IEEE P802.11
Wireless LANs

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| LB188 Misceleeaneous Comment Resolution |
| Date: 2012-07-19 |
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Abstract

This document includes proposed resolutions to CIDs, 6293, 6384, 6708, 6772.

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| 6293 | 141.44 | 9.29.4 | A core aspect of MU BFee/BFer capability is whether a STA understands the MU PLCP header format. And that format is selected by the PHY using groupId = 0/63 versus 1-62, \*not\* by having 1 versus more users in the TXVECTOR. That is, a non-MU BFer/BFee can't understand a MU-formated PPDU carryin only 1 user | Delete NUM-STS language and replace by GroupID language. 2x in this clause |

Proposed Resolution: Revised. See changes in <this document> for CID 6293

Context:

A VHT MU Beamformer may transmit a VHT MU PPDU with a single non-zero TXVECTOR parameter NUM\_STS[*p*], where .(#5376)

A VHT MU Beamformer shall not transmit a VHT MU PPDU with a non-zero TXVECTOR parameter NUM\_STS[*p*], where , to a STA whose MU Beamformee Capable field is equal to 0.(#5376)

Discussion:

The commenter is correct. Group ID is the parameter used to differentiate between MU PPDU and SU PPDU. Furthermore the NUN\_STS parameter is used for both SU and MU.

Proposed Changes:

A VHT MU Beamformer may transmit a VHT MU PPDU with TXVECTOR parameter GROUP\_ID having a value between 1 and 62(#5376)

A VHT MU Beamformer shall not transmit a VHT MU PPDU with TXVECTOR parameter Group\_ID having a value between 1 and 62, to a STA whose MU Beamformee Capable field is equal to 0.(#5376)

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| 6384 | 141.38 | 9.29.3 | unnecessary info, remove "VHT Capabilities Info field" | as in comment |

Proposed Resolution: Accepted

Context:

The value of *Nr* within an explicit Beamforming feedback frame transmitted by a VHT beamformee will not exceed the value indicated in the Compressed Steering Number of Beamformer Antennas Supported subfield of the VHT Capabilities element **VHT Capabilities Info field**.(#4315)

Discussion:

The commenter is correct. A reference to the VHY Capabilities element is sufficient.

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| 6708 | 141.38 | 9.29.3 | "The value of Nr within an explicit Beamforming feedback frame transmitted by a VHT beamformee will not exceed the value indicated in the Compressed Steering Number of Beamformer Antennas Supported subfield of the VHT Capabilities element VHT Capabilities Info field." | unnecessary info, remove "VHT Capabilities Info field" |

Proposed Resolution: Accepted

See resolution of CID 6384 in this document

Context:

as in CID 6384.

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| 6772 | 139.47 | 9.29.1 | Instead of inserting "HT" all over the place in subclauses 9.29.x, why not just title the appropriate subclauses "HT xyz"? In addition, 9.29.1 is the General sub-subclause for 9.29, so "This subclause" should refer to all of 9.29 -- which apparently it does not. | Replace the 9.29.1 title "General" with "HT steering matrix calculations" and replace the 9.29.2 title "Transmit beamforming with implicit feedback" with "HT transmit beamforming with implicit feedback", dropping the first sentences of each. |

Proposed Resolution: Accepted

Context:

* General

Change as follows:(#4432)

This subclause assumes that only HT PPDUs are used and any HT Control field is an HT variant HT Control field.(#4707)

In order for an HT beamformer to calculate an appropriate steering matrix for transmit spatial processing when transmitting to a specific HT beamformee, the HT beamformer needs to have an accurate estimate of the channel over which it is transmitting. Two methods of calculation are defined as follows:

* *Implicit feedback*: When using implicit feedback, the beamformer receives long training symbols transmitted by the HT beamformee, which allow the MIMO channel between the HT beamformee and HT beamformer to be estimated. If the channel is reciprocal, the HT beamformer can use the training symbols that it receives from the HT beamformee to make a channel estimate suitable for computing the transmit steering matrix. Generally, calibrated radios in MIMO systems can improve reciprocity. See 9.29.2.
* *Explicit feedback*: When using explicit feedback, the HT beamformee makes a direct estimate of the channel from training symbols sent to the HT beamformee by the HT beamformer. The HT beamformee may prepare CSI or steering feedback based on an observation of these training symbols. The HT beamformee quantizes the feedback and sends it to the HT beamformer. The HT beamformer can use the feedback as the basis for determining transmit steering vectors. See 9.29.3.

An HT STA shall not transmit a PPDU with the TXVECTOR EXPANSION\_MAT parameter present if dot11BeamFormingOptionActivated is false.

Discussion: The commenter is correct. Cluase 9.29.1 is noe specific to HT beamforing and doesn’t generally refer to the whole 9.29.

**References:**