IEEE P802.11Wireless LANs

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| Proposed Resolutions for CID 7211, 7212 and 7217 of 11az SAB1  |
| Date: 2022-04-26 |
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Abstract

This submission proposes the resolutions to 11az SA1 CID 7211,7212 and 7217.

The page and line numbers refer to those in 11az Draft 4.1 [1].

**Introduction**

This submission proposes the resolutions to 11az SAB1 CID 7211, 7212 and 7217.

The page and line numbers refer to those in 11az Draft 4.1 [1].

**Comments:**

**CID 7211 and 7212**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page/Line | Clause | Comment | Proposed change | Resolution |
| 7211 | 236/15 | 27.3.18a.1 | Should clarify that pre-HE modulated fields of PPDU in HE Ranging NDP are the same as the pre-HE modulated fields in a HE SU PPDU | Add bullet point before line 15, saying "pre-HE modulated fields in HE Ranging NDP is the same as the pre-modulated fields in a HE SU PPDU" | Revised. Agree with commenter to clarify the definition for pre-HE modulated fields in HE Ranging NDP. TGaz editor: please incorporate the text changes in this document (22/0672r0) with tag #7211. |
| 7212 | 236/15 | 27.3.18a.1 | For the HE Ranging NDP, the bits that are assigned in the L-SIG and HE-SIG-A should be the same as the bits assign for an HE SU PPDU, unless otherwise specified this section | Add bullet point before line 15, saying "Bit assignments for L-SIG and HE-SIG-A should be the same as the bit assignments for an HE SU PPDU, unless otherwise specified" | Revised. Agree with commenter to clarify the definition for pre-HE modulated fields including bit assignments for L-SIG and HE-SIG-A in HE Ranging NDP. TGaz editor: please incorporate the text changes in this document (22/0672r0) with tag #7212. |

**Proposed resolution**

***TGaz Editors: Please modify the text on page 237/line 7 of D4.1 as shown below: (#7211, #7212 )***

**27.3.18a.1 HE Ranging NDP**

The HE Ranging NDP has the following properties:

— Uses the HE SU PPDU format but without the Data field.

— The L-STF and L-LTF fields in an HE Ranging NDP are the same as the L-STF and L-LTF fields in an HE SU PPDU. The subfields in L-SIG, RL-SIG and HE-SIG-A have same bit assignments and definitions as the subfields in a HE SU PPDU.

— No beamforming steering matrix is applied to the waveform. The Beamformed field in HE-SIG-A of an HE Ranging NDP is always set to 0. For transmission of HE-STFs and HE-LTFs, if NSTS = NTx, the Q matrix shall be an Identity matrix, and if NSTS < NTx, the Q matrix shall be based on an antenna selection matrix with no antenna swapping. The Q matrix becomes an Identity matrix when all 0 rows are removed. (#**2302**, #**3270**, #**5090**)

**CID 7217**

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| CID | Page/Line | Clause | Comment | Proposed change | Resolution |
| 7217 | 267/03 | B.4.37.2 | Annex B needs to be updated. The term NGP is no longer used. Additionally, section B.4.37.2 is missing Tx Window from PHY PICS section | Remove NGP and update with row for Tx Window. Also note p.268 | Revised. Agree with commenter to update the Annex B. TGaz editor: please incorporate the text changes in this document (22/0672r0) with tag #7217. |

**Proposed resolution**

***TGaz Editors: Please modify the text on page 264/line 1 of D4.1 as shown below: (#7217)***

**B.4.37 Enhanced Positioning (Ranging) features**

**B.4.37.1 EP MAC Features (#3281, #3387)**

***TGaz Editors: Please change all NGP to EP in B.4.37.1 of D4.1 (#7217)***

**B.4.37.2 EP PHY Features (#3281, #3387)**

***TGaz Editors: Please change all NGP to EP in B.4.37.2 of D4.1 (#7217)***

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| **Item** | **Protocol capability** | **References** | **Status** | **Support** |
|  | Are the following PHY protocol features supported? |  |  |  |
| EPP1 | EP TB and non-TB measurement exchange waveforms | [27.3](#_bookmark332) (HE PHY) |  |  |
| EPP1.1 | HE ranging NDP | [27.3.18a](#_bookmark336) (HERanging NDP) | (CFTB OR CFNTB OR CFPTB):M | Yes  No  N/A  |
| EPP1.2 | HE ranging NDP with secure HE- LTFs | [27.3.18a](#_bookmark336) (HERanging NDP) | (CFTB OR CFNTB):M CFPASN:M CFPSEC:M | Yes  No  N/A  |
| EPP1.3 | HE TB ranging NDP | [27.3.18b](#_bookmark341) (HETB Ranging NDP) | CFTB:M | Yes  No  N/A  |
| EPP1.4 | HE TB ranging NDP with secure HE-LTFs | [27.3.18b](#_bookmark341) (HETB Ranging NDP) | CFPASN:M CFPSEC:M CFTB:M | Yes  No  N/A  |
| EPP1.5 | Frequency domain flat top window for secure HE-LTFs | [27.3.18a](#_bookmark336) (HERanging NDP) [27.3.18b](#_bookmark341) (HETB Ranging NDP) |  (CFTB OR CFNTB):MCFPSEC: M | Yes  No  N/A  |
| EPP2 | MIMO operation |  |  |  |
| EPP2.1 | Multi transmit streams | [11.21.6.4.3](#_bookmark225)(TB ranging measurement | (CFTB or CFNTB):M | Yes  No  N/A  |

**References**

[1] IEEE P802.11az™/D4.1, Draft Standard for information technology – Telecommunications and information exchange between systems Local and metropolitan area networks – Specific requirements, Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications, Amendment 4: Enhancements for positioning