IEEE P802.11
Wireless LANs

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| Resolution to CID 3289 and 3533-3535 |
| Date: 2018-November-11 |
| Author(s): |
| Name | Company | Address | Phone | email |
| Alecsander Eitan | Qualcomm |  |  | eitana@qti.qualcomm.com |
| Solomon Trainin | Qualcomm |  |  | strainin@qti.qualcomm.com |
| Assaf Kasher | Qualcomm |  |  | akasher@qti.qualcomm.com |

Abstract

This submission proposes resolution to CID 3289, 3533, 3534 and 3535

The resolutions are in reference to Draft IEEE P802.11ay/D2.1 and IEEE 802.11REVmd\_D1.6.

(Changes from r0 to r1: additional information in the discussion section of CID 3535 marked in blue)

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| CID | Clause | Comment | Proposed change |
| 3289 | 10.44.5 | "the average SNR per stream is found by computing the SNR per subcarrier in decibels for all the pilot and data subcarriers, and then computing the arithmetic mean of those values."The average SNR should be calculated with the following equation: SNR = mean(signal power) / mean(noise power). The mean in desibels have error especially when the variance is large (i.e. frequency selective channels)Is there any evidence/simulation result to justify using mean in decibels? | Propose to define the average SNR as "SNR = mean(signal power) / mean(noise power)," and approximation during computation should be left for implementers. |

**Proposed resolution :** Reject.

**Discussion:**

The comment quouted text in the comment is in a paragraph related to SNR of OFDM PPDU.

The method presented, averaging SNR per subcarrier in decibel units, is a better method than averaging power units for the OFDM case due to the LDPC decoding. It was found, many years ago, that since the SNR is computed before the code correction averaging decibels is a better estimate. Other .11 spects operating in OFDM are also using this method.

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| CID | Clause | Comment | Proposed change |
| 3533 | 10.44.1 General | "In this case, the requesting STA may use the reported MCS, SNR, and link 1 margin values when transmitting frames to the STA indicated in the RA field of the Link Measurement 2 Request frame using multiple transmit chains." To do what? Rank adaptation,configuration adaptation ? | Be more specific about what it is used for e.g. rank adaptation, configuration adaptation. |

**Proposed resolution :** Reject.

**Discussion:**

The mentioned “missing” algorithms (adaptation, configuration adaptation) are beyond the scope of the 802.11 spec. Similarlly to other algorithms such as rate adaptation, MCS selction, TPC, and more.

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| CID | Clause | Comment | Proposed change |
| 3534 | 10.44.4 | "individual transmitted spatial streams by appending a control 2 trailer (see 10.40.11.5) to SSW-Feedback, BlockAck or Ack frames. Spatial stream feedback information 3 may be used for MCS selection or to trigger beamforming between STAs." What does it mean to trigger beamforming between STAs? | Additional explanation on what it means to trigger beamforming. Does this mean start a beamforming procedure or adapt the beamforming mode to a different antenna configuration ? |

**Proposed resolution :** Reject.

**Discussion:**

The mentioned “missing” explanation allows implementation freedom. The station may perform one of the variety of algorithms. No specific behaviour is required in this case.

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| CID | Clause | Comment | Proposed change |
| 3535 | 10.44.1 General | " If the Link Measurement Report frame 7 contains measurements of more than one transmit chain, the SNR Per STS subfield in the Parameters 8 Across PPDUs field and the Link Margin subfield in the EDMG TPC field in the Link Measurement Report 9 frame shall indicate the corresponding measurements based on the reception of the PPDU that was used to 10 generate the MCS feedback contained in the Parameters Across PPDUs field within the same Link 11 Measurement Report frame." How do you identify which PPDU is to be used ? Section 10.39 in 802.11- 2016 uses a Dialog token to identify the PPDU. How do you (a) make sure that you have the right antenna configuration and (b) you are measuring the correct PPDU | Put in procedure to ensure that (a) you have thr correct antenna config and (b) you are measuring the PPDU corresponding to the correct configuration. |

**Proposed resolution:** Reject.

**Discussion:**

The Link Measurement Report is used to report measurement of a single frame or averaged measurements of multiple frames. For a single frame there is no issue since the last one is reported. When multiple frames are measured the averaging is reset when the “configuration” (MCS, MIMO,…) changes thus only same configuration frames are averaged. The frame also includes time stamp to specify when the measurement was taken.

Regarding the “right antenna configuration” the same reasoning applies.

Management frames do have a Dialog Token, defined in REVmd D1.6 section 9.4.

The averaging reset is delailed in section 9.4.2.142.6 and following sections: P101L05, P101L09, P101L14, P101L18, P101L33, …