IEEE P802.11
Wireless LANs

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| 802.11[LB249 CR for Various Comments](relative to P802.11az/D2.0) |
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**Abstract**

This submission contains proposals to resolve LB#249 CIDs 3094, 3095, 3212, 3618, 3630, 3708, 3709, 3716, 3758, 3762, 3764, 3825, 3829, 3844, 3854, 3855, 3860, 3862, 3863, 3867, 3878, 3941 (22 CIDs total).

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| 3094 | P.225 | B.4.37.1 | The use of "DMG/EDMG" is incorrect. Any EDMG device is also a DMG device since DMG includes EDMG. Meaning that if it should apply to both DMG and EDMG it is enough to specify DMG! (Note that a DMG which is not supporting EDMG is named non-EDMG).Section: B.4.37.1 | Replace DMG/EDMG with DMG.3 times | Reject.EDMG operation is defined under PICS section of 802.11ay, DMG operation is defined under REVmd. In the context of 11az the two operation modes are not the same as some functionality is only available for EDMG and not for DMG. There are 41 occurrences of EDMG operation under 11ay.  |
| 3095 | P.225 | B.4.37.1 | Reference to non existing PICS EDMG-M17.7(Maybe it should be 16.7 ?)Section: B.4.37.1 | Fix 4 times | Resolution: RevisedAgree in principle with commenter.TGaz editor make changes depicted by document 11-20-1189 as shown below. |
| 3212 | P.225 | B.4.37.1 | Fix the reference (paragraph number) of rows NGPM5, NGPM5.1, NGPM5.2, NGPM5.3, NGPM5.4, NGPM5.5, NGPM5.6, NGPM5.7, NGPM5.8, NGPM6 as the text has been move to a new location | replace sublcause number with the correct ones | Resolution: RevisedAgree in principle with commenter, some of the references already fixed as part of D2.2TGaz editor make changes depicted by document 11-20-1189 as shown below. |
| 3941 | P.225 | Annex B | All references to the items related to NGPM5 and NGPM6 are wrong | Provide accurate references | Resolution: RevisedAgree in principle with commenter, some of the references already fixed as part of D2.2TGaz editor make changes depicted by document 11-20-1189 as shown below. |

**Discussion:**

CID 3095: The functionality referred to is the first path beamforming which is EDMG-M16.7 and not EDMG-M17.7. Corrections made to section ***NGPM5 EDMG/DMG operation accordingly.***

CID 3212: section 11.22.6.4.7 PEDMG/PEDMG measurement exchange of D1.0 was incorporated into section ***11.22.6.4.2.1 DMG measurement exchange***,changes below reflect this.

**Resolution:**

**Revised.**

**TGaz Editor make changes identified below to P802.11az D2.2 P225:**

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| NGPM5 | EDMG/DMG operation |  11.22.6.4.2.1 (DMG measurement exchange)(# 3095, 3212, 3941) | O | Yes  No  N/A  |
| NGPM5.1 | EDMG/DMG Direction Measurement as ISTA | [11.22.6.4.2.1.2](#H11o22o6o4o2o1o2) (DMG/PEDGM AOA/AOD measurement exchange) )(# 3095, 3212, 3941) | CFISTA: O | Yes  No  N/A  |
| NGPM5.2 | EDMG/DMG Direction Measurement as RSTA | [11.22.6.4.2.1.2](#H11o22o6o4o2o1o2) (DMG/PEDGM AOA/AOD measurement exchange) )(# 3095, 3212, 3941) | CFRSTA: O | Yes  No  N/A  |
| NGPM5.3 | EDMG FTM measurement with First Arrival Path as ISTA | [11.22.6.4.2.1.5](#H11o22o6o4o2o1o5) (First Path AWV for EDCA based ranging measurement exchange) )(# 3095, 3212, 3941) | (CFISTA and EMDG-M16.7): M | Yes  No  N/A  |
| NGPM5.4 | EDMG FTM measurement with First Arrival Path as RSTA | [11.22.6.4.2.1.5](#H11o22o6o4o2o1o5) (First Path AWV for EDCA based ranging measurement exchange) | (CFRSTA and EMDG-M16.7): M | Yes  No  N/A  |
| NGPM5.5 | EDMG Direction measurement with First Arrival Path as ISTA | [11.22.6.4.2.1.2](#H11o22o6o4o2o1o2) (DMG/PEDGM AOA/AOD measurement exchange) | (CFISTA and EMDG-M16.7): O | Yes  No  N/A  |
| NGPM5.6 | EDMG Direction Measurement with First Arrival Path as RSTA | [11.22.6.4.2.1.2](#H11o22o6o4o2o1o2) (DMG/PEDGM AOA/AOD measurement exchange) )(# 3095, 3212, 3941) | (CFRSTA and EMDG-M16.7): O | Yes  No  N/A  |
| NGPM5.7 | EDMG LOS Assessment as ISTA | [11.22.6.4.2.1.4](#H11o22o6o4o2o1o4) (DMG LOS assessment for EDCA based ranging measurement exchange) )(# 3095, 3212, 3941) | (CFISTA and EMDG-M16.7 and EDMG-M16.10):O (#**1085**, #**1098**) | Yes  No  N/A  |
| NGPM5.8 | EDMG LOS Assessment as RSTA | [11.22.6.4.2.1.4](#H11o22o6o4o2o1o4) (DMG LOS assessment for EDCA based ranging measurement exchange) )(# 3095, 3212, 3941) | (CFISTA and EMDG-M16.7 and EDMG-M16.10):O (#**1085**, #**1098**) | Yes  No  N/A  |

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| 3618 | P.123L.21 |  | "An ISTA and an RSTA may activate a secure LTF measurement exchange of the Non-TB 21ranging and TB Ranging measurement exchange for using randomized LTF sequences in an I2R 22NDP and a R2I NDP in which case, the ISTA and the RSTA follow the rules described in the 23subclause 11.22.6.4.6 (Non-TB and TB ranging measurement exchange for secure LTF). " is a bit confusing | Change to "An ISTA and an RSTA may activate a secure LTF measurement exchange for non-TB ranging and TB ranging that uses randomized LTF sequences in the I2RNDP and R2I NDP (see 11.22.6.4.6 (Non-TB and TB ranging measurement exchange for secure LTF))." | **Resolution**:RevisedAgree in principal with commenter, minor fixes to stale references of the proposed resolution were required.TGaz Editor please make the changes depicted in submission 11-20-1189 below. |

**Discussion:**

The 802.11 style guide calls for the use of active rather than passive voice.

**Resolution:**

**TGaz Editor: Modify the subclause 11.22.6.3.4 Negotiation for Secure LTF in the TB and Non-TB Ranging measurement exchange P.123 L.10 D2.2 as follows:**

An ISTA and an RSTA may activate a secure LTF measurement exchange for non-TB ranging and TB ranging that uses randomized LTF sequences in an I2R NDP and an R2I NDP refer to 11.22.6.4.6 (Secure Non-TB and TB Ranging Measurement Exchange Protocol). (#3618)

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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 | Rejected.REVmd as well as the 802.11 style guide does not make this requirement.As a result this is a preference choice. There are many examples of the opposite to the proposal existing in REVmd.In addition since this is an internal operation simply saying the STA generates it is incorrect because its non-observable at the STA level.  |
| 3762 | P.46L.2 |  | ", and the size of this fieldis 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.Agree in principle with commenter.D2.2 section 9.3.1.22.10 Ranging Trigger variant was revised, and the duplication was removed. TGaz editor no further changes to D2.2 needed. |
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| 3764 |  |  | It is confusing for LTF\_REP and LTF\_OFFSET to be both TXVECTOR and LTFVECTOR parameters | Call them different things in the LTFVECTOR | Resolution: Revised.TGaz editor make changes described in 11-20-1189 below. |

**Discussion:**

LTF\_REP is parameter describing the repetitions parameters of the NDP PPDU, and its included in both TXVECTOR and LTFVECTOR.

LTF\_REP is not part of RXVECTOR (refer to 198 last column).

However, depending on the prototype (TXVECTOR or LTFVECTOR) it serves different purposes.

The TXVECTOR is included in the PHY-TXSTART.request and is used by the MAC to configure the PHY for transmission.

The LTFVECTOR is included in the PHY-RXLTFSEQUENCE.request and is used by the MAC layer to configure the PHY to receive a NDP TB Ranging PPDU or NDP Ranging PPDU with the information included in the preceding NDPA or TF for reception of the NDP.

Bottom line, LTF\_REP is a parameter used to describe a property of the NDP TB Ranging PPDU and the NDP Ranging PPDU, and it is required by both the Tx and Rx actions, there should be no confusion because Rx and Tx are different actions of the MAC and PHY.

**Further discussion based on follow up feedback from commenter:**

*" but for rx I see “DL\_N’rep is the assigned number of R2I repetitions equal to the value set in LTF\_REP within the TXVECTOR and the RXVECTOR for the downlink”*.

Commenter is correct that p. 163 L.34 is referring to RXVECTOR instead of LTFVECTOR, need to replace RXVECTOR with LTFVECTOR.

**Resolution:**

Revised.

***TGaz Editor, make the following changes to P802.11az D2.2. P.163 L.24***

* DL\_NʹREP is the assigned number of R2I repetitions equal to the value set in LTF\_REP within the TXVECTOR for transmission and the LTFVECTOR for reception.
* UL\_NʹREP is the assigned number of I2R repetitions equal to the value set in LTF\_REP within the TXVECTOR for transmission and the LTFVECTOR for reception.

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| 3825 |  |  | It is not clear whether the things after "Note that" are normative or not | If they are informative (i.e. do not express normative behaviour that is not normatively stated elsewhere) change them to start "NOTE---". If they are in fact normative delete the "Note that " | Revised.See discussion in 11-20-1189.TGaz Editor, make the changes depicted by document 11-20-1189 identified below. |

**Discussion:**

There are 4 occurrences of “note that” in D2.2 of P802.11az, this language does not have similar occurrences in REVmd. The commenter is correct in describing the 802.11 style requirements for notes.

**Resolution:**

**TGaz Editor make the following changes to subclauses in P.32 L.4 D2.2as follows:**

6.3.56.2.3 When Generated

**Change the following paragraph as follows:**

This primitive is generated by the SME in the context of an active FTM Session to initiate a measurement exchange(#1766). If the FTM session is

— (#1238, #1241) EDCA based ranging measurement exchange (11.22.6.4.2): the SME generates this primitive to request that a Fine Timing Measurement frame be sent to a peer entity

— Non-TB Ranging measurement exchange (11.22.6.4.4): the SME generates this primitive to request that a Non-TB Ranging measurement exchange be initiated with the specified peer entity.

NOTE—

The sounding exchange initiation is constrained to the Min Time Between Measurements and Max Time Between Measurements thresholds that are defined when the corresponding FTM session was established. (#3825)

— TB Sounding Exchange (11.22.6.4.3): the SME generates this primitive to request that a TB Sounding Exchange be initiated with the specified peer entity.

NOTE—

This causes the MLME to respond to the Trigger frame with type set to Location and subtype set to Polling to the specified peer entity. (#1766)(#3825)

**TGaz Editor modify the subclauses in P.120 L.11 D2.2as follows:**

An RSTA shall reject a request, unless the request is for Passive TB Ranging, if it has set the Protection of Range Negotiation and Measurement Management Frames Required field of the Extended Capabilities element to 1, and the ISTA has not successfully set up a security context to protect IFTMR, IFTM and LMR frames exchanged between the RSTA and the ISTA.

NOTE—

The security context can either be established as a result of a successful association between the RSTA and ISTA; or as a result of the ISTA successfully completing PASN as described in 12.13 Pre-Association Security Negotiation.(#3591)(#3825)

**TGaz Editor modify the subclauses in P.192 L.1 D2.2as follows:**

PMK is the pairwise master key for the base AKM if the AKM is other than PASN AKM; see 9.4.2.24.3 (AKM Suites). Otherwise, if the base AKM is PASN AKM i.e. the PASN PTKSA is being setup without mutual authentication in a non-RSN, the PMK shall be set to the string “PMKz” padded with 28 0s.

NOTE—

The PMK for the derivation can come from a cached PMKSA for the AKM or from the PMKSA established with PASN by tunneling Wrapped Data or Authentication frames(#3825)