IEEE P802.11
Wireless LANs

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| Resolution to CID related to Link Margin Element |
| Date: 2019-March-13 |
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Abstract

This submission proposes resolution to CID 4039, 4093, 4060, 4094, 4095 and 4279.

The resolutions are in reference to Draft IEEE P802.11ay Draft3.0

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| CID | Clause | Comment | Proposed change |
| 4039 | 9.4.2.142.3 | The RESET condition is defined at the end on 9.4.2.142.6 and referenced in 9.4.2.142.6, BUT it applies to fields in 9.4.2.142.3, 9.4.2.142.4 and 9.4.2.142.5 as well. | Add the text defining RESET for all the relevant fields in 9.4.2.142.3, 9.4.2.142.4 and 9.4.2.142.5 |
| 4093 | 9.4.2.142.6 | "This statistic is reset when the reset condition defined below in this subclause is met" This I normative behavior, and should be described in clause 10 or 11. Also in other places in the 9.4.2.142 | Describe reseting behavior in clause 11 or 10. |

**Discussion:**

The commenters are correct that Reset condition is missing for 9.4.2.142.4 and 9.4.2.142.5.

The coment about moving the Reset condition text to section 10 or 11 is Rejected. Better to keep it in 9.4.2.142.6 where other details about the computation are detailed.

**Proposed resolution:** Revised.

***TGay Editor: Add the text in the following paragraphs (P117L21-26)***

Each RCPIi subfield, 1 ≤ i ≤ NRX, where NRX is the value of the Number of RX Chains Reported subfield 21 within the Rate Adaptation Control/Extended TPC field, contains the RCPI (see 20.3.10 and 29.3.9.2) for the 22 ith RF chain averaged across all PSDUs received within a measurement interval intended for the STA, and 23 where the PSDUs are transmitted using an MCS other than MCS 0 or EDMG MCS 0. The value of the 24 subfield is found by computing the arithmetic mean of the RF power measurements in mW, converting the 25 result to dBm, and encoding the dBm value as defined in 9.4.2.37. This statistic is reset when the reset condition defined in 9.4.2.142.6 is met.

***TGay Editor: Add the text in the following paragraphs (P117L31-P118L17)***

Each SNR Per STSi subfield, 1 ≤ i ≤ NSTS, where NSTS is the value of the Number of Space-Time Streams Reported subfield within the Rate Adaptation Control/Extended TPC field, contains the SNR of space-time stream i averaged across all PSDUs received within a measurement interval intended for the STA, and where the PSDUs are transmitted using an MCS other than MCS 0 or EDMG MCS 0. The value of the subfield is found by computing the arithmetic mean of the PPDU signal-to-noise ratios with signal and noise power in mW, converting the result to dB, and encoding the dB value in the same way as the SNR subfield in the Channel Measurement Feedback element. This statistic is reset when the reset condition defined in 9.4.2.142.6 is met.

Each MCSi subfield, 1 ≤ i ≤ NSTS, where NSTS is the value of the Number of Space-Time Streams Reported subfield within the Rate Adaptation Control/Extended TPC field, contains the MCS of space-time stream i. This subfield is used to indicate the MCS which was used to collect the values within the Parameters Across LDPC Codewords field or Parameters Across SC Blocks/OFDM Symbols field. If the Number of PPDUs subfield within the Rate Adaptation Control/Extended TPC field is 0, the MCSi subfield is set to 255. This statistic is reset when the reset condition defined in 9.4.2.142.6 is met.

Each Link Margin Per STSi subfield, 1 ≤ i ≤ NSTS, where NSTS is the value of the Number of Space-Time Streams Reported subfield within the Rate Adaptation Control/Extended TPC field, contains the link margin measured on space-time stream i and averaged across all PPDUs received within a measurement interval intended for the STA, and where all the PPDUs are transmitted using an MCS other than MCS 0 or EDMG MCS 0. The value of the subfield is found by computing the arithmetic mean of link margin values in decibels, and encoding the result as a 2s complement signed integer in units of decibels. A value of –128 indicates that no link margin is provided. The method used to measure link margin is beyond the scope of this standard. This statistic is reset when the reset condition defined in 9.4.2.142.6 is met.

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| CID | Clause | Comment | Proposed change |
| 4060 | 10.44.1 | The section "If the DMG Link Margin element does not include the Parameters Across PPDUs field, the requesting STA may use values of the MCS, SNR and Link Margin fields in a received DMG Link Margin element to transmit frames to the STA indicated in the RA field of the Link Measurement Request frame. Otherwise, the requesting STA may use values of the MCS, SNR and Link Margin field(s) in the received Parameters Across PPDUs field to transmit frames to the STA indicated in the RA field of the Link Measurement Request frame." is not fully right. | Replace with: "If the DMG Link Margin element does not include the Parameters Across PPDUs field nor Parameters Across LDPC Codewords field nor Parameters Across SC Blocks/OFDM Symbols field, the requesting STA may use values of the MCS, SNR and Link Margin fields in a received DMG Link Margin element to transmit frames to the STA indicated in the RA field of the Link Measurement Request frame. Otherwise, the requesting STA may use values of the MCS, SNR and Link Margin field(s) in the received Parameters Across PPDUs field to transmit frames to the STA indicated in the RA field of the Link Measurement Request frame."Any of these fields can serve. |

**Discussion:**

The commenter is correct. The text states ONLY “Parameters Across PPDUs field” while the other parameters “Parameters Across LDPC Codewords” and “Parameters Across SC Blocks/OFDM Symbols” are viable alternatives for the same purpose. Hence, they should be added.

**Proposed resolution:** Accept.

***TGay Editor: Add the text in the following paragraph (P117L21-26)***

If the DMG Link Margin element does not include the Parameters Across PPDUs field nor Parameters Across LDPC Codewords field nor Parameters Across SC Blocks/OFDM Symbols field, the requesting STA may use values of the MCS, SNR and Link Margin fields in a received DMG Link Margin element to transmit frames to the STA indicated in the RA field of the Link Measurement Request frame. Otherwise, the requesting STA may use values of the MCS, SNR and Link Margin field(s) in the received Parameters Across PPDUs field to transmit frames to the STA indicated in the RA field of the Link Measurement Request frame.

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| CID | Clause | Comment | Proposed change |
| 4094 | 9.4.2.142.6 | "within a measurement interval intended for the STA," - where is this measurement interval described? Add a link | Add a link to where that interval is described or defined |

**Discussion:**

The commenter is correct. The text “measurement interval” is mentioned several times in 9.4.1.142 but not defined anywhere.

However, in section 10.44.1 there is a definition of “report interval” which referes to the same.

**Proposed resolution:** Revised.

***TGay Editor: In all places in section 9.4.1.142,***

***replace “measurement interval” with “report interval”***

***TGay Editor: in section 9.4.2.274.5 (P183L17)***

***replace “reporting interval” with “report interval”***

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| CID | Clause | Comment | Proposed change |
| 4095 | 9.4.2.142.6 | "End of reporting period" - where is the reporting period defined? How is the end reached? | Define the reporting period, add a link or remove the reset condition from this subclause |

**Discussion:**

The “reporting period” is not defined, however the spec defines that the periodic report does have a limit, set by the Report Count subfield.

**Proposed resolution:** Revised.

***TGay Editor: Revise the text in the following paragraph (P119L13)***

 The number of reports sent reached the Report Count as defined in the Periodic Report Request subelement, see section 9.4.2.274.2.

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| CID | Clause | Comment | Proposed change |
| 4279 | 10.44.1 | "the last received frame" does not cover the case that measurement is computed across PPDUSimilarly in p337.L12 "measurements based on the reception of the PPDU that was used to generate the MCS 12 feedback contained in the Parameters Across PPDUs field" also indicates 1 PPDU | change these descriptions to be consistent with the field descriptions in 9.4.2.142.4/5/6/7 |

**Discussion:**

The commenter is correct that the last part (new in Draft 3.0 and underlined) is not adequate for the periodic measurement and report in both places

**Proposed resolution:** Revised.

***TGay Editor: Revise the text in the following paragraph (P337L1-3)***

Measurement Report frame shall be computed using the measurements of the PPDU that is the next frame received from the requesting STA, or the received PPDUs from the requesting STA within the corresponding report interval, subject to the reset condition rules.

***TGay Editor: Revise the text in the following paragraph (P337L7-13)***

The SNR field and Link Margin field in the Link Measurement Report frame shall indicate the corresponding measurements based on the reception of the PPDU that was used to generate the MCS feedback contained in the same Link Measurement Report frame. If the Link Measurement Report frame contains measurements of more than one STS, the SNR Per STS subfield in the Parameters Across PPDUs field and the Link Margin subfield in the Extended TPC field in the Link Measurement Report frame shall indicate the corresponding measurements based on the reception of the PPDU that was used to generate the MCS feedback contained in the Parameters Across PPDUs field within the same Link Measurement Report frame, or the corresponding measurements of received PPDUs from the requesting STA within the corresponding report interval, subject to the reset condition rules.