IEEE P802.11
Wireless LANs

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| CR for PHY related comments  |
| Date: 2019-08-19 |
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Abstract

This submission addresses the following LB240 CIDs: 2499, 1369, 1584, 1587, 1656, 1337, 2435, 2436.

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 2499 | 152 | 28.3.19a | Please specify the number of HE-LTF symbols when the TXVECTOR parameter LTF\_SEQUENCE is present. | as in the comment | RevisedTGaz editor makes changes as specified in 11-19/1438r0 for CID 2499.   |

*TGaz Editor: please revise the first paragraph on page 152 of section 28.3.19a HE Ranging NDP of 11az D1.0 as below:*

When the TXVECTOR parameter LTF\_SEQUENCE is not present, regular HE-LTFs as defined in Section 28.3.10.10 (HE-LTF) are used in the HE Ranging NDP. When the TXVECTOR parameter LTF\_SEQUENCE is present, the number of HE-LTF symbols is the product of the number of LTF repetitions LTF\_REP and the conventional number of HE-LTF, N\_HE-LTF, based on the number of space-time streams N\_STS, as defined in Table 4 21-13 (Number of VHT-LTFs required for different numbers of space-time streams). The construction of the HE-LTFs in an HE Ranging NDP is done by repeating the steps in Section 6 28.3.6.9 (Construction of HE-LTF) LTF\_REP times. If the TXVECTOR parameter LTF\_SEQUENCE is not present, neither is the TXVECTOR parameter NUM\_USERS, which is then assumed to be 1.

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 1369 | 153 | 28.3.17b | We should remove the 4us Packet Extension associated with the HE TB Ranging NDP. It seems inefficient use of the medium. | Remove the sentence "Has a Packet Extension (PE) field that is 4us in duration; when using Secure HE-LTFs with randomized LTF sequence, the PE will start with a zero-power GI." | RejectThe 4us Packet Extension field for the HE TB Ranging NDP can provide more time for the RSTA to process the TB NDP, also in the secured mode, the circular convolution between the channel and LTF symbols becomes linear convolution, and the Packet Extension field with zero-power GI is necessary for the RSTA to determine the end of packet and calculate the linear convolution without intersymbol interference, otherwise, the RSTA need to copy part of the signal outside the end of the packet for the linear convolution calculation purpose, which makes confusion about the end of the packet.   |

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 1584 | 153 | 9.3.1.23.9.5 | For passive location, do we want to support repetition of HE-LTF fields in UL NDP? If yes, then we need to define a UL Rep field in the User Info field of trigger frame of Passive Location Sounding subvariant to indicate the repletion of the HE-LTF field of HE ranging NDP. | may need some discussions. | RejectThis CID is similar to CID 1116, and in 11az draft 1.2, the CID 1116 has already been resolved and the resolution also resolves the CID 1584. The current spec is:The Ranging Trigger frame of Passive Location subvariant follows the definition of the Ranging Trigger frame of Sounding subvariant except that the RA field is set to the broadcast address and the UL Rep subfield signals the number of repetitions N\_REP of the HE LTF symbols in the corresponding HE Ranging NDP from the STA indicated in the AID12/RID12 subfield. |

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 1587 | 153 | 9.4.2.279 | For the transmission from RSTA to ISTA (or from ISTA to RSTA), sometimes we use RSTA-to-ISTA (or ISTA-to-RSTA), and sometimes we use R2I (or I2R), and maybe for the clarity of the spec, it's better to use a unique name. | as suggested in the comment | RevisedIt’s better to unify the abrrevations for the ISTA to RSTA and RSTA to ISTA for the better clarity and readability of the spec.  |

*TGaz Editor: please insert the following two rows at the end of section 3.4 Abbreviations and acronyms on page 6 of 11az draft 1.0.*

**I2R** ISTA to RSTA

**R2I** RSTA to ISTA

*TGaz Eidtor: please replace all the “ISTA-to-RSTA” in 11az draft 1.0 with “I2R” and replace all the “RSTA-to-ISTA” with “R2I”.*

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 1656 | 153 | 9.4.2.279 | Figure captions are not where descriptions are made. Descriptions belong in the specification text that may refer to figures when a picturial depiction is associated with the description. | Caption Figure 9-1011 as "Example of how a RSTA assigns an Availability Window to an ISTA"; and describe what the shaded region in the figure indicates in the description. | AcceptedTGaz editor makes changes as specified in 11-19/1438r0 for CID 1656. |

*TGaz Editor: please revise the caption of Figure 9-1011 on page on page 52 of 11az draft 1.0 as below.*

**Figure 9-1011. Example of how a RSTA assigns an Availability Window to an ISTA.**

*TGaz Editor: please revise the second paragraph on page 52 of 11az draft 1.0 as below.*

Figure 9-1009a, 9-1010 and 9-1011 together show an example of how an RSTA can assign an availability window from the received RSTA Availability Window element. Figure 9-1009a shows the bitmap in the ISTA Availability Information field of the ISTA Availability Window element included with an IFTMR. The bitmap has periodicity of 200 TUs and the RSTA Beacon Interval is 100 TUs. Figure 9-1010 shows how the RSTA calculates ISTA’s periodic availability from this bitmap relative to RSTA TSF. Finally, Figure 9-1011 shows how the RSTA constructs an availability window with requested periodicity of 200 TUs. The shaded region indicates the location of the assigned availability windows.

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 1337 | 153 | 28 | The changes introduced to the clause 28 HE PHY breaks many existing texts in HE PHY: for example HE LTF clause doesn't discuss the repetition, HE-SIGA # of LTF fields can not support more thatn 8 LTFs), equations (TXTIME), descrptions, plots.Suggest having an independent PHY clause on az | as in the comment | RejectPlease refer to the discussion in the submission 11/19-1438r0. |

**Discussion:**

Clause 28 defines the HE PHY format. In 11az repeated LTF fields in HE Ranging/TB Ranging NDPs are newly defined. Since the HE Ranging NDP is a variant of the HE SU PPDU and the HE TB Ranging NDP PPDU is a variant of the HE TB PPDU, it’s natural to keep the definition of the HE ranging NDP and HE TB Ranging NDP in the Clause 28.

For HE STA that doesn’t support 11az, the HE raning NDP and HE TB ranging NDP will not be supported. The HE ranging NDP may be decoded as a regular HE SU PPDU by the STA, but the receptiton of the HE ranging NDP frame will not be realizable.

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| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 2435 | 52 | 9.4.2.279 | It is hard to understand. Make the figure readable. Clarify where the description is pointing. Add detailed description in the body text to help understand the figure. | as in the comment | RevisedThe definitions of the figure is clear and accurate and it’s better to zoom in the figure for a better readability. The description text are revised for clarity. TGaz editor makes changes as specified in 11-19/1438r0 for CID 2435. |
| 2436 | 52 | 9.4.2.279 | It is hard to understand. Make the figure readable. Clarify where the description is pointing. Add detailed description in the body text to help understand the figure. | as in the comment | RevisedThe definitions of the figure is clear and accurate and it’s better to zoom in the figure for a better readability. The description text are revised for clarity. TGaz editor makes changes as specified in 11-19/1438r0 for CID 2436. |

Figure 9-1009a, 9-1010 and 9-1011 together show an example of how an RSTA can assign an availability window from the received ISTA’s Availability Window element. Figure 9-1009a shows the bitmap in the ISTA Availability Information field of the ISTA Availability Window element included with an IFTMR. The bitmap has periodicity of 200 TUs and the RSTA Beacon Interval is 100 TUs. Figure 9-1010 shows how the RSTA calculates ISTA’s periodic availability from this bitmap relative to RSTA TSF. Finally, Figure 9-1011 shows how the RSTA constructs an availability window with ISTA’s requested periodicity of 200 TUs and with window duration of 10TU. The RSTA’s Availaiblity Window element is included in the IFTM and the patial TSF timer in the RSTA’s Availability Information Field of the Availability Window element indicates the RSTA’s TSF timer at the start of first availability window. The shaded region indicates the location of the assigned availability windows.