IEEE P802.11
Wireless LANs

|  |
| --- |
| CR for CID Related With PHY Secured Mode  |
| Date: 2019-07-08 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Feng Jiang | Intel | 3600 Juliette Ln, Santa Clara, CA 95054 |  | feng1.jiang@intel.com |
| Qinghua Li | Intel |  |  | qinghua.li@intel.com |
| Jonathan Segev | Intel |  |  | jonathan.segev@intel.com |

Abstract

This submission addresses the following CIDs related with PHY Secured Mode in LB240 of 11az Draft 1.0: 2512, 2508, 2511, 2509, 2506, 2505 and 2507.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 2512 | 156 | 28.3.17d | "The conventional GI is replaced by a zero-power GI". There is no definition of zero-power GI. | Do not define a format which has no clear definition. Delete "zero power GI" mode from the draft. | RevisedIn section 28.3.17d Construction of Secure HE-LTF, the procedure of generating zero-power GI is defined as “Prepend values of zero of length indicated by 1 the TXVECTOR parameter GI\_TYPE” To clarify the format of zero-power GI, a definition is added to section 28.3.19a HE Ranging NDP.TGaz editor makes changes as specified in 11-19/1107r0 for CID 2512.  |
| 2508 | 152 | 28.3.19a | What is a "zero power GI"? There is no definition (e.g. equation of waveform which has "zero power GI"). | Do not use a format which has no clear definition. Delete "zero power GI" mode from the draft. | Revised The zero-power GI means the time domain symbol has zero signal power during the interval of GI.To clarify the format of zero-power GI, a definition is added to section 28.3.19a HE Ranging NDP.TGaz editor makes changes as specified in 11-19/1107r0 for CID 2512. |

*TGaz Editor: please change the paragraph before Figure 28-52c – HE Ranging NDP format with Secure HE-LTFs of section 28.3.19a HE Ranging NDP as below:*

When the TXVECTOR parameter LTF\_SEQUENCE is present, Secure HE-LTFs as defined in Section 28.3.17d are used and the Packet Extension field will be partially replaced by a zero 11 power GI in its first 0.8 μs or 1.6 μs, depending on the TXVECTOR parameter GI\_TYPE, see 12 Figure 28-52c (HE Ranging NDP format with Secure HE-LTFs). For the secure HE-LTF symbol or packet extension field with zero-power GI, the time domain signal has zero power during the period of GI.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 2511 | 153 | 28.3.17c | How does a receiver know that the HE-LTF is using the randomized LTF sequence? | Delete randomized LTF sequence from Clause 28 as Clause 28 receivers does not know when a PPDU is using the randomized LTF sequence. | RejectThe secured ranging mode is negotiated between ISTA and RSTA. In the ranging trigger for sounding in TB ranging sequence or the NDP announcement frame in NTB ranging sequence, the SAC field indicates the information for the randmom LTF sequence used in the HE-LTF field of the following NDP frames.  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 2509 | 152 | 28.3.19a | 11ax PE has no GI. | Clearly, PE in 11az is different from the PE of 11ax. Do not create confusion to 11ax. Delete "zero power GI" mode from Clause 28. | RejectRefer to the following discussion in submission 11-19/1107r1. |
| 2506 | 151 | 28.3.19a | In 11ax, HE PPDUs do not have a GI in PE. | Delete HE Ranging NDP from Clause 28. It talks about using zero-energy GI in PE, but Clause 28 PPDUs do not have GI in PE. Thus, HE Ranging NDP is just creating confusion to Clause 28. | RejectRefer to the following discussion in submission 11-19/1107r1. |

**Discussion:**

Clause 28 defines the HE PHY format and in 11az the HE Ranging NDP is a variant of the HE SU PPDU and the HE TB sounding NDP PPDU is a variants of the HE TB PPDU, and it’s natural to keep the definition of the HE ranging NDP and HE TB Ranging NDP in the Clause 28.

In 11ax, the Packet Extension field doesn’t has GI.In 11az, for the secured HE ranging NDP frame and secured HE TB ranging NDP frame, to aovid the intersymbol interference between the last HE-LTF symbol and the Packet Extension field, part of the Packet Extension field is replaced with a zero-power GI.

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 he STA, but the receptiton of the HE ranging NDP frame will not be realizable.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CID | Page | Clause  | Comment | Proposed Change | Resolution |
| 2505 | 150 | 28.3.19a | 11az draft provides no means for receivers to distinguish an HE NDP from an HE Ranging NDP. | Delete HE Ranging NDP from Clause 28 as receivers cannot distinguish HE Ranging NDP from HE NDP. | RejectRefer to the following discussion in submission 11-19/1107r1. |
| 2507 | 151 | 28.3.19a | "When the TXVECTOR parameter NUM\_USER is more than 1, the TXVECTOR parameter NUM\_STS[1]is used to encode the NSTS And Mid-amble Periodicity field of the HE-SIG-A1." So, suppose NUM\_STS[1]=2 and NUM\_STS[2]=3. Then, this is saying that HE-SIG-A should indicate 2SS. In this case, receivers will think this is an HE SU PPDU with 2 LTF symbols, and some data symbols - i.e. a 'regular' HE SU PPDU. Hence, receiver cannot recognize HE Ranging NDP. | Delete HE Ranging NDP from Clause 28. Clause 28 receivers will think the HE Randing NDP is a regular HE SU PPDU, hence this draft is defining a mode which Clause 28 receivers will not be able to receive. | RejectRefer to the following discussion in submission 11-19/1107r1. |

**Discussion:**

HE ranging NDP is a variant of HE NDP, and for the HE STA that support 11az, the STA can decode the corresponding user info field in ranging NDPA frame to subtract the parameters related with the following HE ranging NDP, such that the HE ranging NDP frame can be correctly received by the desired 11az-capable HE STA.

For HE STA that does not support 11az, if the STA can reive the HE ranging NDPA correctly, this STA will not find its AID in the STA info field of the ranging NDPA frame, and this indicates that this STA is not suppose to receive the following HE ranging NDP frame. If the raning NDPA frame is not correctly received by the HE STA, then the following HE ranging NDP will be decoded as a regular HE SU PPDU by the STA. When the HE ranging NDP has multiple HE-LTF fields, some HE-LTF fields may be deceode as data symbol and the reception of this HE ranging NDP frame will not be realizable.