IEEE P802.11  
Wireless LANs

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| 11ax Comment Resolutions on Data Field | | | | |
| Date: 2017-07-07 | | | | |
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Abstract: This document contains proposed resolutions for comments in *Clauses 28.3.9, 28.3.10.4, 28.3.10.5, 28.3.10.10 and 28.3.11* from 11ax D1.3 with the CIDs below.

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| ***Clause 28.3.9***   * 5255,9169,9170,9171,9082   ***Clause 28.3.10.4***   * 9173   ***Clause 28.3.10.5***   * 9176   ***Clause 28.3.10.10***   * 10163 | | | | |  | | |
| ***Clause 28.3.11.2***   * 7433,7436,8994,8995,10048   ***Clause 28.3.11.4***   * 8996   ***Clause 28.3.11.10***   * 9013 | | | | | | |  |
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| 7433 | Lei Huang | | 28.3.11.2 | 314.20 | Strictly speaking, the PSDU contains pre-FEC MAC pad bits. | Change  "When BCC encoding is used, the Data field shall consist of the SERVICE field, the PSDU, the tail bits, the post-FEC padding bits and the packet extension. When LDPC encoding is used, the Data field shall consist of the SERVICE field, the PSDU, the post-FEC padding bits and the packet extension."  to  "When BCC encoding is used, the Data field shall consist of the SERVICE field, the PSDU, the pre-FEC PHY pad bits, the tail bits, the post-FEC padding bits and the packet extension. When LDPC encoding is used, the Data field shall consist of the SERVICE field, the PSDU, the pre-FEC PHY pad bits, the post-FEC padding bits and the packet extension...." | | **Revised.**  Change to as in the resolution of CID7433 in doc IEEE802.11-17/0993r2. | | |

ax editor: please make the changes in D1.3 *Clause 28.3.11.1*

* On P402L18 (CID #7433):

When BCC encoding is used, the Data field shall consist of the SERVICE field, the PSDU, the pre-FEC PHY padding bits, the tail bits, the post-FEC padding bits and the packet extension. When LDPC encoding is used, the Data field shall consist of the SERVICE field, the PSDU, the pre-FEC PHY padding bits, the post-FEC padding bits and the packet extension.

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| 7436 | Lei Huang | 28.3.11.2 | 315.14 | Figure 28-29 seems to be applicable to LDPC only since no tail bits are added after FEC. | Change the FEC block to the LDPC FEC block in Figure 28-29 | **Rejected**  The figure is correct because in the case of BCC the tail bits are not scrambled. For BCC, tail bits insertion is part of the “FEC” block. |

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| 10048 | yujin noh | 28.3.11.2 | 314.32 | In order to reduce misunderstanding on the cencept of post-FEC PHY padding, "applied on" could be replaced with proper text such as "appended right after or appended to" . | As in the comment. | **Revised.**  Change to as in the resolution of CID10048 in doc IEEE802.11-17/0993r2. |

**Discussions:**

“a post-FEC PHY padding” is refered to post-FEC PHY padding process in the context. It does not refer to post-FEC PHY padding bits. So it is correct to use “applied on” instead of “appended to” as commentor suggest. To eliminate the confusion of the text, “padding” should be replaced by “padding process” in the following paragraph.

ax editor: please make the changes in D1.3 *Clause 28.3.11.2*

* On P402L29 (CID #10048):

A two-step padding process is applied on all HE PPDUs. A pre-FEC padding process including both pre-FEC MAC and pre-FEC PHY padding is applied before conducting FEC coding, and a post-FEC PHY padding process is applied on the FEC encoded bits.

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| 8994 | Sigurd Schelstraete | 28.3.11.2 | 315.31 | Delete the word "excess" from "excess bits in the last OFDM symbol". These are simply the bits in the last OFDM symbol. | See comment | **Revised.**  Change to as in the resolution of CID8994 in doc IEEE802.11-17/0993r2. |

ax editor: please make the following changes in D1.3 *Clause 28.3.11.2*:

* On P403L33 (CID #8994):

In an HE SU PPDU transmission, the transmitter first computes the number of bits left in the last OFDM symbol(s) based on Equation (28-54).

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| 8995 | Sigurd Schelstraete | 28.3.11.2 | 316.52 | "the MAC delivers a PSDU that fills the available octets ...". Add reference to A-MPDU padding (27.10.2 & 27.10.3). | See comment | **Revised.**  Change to as in the resolution of CID8995 in doc IEEE802.11-17/0993r2. |

ax editor: please make the following changes in D1.3 *Clause 28.3.11.2*:

* On P404L50 (CID #8995):

Among the pre-FEC padding bits, the MAC delivers a PSDU that fills the available octets in the Data field of the HE PPDU (see A-MPDU padding for HE PPDU in 27.10.2 and 27.10.3), toward the desired pre-FEC padding boundary, represented by ainit value, in the last OFDM symbol(s).

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| 8996 | Sigurd Schelstraete | 28.3.11.4 | 317.21 | Change "PHY padding" to "pre-FEC PHY padding"padding (27.10.2 & 27.10.3). | See comment | **Revised.**  Change to as in the resolution of CID8996 in doc IEEE802.11-17/0993r2. |

ax editor: please make the following changes in D1.3 *Clause 28.3.11.4*:

* On P405L20 (CID #8996):

The SERVICE field, PSDU, and pre-FEC PHY padding of the Data field shall be scrambled by the scrambler defined in 17.3.5.5 (PHY DATA scrambler and descrambler).

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| 9013 | Sigurd Schelstraete | 28.3.11.10 | 327.51 | First sentence not needed. Delete "This subclause ... using STBC coding" | See comment | **Accepted.**  Please delete the first sentence of 28.3.11.10 (P415L47). |

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| 9169 | SUNGEUN LEE | 28.3.9 | 266.03 | TGI,HE-LTF1 parameter is never defined in the specification. In addition, GI duration is depending on LTF+CP combination, which is not one-to-one mapping from HE-LTF mode. Moreover, the parameter TGI,HE-LTF is already described in Table 28-9-Timing-related constants (P802.11ax D1.0). Therefore, TGI,HE-LTF1 would be replaced as TGI,HE-LTF | Replace TGI,HE-LTF1 to TGI,HE-LTF | **Revised.**  Change to as in the resolution of CID8996 in doc IEEE802.11-17/0993r2. |
| 9170 | SUNGEUN LEE | 28.3.9 | 266.06 | TGI,HE-LTF2 parameter is never defined in the specification. In addition, GI duration is depending on LTF+CP combination, which is not one-to-one mapping from HE-LTF mode. Moreover, the parameter TGI,HE-LTF is already described in Table 28-9-Timing-related constants (P802.11ax D1.0). Therefore, TGI,HE-LTF2 would be replaced as TGI,HE-LTF | Replace TGI,HE-LTF2 to TGI,HE-LTF | **Revised.**  Change to as in the resolution of CID8996 in doc IEEE802.11-17/0993r2. |
| 9171 | SUNGEUN LEE | 28.3.9 | 266.06 | TGI,HE-LTF4 parameter is never defined in the specification. In addition, GI duration is depending on LTF+CP combination, which is not one-to-one mapping from HE-LTF mode. Moreover, the parameter TGI,HE-LTF is already described in Table 28-9-Timing-related constants (P802.11ax D1.0). Therefore, TGI,HE-LTF4 would be replaced as TGI,HE-LTF | Replace TGI,HE-LTF4 to TGI,HE-LTF | **Revised.**  Change to as in the resolution of CID8996 in doc IEEE802.11-17/0993r2. |

ax editor: please change ,  and  in “Table 28-13-Number of modulated subcarriers and guard interval duration values for HE PPDU fields” to  on P349L35~L39 in D1.3.

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| 5255 | Dorothy Stanley | 28.3.9 | 261.40 | Do we have definitions for non-OFDMA HE PPDU and OFDMA HE PPDU? | define | **Revised.**  Change to as in the resolution of CID5255 in doc IEEE802.11-17/0993r2. |

ax editor: please add the definition of non-OFDMA HE PPDU, OFDMA HE PPDU, and remove the definition of non-OFDMA in **3.2 Definitions specific to IEEE 802.11** in D1.3:

* On P35L637(CID #5255):

**non-orthogonal frequency division multiple access (non-OFDMA) high efficiency (HE) physical layer (PHY) protocol data unit (PPDU)**: A 20 MHz HE PPDU with a 242-tone RU, or a 40 MHz HE PPDU with a 484-tone RU, or an 80 MHz HE PPDU with a 996-tone RU, or a 160 MHz or 80+80 MHz HE PPDU with a 2x996-tone RU.

**orthogonal frequency division multiple access (OFDMA) high efficiency (HE) physicial layer(PHY) protocol data unit(PPDU)**: A 20 MHz HE PPDU with RU(s) of size less than 242-tone, or a 40 MHz HE PPDU with RU(s) of size less than 484-tone, or an 80 MHz HE PPDU with RU(s) of size less than 996-tone, or a 160 MHz or 80+80 MHz HE PPDU with RU(s) of size less than 2x996-tone.

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| 9082 | Sriram Venkateswaran | 28.3.9 | 263.51 | The statement "The total power of the time  domain HE modulated field signals summed over all transmit chains should not exceed the total power of  the time domain pre-HE modulated field signals summed over all transmit chains." may not be true for extended range PPDUs with boosted LTFs etc. | If this line does not hold for all cases, please give proper qualifications (or delete it if the spec specifies these powers clearly in other places and the line is redundant) | **Revised**  It is resolved by the resolution of CID4990 in doc.: IEEE 802.11-17/0305r2. |

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| 9173 | SUNGEUN LEE | 28.3.10.4 | 270.14 | The GI parameter in Eq (28-10) based on P802.11ax D1.0 is wrong. It should be TGI,L-LTF | Change TGI,LegacyPreamble to TGI,L-LTF in L-LTF equation for BEAM\_CHANGE is 0, i.e., Eq. (28-10) based on P802.11ax D1.0 | **Revised**  It is resolved by the resolution of CID4907 in doc IEEE802.11-17/0398r1 |

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| 9176 | SUNGEUN LEE | 28.3.10.5 | 272.05 | The summation range for iBW should be from 0 to N\_20MHz-1 | Change summation upper bound of iBW from N20MHz to N20MHz-1 for L-SIG equation, ie.g., Eq (28-13) | **Revised**  It is resolved by the resolution of CID10403 in doc IEEE802.11-17/0398r1. |

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| 10163 | yujin noh | 28.3.10.10 | 314.01 | clarify the setence below how to recommended.  "When a 1x, 2x or 4x HE-LTF is transmitted, it is recommended that the spatial mapping matrix applied to HE-STF and beyond is chosen such that it preserves the smoothness of the physical channel, achieved by limiting the variation of each element's real and imaginary values in the spatial mapping matrix across successive tones within one RU." | As in the comment. | **Revised**  It is resolved by the resolution of CID8990 in doc IEEE802.11-17/720r1. |