (#3863) which is a time window referenced to the previous measurement instance. During this measurement time window the ISTA may come to the channel at any time and use contention

based access to initiate a new measurement exchange. Because of conflict arising due to other

activities, ISTA does not start measurement at start of availability window while the RSTA waits

for the start of measurement exchange. Dotted region in Figure 11-35a indicates that the Non-TB

Ranging measurement exchange phase does not always (#1999) start at the beginning of the time

window since the ISTA may have been active on another channel.

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 3878 | P.120L.21 | 1 1.22.6.3.3 | RSID and AID space shall be non-conflicting instead of 'The RSID 21 and the AID are derived the same ID number space and are non-conflicting' | Suggest to mandate. | Reject.  The sentence conveys that both the allocation domain and values are from the same space. Limiting to only non conflicting may be interpreted that a different range space is possible which is not desirable. |
| 3892 | P.46  L.2 | 9.3.1.22.10 | ", and the size of this field is one octet" is duplication, as is ", and the size of this field is two octets" at line 10. Also "The CFO parameter field is a signed value of length 2 octets." at 97.4 | Delete the cited text | Revised.  TGaz editor make the changes identified by submission 11-20-0159 below. |

**Discussion:**

802.11 style guide indicates that in the case of frame/element formats, which are given in a figure and thus normative, the size of the element can be provided in the figure and thus does needs not specifically identified in the immediate accompanying text. However this is not the case for the 2nd quoted parameter “CFO parameter field” which appears on a different page and for text readability purposes the size of the field is given.

**TGaz Editor: Modify the subclause 9.3.1.22.10 P.46 L.2 (D2.0) as follows:**

**9.3.1.22.10 Ranging Trigger variant** (#1707)

The Trigger Subtype field value in the Trigger Dependent Common Info field of the Ranging Trigger frame (Table 9-25k Ranging Trigger subtype field encoding) signals Ranging Trigger 22 frame subvariants (#1391, #1939). The format of the Trigger Dependent Common Info field of Ranging Trigger frame of subvariant Poll, Sounding, Secure Sounding and Report is shown in Figure 9-61d.x.

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 3854 | P.76  L.25 | 9.4.2.296 | "The Element ID and Length fields are defined in 9.4.3 (Subelements). " -- no Element ID field in a subelement | Change to "The Subelement ID and Length fields are defined in 9.4.3 (Subelements). " | Revised.  TGaz editor make changes identified in submission 11-20-0159 below. |

**TGaz Editor: Modify the subclause 9.4.2.296 P.76 L.25 (D2.0) as follows:**

**9.4.2.296 Ranging Parameters element**

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The format of the TB Specific subelement is as shown in Figure 9-1008 (TB Specific subelement format)

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|  |  |  | |  | |  |  |  |  |
|  | Subelement ID (1) | Length | | Availability Window | | AID/RSID | Response | Trigger Frame Padding Duration | Passive TB Ranging |
| Bits: | 8 | 8 | | Variable | | 16 | 1 | 2 | 1 |  |
|  |  | |  | |
|  | Max Session Exp | | BSS Color Information | |
| Bits: | 4 | | 8 | |

1. Figure 9-1008—TB Specific subelement format (#1951, #1710)

The Subelement ID and Length fields are defined in 9.4.3 (Subelements).

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| CID | Page | Clause | Comment | Proposed change | Resolution |
| 3855 | P.79  L.11 | 9.4.2.297 | "The Secure LTF Counter (#2289) field (#1129) is present in the RSTA2ISTA (#1664) Location 11 Measurement Report frame and is reserved otherwise. " -- the field is always present, the only question is when it is reserved | Change to "The Secure LTF Counter (#2289) field (#1129) is reserved in frames other than the RSTA2ISTA (#1664) Location Measurement Report frame. ". At 79.17 change "This field is used in the Location Measurement Report frame transmitted from an RSTA and is reserved otherwise. " to "This field is reserved in frames other than a Location Measurement Report frame transmitted by an RSTA. " | Reject.  The are two options: first is the field exists but the value is invalid, the 2nd is the field does not exists. both practices are valid in IEEE 802.11 standard.  11az selected the latter by that allowing the bits on ISTA2RSTA LMR to be used for other purposes.  The statement |

**Discussion:**

The are two options for an unused set of bits:

1st is the field exists but the value is invalid.

2nd is the field does not exists.

11az selected the latter by that allowing the bits on ISTA2RSTA LMR to be used for other purposes.

Other cases of the same practice exists in REVmd (e.g. 160/80+80 BW field “In a TVHT STA, this field is reserved.” Operating mode field format”, User Position Array field “User Position subfield in the User Position Array field is reserved.”, Coverage Class field “The Coverage Class field is reserved”).

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| 3489 |  | 4.3.19.19 | It is not clear what "device" means | Change to "STA" in 4.3.19.19 Fine timing measurement, 11.22.6.4.2.1.1 General , 11.22.6.4.3.4 TB Ranging measurement reporting phase | Revised.  The commenter is correct, DMG device has 0 occurrences in REVmd and 11ay D5.0.  TGaz editor make the changes identified in 11-20-0159 below. |

**Discussion:**

**TGaz Editor: Modify the subclause 4.3.19.19 P.22 L.13 (D2.0) as follows:**

DMG and EDMG STAs can also estimate the direction of the transmission (Angle of 13 Departure) of frames transmitted to and reception (Angle of Arrival) of frames received from a 14 peer, allowing for estimating position using measurements obtained from frame exchanges with a 15 single peer (#1759, #1760, #1901, #2485, #2486, #2487, #2488).

**TGaz Editor: Modify the subclause 11.22.6.4.2.1.1 P.129 L.15 (D2.0) as follows:**

A PDMG/PEDMG ISTA/RSTA performs an FTM exchange that does not require AOA or AOD 9 measurements as defined in 11.22.6.4.1 (EDCA based ranging measurement exchange). To 10 perform an FTM exchange that does require AOD or AOD measurements, it follows the 11 procedure in 11.22.6.4.2.1.2 (PDMG/PEDMG AOA/AOD measurement exchange). In both 12 these cases, when the first path AWV setting is not used in the exchange, the trigger field shall be 13 set to 1 in the Fine timing Measurement Request that initiates the exchange. In both cases the 14 same AWV used for data transfer between the STAs shall be used for transmission and 15 reception of the preamble and data portion of the PPDUs. (#**1442**, #**2345**, #**2346**)

**TGaz Editor: Modify the subclause 11.22.6.4.3.4 P.144 L.10 (D2.0) as follows:**

In the secured mode of TB Ranging, a STA should discard ranging measurements when it 10 detects that the transmit center frequency offset (CFO) between the ISTA and the RSTA exceeds 11 the allowed tolerance from the values specified in 27.3.18.3 and 27.3.14.3.

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| 3511 | P.129  L.40 | 11.22.6.4.2.1.2 | Expressions like " Ack frames with PACKET-TYPE equal to TRN-T-PACKET " should refer to this being a \*VECTOR parameter | As it says in the comment | Rejected.  Commenter redrawn the comment. |
| 3533 |  | 3.4 | EDMG STAs are DMG STAs, right? | Delete "/EDMG" after "DMG" when not followed by \_ (8x) | Revised.  Duplicate of 3535  See discussion below. |
| 3535 |  | 3.4 | EDMG STAs are DMG STAs, right? | Delete the PEDMG definition in 3.4. Change "PEDMG" to "PDMG" when stand-alone; change "PDMG/PEDMG" to "PDMG" | Revised.  PDMG and PEDMG definitions were removed from the spec on an earlier version, some occurrences are leftovers. Refer to 11-19-1674 as well.  TGaz editor make the changes identified by 11-20-0159 below. |

**Discussion:**

**TGaz Editor: Modify the subclause 3.4 P.21 (D2.0) as follows:**

(#3533, #3535)(#3533, #3535)

**TGaz Editor: Modify the subclause P.90 (D2.0) as follows:**

The Neighbor DMG Request field is optionally present. If present it contains a Measurement Request Element with Measurement Type field equal to Neighboring DMG APs (see Table 9-100- Measurement type definitions for measurement requests). The element indicates a request for Neighbor Report Elements containing information about neighboring DMG/EDMG (#3533, #3535) APs supporting (#3533, #3535)location services. The Enable bit in the Measurement Request Mode field within the Measurement Request element is set to 0.

**TGaz Editor: Modify the subclause P.91 (D2.0) as follows:**

When the Trigger field is set to two, an EDMG (#3533, #3535) initiating STA initiates a (#3533, #3535) FTM measurement exchange using the first path AWV (see 11.22.6.4.7.1 (General)). When the Trigger field is set to 3, an EDMG (#3533, #3535) initiating STA indicates that the following FTM burst shall contain an LOS assessment measurement. If the FTM burst is performed over the first path AWV and shall contain an LOS assessment measurement, the Trigger field is set to 4. Trigger field values **(#1226)** ~~2~~5–255 are reserved.

**TGaz Editor: Modify the subclause P.108 (D2.0) as follows:**

If available to the sending AP, the Neighbor Report element shall include a TSF subelement. The definition of which APs are neighboring APs is implementation dependent. If the AP sending is collocated with an EDMG/DMG AP that is location capable, the collocated EDMG/DMG AP should be included in the list (#3533, #3535).

**TGaz Editor: Modify the subclause P.126 (D2.0) as follows:**

The RSTA should respond within 10 milliseconds from the initial Fine Timing Measurement request with an initial Fine Timing Measurement frame with a Fine Timing Measurement Parameters element with a DMG (#3533, #3535) Direction Measurement Parameters subelement. The requested AOA/AOD I2R/R2I parameters in the initial Fine Timing Measurement shall be the same as those requested in the initial Fine Timing Measurement request.

**TGaz Editor: Modify 28.9.3.5 P.217 as follows:**

28.9.3.5 TRN field definition with Secure TRN subfields

The Secure TRN subfields enable secure ranging measurements by an EDMG STA.

**TGaz Editor: Modify 28.9.3.5.1 P.217 as follows:**

1. Table 28-1000—EDMG-A Header fields setting for secure EDMG (#3533, #3535) TRNs (#1173, #2383)

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| **Header Field** | **Value** |
| Packet Type | 1 |
| EDMG Beam Tracking Request | 0 |
| EDMG TRN Length | 1 |
| RX TRN-Units per Each TX TRN-Unit | 0 |
| EDMG TRN-Unit P | 0 |
| EDMG TRN-Unit M | 3 |
| EDMG TRN-Unit N | 3 |
| TRN Subfield Sequence Length | 0 |

**TGaz Editor: Modify 28.9.3.6 P.217 as follows:**

28.9.3.6 Secure TRN subfield definition for EDMG secure ranging PPDU

An EDMG secure ranging PPDU transmission over a 2.16GHz, 4.32 GHz, 6.48 GHz, and 8.64 GHz channel is defined at the NCB×1.76 GHz chip rate. The symbol blocking structure for the normal GI is as shown in Figure 28-200. An EDMG STA that support secure EDMG TRN shall support the TRN field structure with normal GI as shown in Figure 28-200. (#**1175**, #**1176**)

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| 3566 |  |  | Use of "either X or Y" is ambiguous as to whether it is exclusive or inclusive | Delete "either" throughout in "either X or Y" constructs | Rejected.  REVmd includes 832 occurrences of the structure either X or Y, 11ax includes 165 instances of the same structure.  As a result this is a standard practice for 802.11, if the commenter believe this should be fixed, the recommendation is to take it at the TGm (maintenance TG). |
| 3592 |  |  | 11ax/D6.0 shows some FTM-related changes (about the format of PPDUs containing acks to FTM frames). These should be handled in 11az, since they are in scope of 11az and are not in scope of 11ax | Copy the material from P802.11ax/D6.0 related to FTM (a comment on P802.11ax/D6.0 is requesting that material be deleted from there) | Rejected. This is a repetition of the same comment made to an earlier draft of 11ax. Comment was rejected. TGaz has no authority over activity of 11ax. It is recommended for the commenter to take the issue with TGax. |
| 3630 |  |  | If the thing being measured for legacy FTM is called "RTT" then so should what is measured for the new ToF-based mechanisms | Change "ToF" to "RTT" throughout | Revised.  Agree with commenter the 11az draft uses the terms interchangeably.  Refer to discussion depicted in submission11-20-0159 below.  TGaz editor replace all occurances of TOF with RTT. |

**Discussion:**

RTT is defined by eq. 11-5 which is limited to EDCA based FTM.

RTT has 13 occurrences in D2.0, 6 in REVmd D3 while TOF has 0 occurrences in REVmd D3.0 and 46 in 11az D2.0.

The use of TOF is made in sections dealing with TB, NTB and passive sections interchangeably with RTT.

It would be advisable to use a single term.

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| 3708 |  |  | There are references to "Trigger Poll frame" but these are not defined | Delete the cited text in 6.3.56.1 General, 9.3.1.19 VHT/HE/Ranging NDP Announcement frame format (2x), 9.3.1.22.10 Ranging Trigger variant (#1707) (3x), 11.22.6.4.3.3 Measurement Sounding Phase of TB Ranging (#2158) (2x) | Revised.  Agree in principal, refer to discussion below.  TGaz editor, make changes identified below. |

**Discussion:**

P802.11az defines a Trigger frame of variant ranging sub-variant poll in section 11.22.6.4.3.2

“The Ranging Trigger frame of subvariant Poll is called the TF Ranging Poll”

The Term Trigger Poll frame should be replaced with TF Ranging Poll.

**Resolution:**

**TGaz Editor replace all occurrences of ‘Trigger Poll frame’ with TF Ranging Poll (total of 7).**

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| 3709 |  |  | There's a "Sounding Dialog Token Number" field and a "sounding dialog token counter" but neither of these actually get used on reception for anything | As it says in the comment | Reject.  This is a field that is part of 802.11ac and 802.11ax NDPA frame, commenter should review those amendments for the full descriptive behavior of use of the field.  For the benefit of the commenter refer also to discussion in submission 11-20-0159 below. |

**Discussion:**

The NDPA frame is a control frame used as part of the sounding mechanism of 11ac, 11ax and 11az.

The NDPA frame includes a field named Sounding Dialog Token which is used by 11ac VHT NDP Announcement frame and in 11ax HE NDP Announcement frame.

The ISTA use of the Sounding Dialog Token and matching of that to measurement is described in P.145 L28-30 of D2.0.

“The ISTA maintains a sounding dialog token counter modulo 64 for each RSTA corresponding to a Non-TB Ranging session. The value in the counter is filled in the Sounding Dialog Token 29 Number subfield in its transmitted Ranging NDP Announcement frame. 30”.

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| 3716 |  |  | |  |  | | --- | --- | | There's lots of talk of allocating resources, but it's not always clear what this really means | When it just means "schedule for UL MU", say that; when it just means "transmit to using DL MU", say that (see e.g. sentence at 143.19) | | When it just means "schedule for UL MU", say that; when it just means "transmit to using DL MU", say that (see e.g. sentence at 143.19) | Reject.??  This is an invalid comment, see further discussion below. |

**Discussion:**

This is an invalid comment, it fails to identify a specific problem in a meaningful way, it is not possible to understand what specific issue (page, line) is identified, the comment just requires the CRC to “do some work”.

The comment provides an example but this example seems to be reasonably understandable for those familiar with 802.11ax amendment.

**“**This TF shall allocate uplink resources to ISTAs that negotiated ISTA2RSTA LMR and were allocated resources in the preceding measurement 20 sounding phase. 21”

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| 3758 |  |  | You don't need to say which sublayer issues the primitive since it's known from the primitive (e.g. PHY-blah.request is always from the MAC) | Just say the STA issues the primitive in 11.22.6.4.2.1.6 Secure measurement exchange for EDMG STAs, 11.22.6.4.6.1 Secure Non-TB ranging mode, 11.22.6.4.6.2 TB Ranging measurement exchange for Secure LTF | Reject.  See discussion below. |

**Discussion:**

The comment refers to section 11.22.6.4.6.1 which have the following sentence:

“After transmitting a EDMG secure ranging PPDU, a STAs MAC sublayer issues a PHY-19 RXTRNSEQUENCE.request with a TRNVECTOR parameter that provides the TRN sequence 20 associated with the Dialog Token Counter.”

The proposal by the comment is to replace the “a STA’s MAC sublayer issues a PHY-RXTRNSEQUENCE” with “a STA issues a PHY-RXTRNSEQUENCE”, it is not a technical comment because it does not have a meaningful impact on an implementation. Furthermore, in REVmd there are 1434 references to the MAC entity and similar approach of specifiying both originator and terminator of primitives is made in REVmd (refer to SME and MAC e.g. P395 L.28 D.3.0 of REVmd “This primitive is generated by the SME to reset the MAC to initial conditions..” (195 instances).