IEEE P802.11
Wireless LANs

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| Comment resolution on CIDs on Clause 28.3 Part 1 |
| Date: 2018-01-06 |
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Abstract:

This document contains comment resolution on the following CIDs for 28.3:

11164, 11169, 11170, 11171, 11172, 11176, 11386, 11387, 11388, 11389, 11391, 13406, 14128, 14129, 11896.

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| **CID** | **Clause** | **Page** | **Line** | **Comment** | **Proposed Change** | **Resolution** |
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| 11164 |

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| 28.3.14.2 |

 | 481 | 20 |

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| Target RSSI states signal power is averaged over the AP's antenna connectors for the HE TB PPDU. It should state over the AP's receive antenna connectors. |

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| Change as described in comment |

 |  Rejecteded.The text in the 11ax draft 2.0 is *“TargetRSSI* represents the target receive signal power averaged over the AP's antenna connectors for the HE TB PPDU.” Because it clearly states “the target receive signal power”, antenna connectors must be receive antenna connectors. So there is no ambiguity.  |
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| 11169 |

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| 28.3.19.5 |

 | 499 | 32 | The maximum input level at the receiver is in dBm. To be consistent with other clauses in the draft the input "signal" level is implied. |

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| Change "input level" to "input signal level" |

 |  Rejected. It is conventional to use “input level” instead of “input signal level”. “maximum input level” has been used in all previous version of IEEE 802.11 specifications. |
| 11170 | 28.3.19.5 | 499 | 34 | Receiver maximum input level is measured at each antenna. Clarify type of antenna port | Change "each antenna" to "each receive antenna" | Rejected. It is conventional to use “antenna” instead of “receive antenna”. “antenna” has been used in all previous IEEE 802.11 specifications. |
| 11171 | 28.3.19.1 | 496 | 31 | Input levels are measured at the antenna connectors as receive antennas. Input levels referenced in other clauses state "input signal levels". The use of "input signal levels" should be consistent throughout the draft. Also describe is a cable connection of transmitting STA (output) ports to input ports of a Device Under Test. Input ports are (receiving) antennas when configured as such and should be clarified in the text. | Change "input levels" to "input signal levels" Change "Device Under Test" to "Device Under Test receiver." | Rejected. Since the whole clause is about “receiver specification”, there is no ambiguity to use “Device under test”. |
| 11172 | 28.3.14.2 | 481 | 43 | DLRSSI represents the measured received power from the non-HE portion of the HE PPDU. The received power is measured in dBm. It should state as such. | Change "received power" to "received power in dBm" | Revised. 11ax editor, please see the discussion for instructions for CID 11172 in doc IEEE 802.11-18/0159r1. |
| 11176 | 28.8.18.4.3 | 491 | 37 | The Note in Table 28-45(page 492 lines 37-40) regarding amplitude drift compensation is ambiguous. The note implies that amplitude drift compensation is only used in test equipment, and that it is not a requirement in actual receivers. In fact, if it is allowed in test equipment, it must necessarily be a feature in the receiver as well. | More clarification and discussion are required. | Rejected.EVM is a metric for transmit signal quality. So it is not related to actural receivers. The spec. should not put constraints to the design of actual receivers. The note in the Table 28-45 is just to clarify the measurement of EVM.  |
| 11386 | 28.3.18.3 | 491 | 11 | To be ailgned with previous amendments, change the clock and center frequency accuracy maximum tolerance to be +/-20ppm for 5GHz, +/- 25ppm for 2.4GHz band | as in the comment | Revise.11ax editor, please see the discussion for instructions of CID 11386 in doc IEEE 802.11-18/0159r1. |
| 11387 | 28.3.18.4.4 | 493 | 54 | i\_f =1 is missing from the bottom of the outmost summation (sum over i\_f from 1 to Nf) | as in the comment | Accepted. 11ax editor, please add *if=1* at the bottom of the outmost summation.  |
| 14128 | 28.3.18.4.4 | 493 | 54 | "i\_f =1" of index of summation and its first value is missing in Equation (28-120) | add i\_f=1 in Equation (28-120) to indicate frame i\_f. | Accepted. See resolution for CID 11387 in doc IEEE 802.11-18/0159r1.  |
| 11388 | 28.3.18.4.4 | 494 | 6 | "NOTE 1--In the case the transmit modulation accuracy test is performed simultaneously for the two frequency segmentsof the 80+80 MHz transmissions with 2┤Θª996-subcarrier RU." Not a complete sentence | Add "NSD in Equation (28-120) represents the total number of subcarriers of both 80 MHz frequency segments. | Revised.11ax editor, please see the discussion for instructions of CID 11388 in doc IEEE 802.11-18/0159r1. |
| 11389 | 28.3.18.4.4 | 494 | 20 | Remove "exceptthat for noncontiguous transmissions, only the frequency segment with occupied subcarriers is tested." TB PPDU doesn't support noncontiguous transmission. | as in the comment | Rejected. Noncontiguous transmission is for TB PPDU in 80+80MHz cases.  |
| 11391 | 28.3.18.4.4 | 495 | 3 | In Eq 122, Ps should be normalized by N\_SD instead of N\_ST | as in the comment | Accepted. 11ax editor, please change *NST* to *NSD* in equaltion (28-122). |
| 14129 | 28.3.18.4.4 | 495 | 3 | "N\_ST" needs to be replaced with "N\_SD" in Equation (28-122) | as in comment | Accepted. Please refer to resolution of CID 11391 in doc IEEE 802.11-18/0159r1. |
| 13406 | 28.3.18.4.3 | 492 | 37 | the note for 1024QAM at the bottom of table 28-45 is not clear | add to the NOTE after the words '1024 QAM' : "either, relative constellation error shall be equal to or less than -35 dB when amplitude drift compensation in the test equipment is off, or;" | Revised. The orginal note already implies the case that “relative constellation error equal to or less than -35 dB when amplitude drift compensation in the test equipment is off meet the EVM reqirement for 124-QAM as well.” because relative constellation error can not be increased when amplitude drift compensation s on. One more sentence is added to make it more clear, Please refer to resolution of CID 11406 in doc IEEE 802.11-18/0159r1. |
| 11896 | 28.3.18.4.3 | 491 | 45 | "... In the test, NSS=NSTS (no STBC) shall be used". How about beamforming? Nowadays all the actual EVM measurements shall disable beamforming, due to test equipments' limitations. | Add "and no beamforming shall be used" after the quoted sentence | Revised. 11ax editor, please see the discussion for instructions for CID 11896 in doc IEEE 802.11-18/0159r1. |

**Discussions for CID 11172:**

***TGax Editor: Please make the following text change (changed texts are in red) in the line 44, page 481 of D2.0***:

*DLRSSI* in dBmis an average of the received power over the antennas on which the average *PLDL* is being computed.

**Discussions for CID 11386:**

***TGax Editor: Please make the following text change (changed texts are in red) in the line 9-10, page 491 of D2.0***:

The symbol clock frequency and transmit center frequency maximum tolerance shall be ±20 ppm in 5GHz and ±25 ppm in 2.4GHz.

**Discussions for CID 11388:**

***TGax Editor: Please make the following text change (changed texts are in red) in the line 1, page 494 of D2.0***:

*NSD* is the number of data tones of the occupied RU; For the 80+80MHz transmissions, *NSD* is the total number of data tones of both 80MHz frequency segments.

***Please also remove the text in the line 6-7, page 494 of D2.0***

~~NOTE 1—In the case the transmit modulation accuracy test is performed simultaneously for the two frequency segments of the 80+80 MHz transmissions with 2996-subcarrier RU.~~

**Discussions for CID 11406:**

***TGax Editor: Please make the following text change (changed texts are in red) in the line 39-40, page 492 of D2.0***:

NOTE—For 1024-QAM, relative constellation error shall be equal to or less than -35 dB when amplitude drift compensation in the test equipment is on and shall be equal to or less than -32 dB when amplitude drift compensation is off in the test equipment. Relative constellation error equal or less than -35dB when amplitude drift compensation is off in the test equipment meets the relative constellation error requirement for 1024-QAM as well. For all other constellations the EVM shall be equal to or less than the values in the table, no matter whether amplitude drift compensation in the test equipment is on or off.

**Discussions for CID 11896:**

***TGax Editor: Please make the following text change (changed texts are in red) for the first paragraph in section* 28.3.18.4.3  *of D2.0***:

The relative constellation RMS error, calculated ~~by first averaging over subcarriers, frequency segments, HE PPDUs, and spatial streams (see Equation (28-120))~~ as described in 28.3.18.4.4 shall not exceed a data-rate dependent value according to Table 28-45 (Allowed relative constellation error versus constellation size and coding rate). The number of spatial streams under test shall be equal to the number of utilized transmitting STA antenna (output) ports and also equal to the number of utilized testing instrumentation input ports. In the test, *NSS* = *NSTS* (no STBC) and no beamforming steering matrix shall be used.