IEEE P802.11
Wireless LANs

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| Proposed Draft Text (PDT-PHY): Modulation Accuracy |
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Abstract

This submission proposed modifications on modulation accuracy of TGbe D0.2 to resolve TBDs.

* Modulation accuracy
* Introduction to modulation accuracy tests

Transmit modulation accuracy specifications are described in 36.3.18.4.2 (Transmit center frequency leakage) and 36.3.18.4.3 (Transmitter constellation error). The test method is described in 36.3.18.4.4 (Transmitter modulation accuracy (EVM) test).

* Transmit center frequency leakage

For 20/40/80/160 MHz transmission, the power measured at the location of the RF LO using resolution BW 78.125 kHz shall not exceed the maximum of –32 dB relative to the total transmit power and –20 dBm, or equivalently , where *P* is the transmit power per antenna in dBm. The transmit center frequency leakage is specified per antenna. For 320 MHz transmission, the power measured at the location of the RF LO using resolution BW 78.125 kHz shall not exceed the maximum of -36 dB relative to the total transmit power and -20 dBm, or equivalently max(*P*-36,-20).

* Transmitter constellation error

The relative constellation RMS error in the test, calculated by first averaging over subcarriers, frequency segments, EHT PPDUs, and spatial streams (see Equation (36-89)) as described in 36.3.18.4.4 (Transmitter modulation accuracy (EVM) test)) shall not exceed a data-rate dependent value according to Table 36-46 (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, no beamforming steering matrix shall be used. Each output port of the transmitting STA shall be connected through a cable to one input port of the testing instrumentation. The requirements shall apply to 20 MHz, 40 MHz, 80 MHz, 160 MHz, and 320 MHz contiguous transmissions.

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| * Allowed relative constellation error versus constellation size and coding rate
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| Modulation | Coding rate | Relative constellation error in an EHT MU PPDU (dB) | Relative constellation error in an EHT TB PPDU when transmit power is larger than the maximum power of EHT-MCS 7 (dB) | Relative constellation error in an EHT TB PPDU when transmit power is less than or equal to the maximum power of EHT-MCS 7 (dB) |
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| BPSK | 1/2 | –5 | –13 | –27 |
| QPSK | 1/2 | –10 | –13 | –27 |
| QPSK | 3/4 | –13 | –13 | –27 |
| 16-QAM | 1/2 | –16 | –16 | –27 |
| 16-QAM | 3/4 | –19 | –19 | –27 |
| 64-QAM | 2/3 | –22 | –22 | –27 |
| 64-QAM | 3/4 | –25 | –25 | –27 |
| 64-QAM | 5/6 | –27 | –27 | –27 |
| 256-QAM | 3/4 | –30 | –30 | –30 |
| 256-QAM | 5/6 | –32 | –32 | –32 |
| 1024-QAM | 3/4 | –35 | –35 | –35 |
| 1024-QAM | 5/6 | –35 | –35 | –35 |
| 4096-QAM | 3/4 | –38 | –38 | –38 |
| 4096-QAM | 5/6 | –38 | –38 | –38 |
| BPSK-DCM | 1/2 | –5 | –13 | –27 |
| BPSK-DCM-DUP | 1/2 | –5 | N/A | N/A |
| NOTE—The maximum power of EHT-MCS 7 can be measured by setting the UL Target RSSI subfield as defined in Table 9-29j (UL Target Receive Power subfield in Trigger frame) in the Trigger frame to 127 for the RU for which the EVM test is conducted. |