IEEE P802.11
Wireless LANs

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| [CR for CID 1329, 2788, 3279] |
| Date: 2021-03-10 |
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Abstract

This submission proposes resolutions for follwing 3 CIDs: 1329, 2788, and 3279. The proposed changes are based on IEEE 802.11be D0.3 [1].

Revisions:

* Rev 0: Initial version of the document.

## CID 1329, 2788, 3279

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 1329 | 196.31 | 36.3.3 | "An EHT AP with four or more antennas" should be more precise | Refer instead to "min(number of transmit chains, number of receive chains) of this link" since a) a dual/tri-band AP might have many antennas but only some are available to this link (yes it is implicit that this is talking about an "IEEE AP" not a "dual/tri-band HW AP" but given the "shall" statement here, greater clarity is preferred) and b) some APs have mulltiple antennas per TX/RX chain yet these offer no help towards more SS within MU-MIMO. Check all instances of "antenna" in clause 36, such as at P196L60, P355L61, P336L38, P343L59, P346L20, P316L40 (since, from Table 36-14, this is number of receive chains), and replace "antenna" as appropriate: "transmit chain", "receive chain", "input to a receive chain" or "output of a transmit chain" instead. Note that "antenna connector is a defined term and should not be changed. | RevisedThe proposed CR is provided for P196L31, P196L60, P336L38, P343L59, and P346L20. P355L61 is Rejected, because it is not relevant to the comment.P316L40 is Rejected, because No change is necessary.TGbe Editor: Incorporate the changes in https://mentor.ieee.org/802.11/dcn/21/11-21-0517-00-00be-CR for CID 1329-2788-3279.docx |
| 2788 | 196.60 | 36.3.3 | "UL MU-MIMO transmissions on all ﾠRU/MRU sizes greater than or equal to 242-tones in the supported bandwidths.". 11ax only mentions full-BW UL MU-MIMO, not partial BW. | Reconsider definition of UL MU-MIMO. | Revised.Definition of non-OFDMA UL MU-MIMO is provided in clause 3.2 Definitions specific to IEEE 802.11. The clause 3.2 is updated by Dongguk Lim and Editor does not have to anything in this clause 36.3.3 for definition. Only the existing sentence is not correct, which is corrected below. Please, incorporate the changes as below.TGbe Editor: Incorporate the changes in https://mentor.ieee.org/802.11/dcn/21/11-21-0517-00-00be-CR for CID 1329-2788-3279.docx |
| 3279 | 196.60 | 36.3.3 | define a new term of non-OFDMA UL MU-MIMO transmissions somewhere. If needed, full bandwidth non-OFDMA and punctured non-OFDMA as well. | as in comment | Revised.Definition of non-OFDMA UL MU-MIMO is provided in clause 3.2 Definitions specific to IEEE 802.11. The clause 3.2 is updated by Dongguk Lim and Editor does not have to anything in this clause 36.3.3 for definition. Only the existing sentence is not correct, which is corrected below. Please, incorporate the changes as below.TGbe Editor: Incorporate the changes in https://mentor.ieee.org/802.11/dcn/21/11-21-0517-00-00be-CR for CID 1329-2788-3279.docx |

Propose :

***TGbe editor: pease modify the sentence in P196L31 as follows***

~~An EHT AP with four or more antennas shall support non-OFDMA DL MU-MIMO transmissions on all RU/MRU sizes greater than or equal to 242-tones in the supported bandwidths.~~

The support of an EHT AP non-OFDMA DL MU-MIMO transmission on a RU or MRU size greater than or equal to 242 tones in a given bandwidth is indicated in the MU beamformer subfield for a corresponding bandwidth in the EHT PHY Capabilities Information field in the EHT Capabilities element. If an EHT AP supports at least four spatial streams for the transmission to a single STA in a bandwidth, it shall support the non-OFDMA DL MU-MIMO transmission in the same bandwidth. (#1329)

***TGbe editor: please modify the senstence in P196L60 as follows***

~~An EHT AP with four or more antennas shall support non-OFDMA UL MU-MIMO transmissions on all RU/MRU sizes greater than or equal to 242-tones in the supported bandwidths.~~

The support of an EHT AP non-OFDMA UL MU-MIMO reception on a RU or MRU size greater than or equal to 242 tones in a given bandwidth is indicated in the non-OFDMA UL MU-MIMO Rx subfield in the EHT PHY Capabilities Information field in the EHT Capabilities element. If an EHT AP supports the reception of at least four spatial streams from a single STA in a bandwidth, the non-OFDMA UL MU-MIMO Rx subfield shall indicate the support of EHT AP non-OFDMA UL MU-MIMO reception in the same corresponding BW. (#2788, #3279)

***TGbe editor: please modify the senstence in P336L38 as follows***

The relative constellation RMS error in the test, calculated by first averaging over subcarriers, frequency segments, EHT PPDUs, and spatial streams (see Equation (36-86)) as described in 36.3.18.4.4 (Transmitter modulation accuracy (EVM) test)) shall not exceed a data-rate dependent value according to Table 36-52 (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, where antenna ports are logical antennas which map the data streams to the physical antennas. (#1329)

***TGbe editor: please modify the senstence in P343L59 as follows***

For receiver minimum input sensitivity, adjacent channel rejection, nonadjacent channel rejection, receiver maximum input level, and CCA sensitivity requirements described in this subclause, the input levels are measured at the antenna connector, which is the physical connector between an antenna port and a physical antenna, and are referenced as the average power per receive antenna. 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 Device Under Test input ports. Each output port of the transmitting STA shall be connected through a cable to one input port of the Device Under Test. (#1329)

***TGbe editor: please modify the senstence in P346L20 as follows***

The receiver shall provide a maximum PER of 10% at a PSDU length of 2048 octets for BPSK modulation with DCM or 4096 octets for all other modulations, for a maximum input level of –30 dBm in the 5 GHz and 6 GHz bands and –20 dBm in the 2.4 GHz band, measured at each antenna connector for any baseband EHT modulation. (#1329)

***TGbe editor: please keep the senstence in P316L40 as follows (No change)*** (#1329)

$N\_{RX\_{u}}$ is the number of receive antennas at beamformee u.

**References:**

**[1] 802.11be D0.3**