IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Resolution to CID related to NTX and NSTS | | | | |
| Date: 2019-March-12 | | | | |
| 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 4038, 4041, 4261, 4096, 4057, 4089, 4260, 4312

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

|  |  |  |  |
| --- | --- | --- | --- |
| CID | Clause | Comment | Proposed change |
| 4038 | 9.4.2.142.1 | The Extended TPC field is optionally present. If present, as defined in 9.4.2.142.8, it contains the 11 activity and link margin of each STS AND NOT per transmit chain. | Replace "it contains the activity and link margin of each transmit chain reported." with "it contains the activity and link margin of each STS reported." |

**Discussion:**

The commenter is correct.

**Proposed resolution:** Accept.

***TGay Editor: Replace the text(P116L11)***

The Extended TPC field is optionally present. If present, as defined in 9.4.2.142.8, it contains the activity and link margin of each ~~transmit chain~~ STS reported.

|  |  |  |  |
| --- | --- | --- | --- |
| CID | Clause | Comment | Proposed change |
| 4041 | 9.4.2.143 | Replace NTX with NSTS in DMG Link Adaptation Acknowledgment element. | Replace NTX with NSTS in DMG Link Adaptation Acknowledgment element. |
| 4261 | 9.4.2.143 | NTX in figure 9-572 and figure 39 should be NSTS | change to NSTS in figure 9-572 and change field name to 'Number of NSTS Reported(NSTS)' in figure 39, as well as figure 40 and the description that follows |
| 4096 | 9.4.2.143 | "The number of Transmit Chains Reported" Link adaptation is not performed over TRN fields, and therefore, the responder does not have any information about how many transmit chains were used in the transmission, or their quality. It is only aware of Space time Streans | Throughout this sublcause, replace TX chains with space time streams |

**Discussion:**

The commenters are correct. The 9.4.2.143 DMG Link Adaptation Acknowledgment element, sent by the transmitter should contain information per NSTS (and not NTX).

Note that in some cases “The Activity field is set to the action that the STA sending this element has executed following the reception of the recommended activity in a Link Measurement Report frame” (REVmd). The later is according to NSTS.

**Proposed resolution:** Revise.

***TGay Editor: Replace figure change 9-572 to the following (P120L18)***



***TGay Editor: Replace figure 39 to the following (P120L21)***



***TGay Editor: Replace the text as follows (P120L23-28)***

The Number of STS Reported (~~NTX~~ NSTS) subfield is optionally present. If present, it indicates the number of ~~transmit chains~~ STS being reported in the Extended TPC Link Adaptation Acknowledgement subfield. If the value of this field is greater than 0, the Activity field in the DMG Link Adaptation Acknowledgment element is reserved.

The Extended TPC Link Adaptation Acknowledgement field is only present if the value of the Number of ~~Transmit Chains~~ STS Reported (~~NTX~~ NSTS) subfield is greater than 0, and its format is shown in Figure 40.

***TGay Editor: Replace figure 40 to the following (P120L29)***



***TGay Editor: Replace the text as follows (P120L31-34)***

Each Activityi subfield, 1 ≤ *i* ≤ ~~NTX~~NSTS, within the Extended TPC Link Adaptation Acknowledgement field is set to the action that the STA sending this element has executed for the ~~transmit chain~~ STS *i* following the reception of the recommended activity in a Link Measurement Report frame. The method by which the sending STA determines the action is described in 10.44 and the Activity field is defined in 9.4.2.142.2.

|  |  |  |  |
| --- | --- | --- | --- |
| CID | Clause | Comment | Proposed change |
| 4057 | 9.4.2.274.3 | 9.4.2.274.3 Extended TPC Configuration subelement and 9.4.2.274.4 EDMG Transmit Power subelement, includes Tx per NTX, however the receiver sees only STS and can send feedback for each STS. Hence they should include both. | Add to Figure 109 and 110 the Tx Power per STS. Also add text about the coding of the later. |

**Discussion:**

The commenter is correct. The Extended TPC Configuration should contain information per NSTS (and not NTX).

**Proposed resolution:** Revise.

***TGay Editor: Replace figure 109 to the following (P182L5)***



***TGay Editor: Replace the text as follows (P182L9-11)***

The Number of ~~TX Chains~~ STS field indicates the number of ~~transmit chains~~ STS used in the transmission of the PPDU containing the Link Measurement Request frame. If the Channel Aggregation field is 1, the Number of ~~TX Chains~~ STS subfield is an even number.

***TGay Editor: Replace figure 110 to the following (P182L16)***



***TGay Editor: Replace the text as follows (P182L18-28)***

Each Transmit Power Used field, 1 ≤ *a* ≤ *~~NTX~~NSTS*, indicates the transmit power used in the ~~transmit chain~~ STS *is* to transmit the PPDU containing the Link Measurement Request frame, as described in 9.4.1.20. *~~NTX~~* ~~represents the number of transmit chains of the STA.~~

Each Max Transmit Poweri field, 1 ≤ *i* ≤ *~~NTX~~NSTS*, indicates the upper limit on the transmit power of the ~~transmit chain~~ STS *i* measured at the output of the antenna connector to be used by the transmitting STA on its operating channel. This field is described in 9.4.1.19. Each Max Transmit Powers field is a 2s complement signed integer providing an upper limit, in a dBm scale, on the transmit power as measured at the output of the antenna connector to be used by the transmitting STA on its operating channel. The maximum tolerance for the value reported in each Max Transmit Poweri field is ±5 dB. The value of each Max Transmit Poweri field is equal to the minimum of the maximum powers at which the STA is permitted to transmit in the operating channel by device capability, policy, and regulatory authority.

|  |  |  |  |
| --- | --- | --- | --- |
| CID | Clause | Comment | Proposed change |
| 4089 | 9.4.2.142.3 | There seem to be no "Number Of TX Chains Reported" subfield in the Rate Adapation Control/Extended TPC field format - Remove the paragraph describing it. | Remove the paragraph describing this field (lines 24-26) |
| 4260 | 9.4.2.142.3 | There is no 'Number of TX Chains Reported (NTX)' subfield. | remove the subfield description and change p337 L35, L38 to match NSTS defined in Rate Adaptation Control/Extended TPC field |
| 4312 | 9.4.2.142.3 | "The Number of TX Chains Reported (NTX) subfield indicates the number of TX chain entries being reported. 24 Each entry, i, corresponds to a TX chain i. If the value of this subfield is greater than 0, the MCS, Link Margin 25 and SNR fields in the DMG Link Margin element are reserved." Number of TX chains Reported (NTX) in Figure 33 | Remove Number of Tx chains Reported sentence |

**Discussion:**

The commenters are correct. No need for NTX definition.

**Proposed resolution:** Accept.

***TGay Editor: Remove the following text (P116L24-26)***

~~The Number of TX Chains Reported (NTX) subfield indicates the number of TX chain entries being reported. Each entry, i, corresponds to a TX chain i. If the value of this subfield is greater than 0, the MCS, Link Margin and SNR fields in the DMG Link Margin element are reserved.~~

|  |  |  |  |
| --- | --- | --- | --- |
| CID | Clause | Comment | Proposed change |
| 4260 | 9.4.2.142.3 | There is no 'Number of TX Chains Reported (NTX)' subfield. | remove the subfield description and change p337 L35, L38 to match NSTS defined in Rate Adaptation Control/Extended TPC field |

**Discussion:**

The commenter is correct. NTX should be replaced with NSTS.

**Proposed resolution:** Revised.

***TGay Editor: Replace the text as follows (P337L30-40)***

If the STA implements the recommendation indicated in the Activity field of a Link Measurement Report frame that includes a Rate Adaptation Control/Extended TPC field for one or more STS, it shall send a Link Measurement Report frame containing a DMG Link Adaptation Acknowledgment element. The value of the Number of ~~Transmit Chains~~ STS Reported field within the DMG Link Adaptation Acknowledgment element shall be set to the same value of the Number of ~~Transmit Chains~~ STS Reported field in the DMG Link Margin element within the Link Measurement Report frame. If the STA implements the recommendation for a ~~transmit chain~~ STS, the Activity field of the DMG Link Adaptation Acknowledgment element shall be set to the value of the Activity field in the received DMG Link Margin element of the same ~~transmit chains~~ STS. If the STA does not implement the recommendation for a ~~transmit chain~~ STS, the Activity field of the DMG Link Adaptation Acknowledgment element shall be set to 0.

**Comment during the meeting:**

“The same issue exists in P337L10”

**Discussion:**

The commenter is correct.

***TGay Editor: Replace the text as follows (P337L10)***

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.