IEEE P802.11  
Wireless LANs

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| Resolutions to Miscellaneous PHY Comments | | | | |
| Date: 2011-09-20 | | | | |
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Abstract

This document proposes resolutions to CIDs 2223, 2225, 2984, 3021, and 3036.

The comments are copied from 11/907r9.

The resolutions are based on Draft P802.11ac\_D1.2.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2223 | 138.36 | 22.3.8.1.2 | The list following line 36 does not contain all parameters in the formula (unlike later formulas where all parameters are clarified) | Add N\_TX, Delta\_F, N^Tone\_L-STF | ACCEPT IN PRINCIPLE. See 11/1379r0. |

**Resolution**

*Editor, add the following parameters to the list below equation 22-16 in Section 22.3.8.1.2 L-STF definition.*

Δ*F* is defined in Table 22-5 (Timing-related constants).

*NTX* is defined in Table 22-5 (Frequently used parameters).

has the value given in Table 22-7 (Value of tone scaling factor).

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 2225 | 139.14 | 22.3.8.1.2 | The list following line 14 does not contain all parameters in the formual (unlike later formulas where all parameters are clarified) | Add N\_TX, Delta\_F, N^Tone\_L-LTF, T\_GI2 | ACCEPT IN PRINCIPLE. See 11/1379r0. |

**Resolution**

*Editor, make the* GI2 *in equation 22-19 italic and add the following parameters to the list below equation 22-19 in Section 22.3.8.1.3 L-LTF definition.*

Δ*F* and *TGI2* are defined in Table 22-5 (Timing-related constants).

*NTX* is defined in Table 22-5 (Frequently used parameters).

has the value given in Table 22-7 (Value of tone scaling factor).

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| 2984 | 119.14 | 22.3.3 | Pilot insertion is an important functional block. But it is not included in the transmitter functional block lists. | Add pilot insertion in the block list. | ACCEPT IN PRINCIPLE. See 11/1379r0. |
| 3021 | 119.14 | 22.3.3 | Pilot insertion is an important functional block. But it is not included in the transmitter functional block lists. | Add pilot insertion in the block list. | ACCEPT IN PRINCIPLE. Duplicate of CID 2984. See 11/1379r0. |

**Resolution**

*Editor, make the following change in the functional block list of Section 22.3.3 Transmitter block diagram.*

h) Constellation mapper

h’) Pilot insertion

i) Replicate over multiple 20 MHz (if BW > 20MHz)(#2369)

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3036 | 200.48 | 22.4.4 | From clause 8.6.1, the A-MPDU max length is set as 1 048 575 octects. I believe, that number needs to be populated in the Table 22-24 (VHT PHY Characteristics) | Add A-MPDU max length to Table22-24 VHT PHY Characteristics | ACCEPT IN PRINCIPLE. See 11/1379r0. |

**Discussion**

The following editor’s note captures discussion on this CID in a previous TGac meeting:

“The parameters are listed in 19-25 unless otherwise listed here. Table 19-25 includes aPSDUMaxLength set to 65535. So there is an issue: aPSDUMaxLength needs a different value. However, I am not sure that value is 1048575 since that (as you point out) is the max A-MPDU pre-EOF padding length and not the max PSDU length (which may contain EOF padding).”

We probably shouldn’t add A-MPDU max length to a PHY table, but instead follow the suggestion of this previous discussion to change the value for aPSDUMaxLength. An interesting question is where we should base aPSDUMaxLength on. Probably we should base it on the VHT-SIG-B length, which is optional to decode for SU, but the transmitter should still adhere to its length limits. Note, however, that it is different for SU and MU, and it is a function of BW. Moreover, L-SIG may put further restrictions on the max length. So we also need to take into account the aPPDUMaxTime. 1504 of 1506 SGI symbols fit into aPPDUMaxTime minus preamble overhead for 8 VHT-LTF symbols (8ss SU transmission) and 6 VHT-LTF symbols (MU transmission with two users, with one user using 4ss and another user using 1ss), respectively. From this we get (noting that MCS9 is not valid in 20 MHz Nss=4/8):

aPSDUMaxLength for SU PPDUs with a bandwidth of 20 MHz is (2^17 – 1)\*4 = min(524284, 469248) = 469248

aPSDUMaxLength for SU PPDUs with a bandwidth of 40 MHz is (2^19 – 1)\*4 = min(2097148, 1082880) = 1082880

aPSDUMaxLength for SU PPDUs with a bandwidth of 80 MHz is (2^21 – 1)\*4 = min(8388604, 2346240) = 2346240

aPSDUMaxLength for SU PPDUs with a bandwidth of 160/80+80 MHz is (2^21 – 1)\*4 = min(8388604, 4692480) = 4692480

aPSDUMaxLength for MU PPDUs with a bandwidth of 20 MHz is (2^16 – 1)\*4 = min(262140, 234936) = 235248

aPSDUMaxLength for MU PPDUs with a bandwidth of 40 MHz is (2^17 – 1)\*4 = min(524284, 524284) = 524284

aPSDUMaxLength for MU PPDUs with a bandwidth of 80 MHz is (2^19 – 1)\*4 = min(2097148, 1174680) = 1176240

aPSDUMaxLength for MU PPDUs with a bandwidth of 160/80+80 MHz is (2^19 – 1)\*4 = min(2097148, 2349360) = 2097148

The maximum of these values is 4692480, so that is suggested as aPSDUMaxLength.

**Resolution**

*Editor, please add the following entry and note to table 22-24 - VHT PHY characteristics*

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| aPSDUMaxLength | 4692480 (see NOTE) |
| NOTE – this is the maximum length in octets for SU PPDUs with a bandwidth of 160/80+80 MHz, MCS9, and 8 spatial streams, limited by 1504 possible Short GI data symbols in aPPDUMaxTime. | |