IEEE P802.11
Wireless LANs

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| Comment Resolutions to Clause 8.2.4.6.3 |
| Date: 2012-05-06 |
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##### Abstract:

##### This ducoment addresses CIDs 4283, 4284, 4526, 4652 (open), 4653, 4965, 4966, 5036, 5323 and 5329 (open) using 11acD2.0 as the baseline.

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| **~~CID~~** | **~~Page~~** | **~~Clause~~** | **~~Comment~~** | **~~Proposed Change~~** | **~~Resolution~~** |
| ~~4025~~ | ~~31.25~~ | ~~8.2.4.6.3~~ | ~~"Set to 1 if STBC is transmitted"Passive voice is considered dangerous. Transmitted when? By whom?Whether the current PPDU is STBC or not is part of the PHY encoding, so this relates to something else.~~ | ~~Change description so that is says something unambiguous. Seeing as I don't understand what it's trying to tell me, I am unfortunately not in a position to suggest a replacement.~~ | ~~Revised.~~  |

**~~Discussion:~~**

~~STBC indication is for the receiver to tell the transmitter whether the measured PPDU is transmitted with STBC coding or not.~~

**~~Proposed Resolution:~~**

~~REVISED. Make changes as specified in doc. 12/0491r0.~~

**~~Proposed Text Change:~~**

~~Change P31L23 as below:~~

~~The STBC Indication subfield contains:~~

~~Set to 0 if the measured PPDU was not coded with STBC~~

~~Set to 1 if the measured PPDU was coded with STBC~~

CID 4025 has been resolved in doc 12/0520r1.

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| 4283 | 31.44 | 8.2.4.6.3 | What happens to SNR if no feedback is present (or no SNR info is present?). See also P33L22 | Define SNR field in these cases | Rejected. SNR is a subfield of MFB. We already have the rule for the case that MFB is not presented (P123L12-L26, D2.0).  |

**Discussion:**

SNR info is for the MFB receiver to adjust its transmit parameters. See P123L57, D2.0:

*“The STA receiving MFB may use the received MFB to compute the appropriate MCS, SNR, and N\_STS. The SNR\_average value in the above computation shall be adjusted assuming the number of space-time streams being equal to the value indicated by the N\_STS field.”*

Now we already have the rule for the case that MFB is not present (P123L12-L26, D2.0):

*“The MFB responder may send a solicited response fram e with any of the following combinations of MCS, N\_STS and MFSI:*

*— MCS = 15, N\_STS = 7 in the MFB subfield, MFSI = 7: no information is provided for the immediately preceding request or for any other pending request. This combination is used when theresponder is required to include a VHT variant HT Control field due to other protocols that use this field (i.e., the Reverse Direction Protocol) and when no MFB is available. It has no effect on the sta-tus of any pending MRQ.*

*— MCS = 15, N\_STS = 7 in the MFB subfield, MFSI in the range 0 to 6: the responder is not now pro-viding, and will never provide, feedback for the request that had the MSI value that matches the MFSI value.*

*— MFB contains valid MCS and N\_STS, MFSI in the range 0 to 6: the responder is providing feedback for the request that had the MSI value that matches the MFSI value.”*

I don’t see the necessity to have any specific description for SNR info only.

**Proposed Resolution:**

REJECTED.

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| 4284 | 32.12 | 8.2.4.6.3 | "unbeaformed VHT PPDU" should refer to RXVECTOR parameter | Replace by RXVECTOR parameter (2x in this box) | Revised. The parameter BEAMFORMED in RXVECTOR indicates the information of beamformed or unbeamformed. Make changes as in doc 12/491r1. |
| 4652 | 32.15 | 8.2.4.6.3 | Based on the text of section9.28.3, an unsolicited MFB can be estimated from a beamformed VHT MU PPDU. However the sentence “If the Unsolicited MFB subfield is 1 and the FB Tx Type sub-field is 1, the unsolicited MFB is estimated from a beamformed VHT SU PPDU.” Here “SU” should be deleted. | Delete “SU” | Revised. This indication is only for SU. For MU case, it must be beamformed. However, refer to the resolution to CID 4284, ‘SU’ is already removed. |
| 4653 | 32.16 | 8.2.4.6.3 | The meaning of subfield “Coding Type”and “FB Tx Type” in Table 8-13a is inconsistent with the content in the definition column and the text in 9.28.3. Coding Type is not “the Coding type of MFB response”, and FB Tx Type is not “the transmission type of MFB response”. | Suggest to change the meaning of subfield”coding type” to “the coding type of the measured PPDU”.Change the meaning of subfield “FB Tx Type” to”the transmission type of the measured PPDU”. | Accepted. Change “MFB response” to “measured PPDU”. MFB response is the frame that carries MFB information. |

**Discussion:**

**CID 4284, 4652**

P31L35:

“*If the Unsolicited MFB subfield is 1 and the MFB is estimated from an MU PPDU, the MFSI/GID-L subfield contains the lowest 3 bits of Group ID of that PPDU from which the MFB was estimated (bit 0 of the Group ID appears in the lowest numbered bit of the field MFSI/GID-L). If the unsolicited MFB is estimated from an SU PPDU, the MFSI/GID-L subfield is set to all ones.*”

P31L46:

“*If the Unsolicited MFB subfield is 1 and the unsolicited MFB is estimated from an MU PPDU, the GID-H subfield contains the highest 3 bits of Group ID of the PPDU from which the unsolicited MFB was estimated (bit 3 of the Group ID appears in the lowest numbered bit of the field GID-H). If the unsolicited MFB is estimated from an SU PPDU, the GID-H subfield is set to all ones*.”

That is, the receiver uses non-zero value in GID-L and GID-H to indicate that the MFB in this frame is estimated from MU PPDU. Further, FB Tx Type is only used for SU PPDU, because

P124L28:

*“— The FB TX Type field is set to 1 if the parameter BEAMFORMED is equal to 1 and set to 0 if equal to 0*”

While BEAMFORMED in TXVECTOR and RXVECTOR is defined as (P169L23-30):



**CID 4653**

In Clause 9.28.3, “MFB response” refers to the frame that carries MFB information. So MFB response is sent from the receiver to the transmitter to feedback MFB. However, “Coding Type” and “FB Tx Type” indicate the coding type and the transmission type of the measured PPDU, respectively. So “Coding Type” and “FB Tx Type” are not the indications for the MFB response.

**Proposed Resolution:**

CID 4284. REVISED. Make changes as specified in doc. 12/0491r1.

CID 4652. REVISED. Make changes as specified in doc. 12/0491r2.

CID 4653. ACCEPTED. Make changes as specified in doc. 12/0491r1.

**Proposed Text Change:**

Change P32L1:

**Table 8-13a—VHT variant HT Control field subfields (continued)**

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| **Subfield** | **Meaning** | **Definition** |
| Coding Type | Coding type of the measured PPDU (#4653) | If the Unsolicited MFB subfield is 1, the Coding Type subfield contains the Coding information (0 for BCC and 1 for LDPC) from which the unsolicited MFB was estimated.Otherwise this subfield is reserved. |
| FB Tx Type | Transmission type of the measured PPDU (#4653) | If the Unsolicited MFB subfield is 1 and FB Tx Type subfield is 0, the unsolicited MFB is estimated from a VHT PPDU with RXVECTOR parameter BEAMFORMED equal to 0 (#4284).If the Unsolicited MFB subfield is 1 and the FB Tx Type subfield is 1, the unsolicited MFB is estimated from a VHT PPDU with RXVECTOR parameter BEAMFORMED equal to 1 (#4284).Otherwise this subfield is reserved. |

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| 4965 | 31.29 | 8.2.4.6.3 | In case of unsolicited NFB combined with MRQ equals 0, value of compressed MSI should be reserved. | Change as suggested | Reject. The draft already states that “If the Unsolicited MFB subfield is 0 and the MRQ subfield is 0, theMSI/STBC subfield is reserved.” Adding a description for compressed MSI is not necessary. |
| 4966 | 31.40 | 8.2.4.6.3 | In case no MFB is present (MFB field is all ones), value of MSFI/GID-L should be reserved | add “Otherwise this subfield is reserved” | Rejected. This comment is not correct. When MFB field is all ones, MFSI field indicates some information (P123L15-23, D2.0) |

**Discussion:**

For CID 4965, the draft already has the following statement for MSI:

“*If the Unsolicited MFB subfield is 0 and the MRQ subfield is 0, the MSI/STBC subfield is reserved.*”

For CID 4966, the comment is incorrect. When MFB field is all ones, MFSI field is used to indicate some info. See P123L15-L23, D2.0:

“*— MCS = 15, N\_STS = 7 in the MFB subfield, MFSI = 7: no information is provided for the immediately preceding request or for any other pending request. This combination is used when theresponder is required to include a VHT variant HT Control field due to other protocols that use this field (i.e., the Reverse Direction Protocol) and when no MFB is available. It has no effect on the sta-tus of any pending MRQ.*

*— MCS = 15, N\_STS = 7 in the MFB subfield, MFSI in the range 0 to 6: the responder is not now pro-viding, and will never provide, feedback for the request that had the MSI value that matches the MFSI value.*”

**Proposed Resolution:**

REJECTED.

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| 5036 | 32.42 | 8.2.4.6.3 | When the feedback SINR accurately represents the receiver capability, AP can choose the appropriate MCS level. There is no justification that MCS feedback will help improve the system performance when SINR is eedback with 1 dB granularity. Further, STA is not aware of the target PER, Tx power control etc. at AP to do any useful evaluation of MCS. | These bits should be redefined for some other functionalty or kept reserved for future use. | Rejected. The role of SNR is different from MCS. To have both SNR and MCS in MFB is to provide the flexibility for the MFB responder to choose its optimum transmit parameters. |

**Discussion:**

SNR is calculated from the measured PPDU, it is an estimated value averaged over space-time streams. There is no fixed rule to calculate the recommended MCS at the MRQ responder. It can be computed from the received SNR or the PER of the received frames or some other ways.

Further, “*The STA receiving MFB may use the received MFB to compute the appropriate MCS, SNR, and N\_STS.*” How to make use of the received MFB is implementation specific. In other word, the MFB responder has to calculate the MCS only based on SNR if we remove MCS feedback. In this case, It may not be able to reach an optimal performance.

**Proposed Resolution:**

REJECTED.

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| 5323 | 32.19 | 8.2.4.6.3 | The Unsolicited MFB field is set according to MFB type. An MRQ is not an MFB. | Add text along the lines of "This field is only set to one if the frame is an MFB and not a response to an MRQ. Otherwise, it is zero." | Rejected. Unsolicited MFB field is set according to whether this MFB is a response to an MRQ or not. |

**Discussion:**

Unsolicited MFB field is set according to whether this MFB is a response to an MRQ or not. There is no scenario that this field can be used for any case other than MFB. So I don’t see any reason to specify if this field is an MFB.

**Proposed Resolution:**

REJECTED.

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| 4526 | 30.55 | 8.2.4.6.3 | The "VHT variant HT control field" is a dramatically different field from the HT control field. | On pages 28 and 30 rewrite the text to define the "VHT variant HT Control field" as a separate "VHT Control field" from the HT Control field, with its own new subclause 8.2.4.6a following the HT Control field subclause. Then replace "VHT variant HT Control" with "VHT Control" throughout the draft text. | Rejected. Both “VHT variant HT Control field” and “VHT variant HT Control field” are “HT Control field”. “VHT Control field” is not a separate field. |
| 5329 | 30.46 | 8.2.4.6.3 | It is not clear whether the VHT variant of the HT control field can be carried in a VHT PPDU or not. Similarly, the reverse is also not clear. | To be consistent, I would suggest for QoS Data and Management frames VHT variant of HTC to be used with VHT format; and HT variant of HTC to be used with HT format. | Rejected. All VHT PPDU can carry both VHT variant HT control field and HT variant HT control field, while HT PPDU can only carry HT variant HT control. To carry which type of HT control field is determined by the transmitter and implementation specific. |

**Discussion:**

**CID 4526**

VHT variant HT control field is a type of HT control field, the other type of HT control field is HT variant HT control field. So the comment is not correct.

**CID 5329**

A VHT STA is also an HT STA, but an HT STA may not be a VHT STA. VHT variant HT control field is a type of HT control field.

In 802.11REVmb Draft 12.0:

“*8.2.4.1.10 Order field*

*The Order field is 1 bit in length. It is used for two purposes:*

*— It is set to 1 in a non-QoS data frame transmitted by a non-QoS STA to indicate that the frame contains an MSDU, or fragment thereof, that is being transferred using the StrictlyOrdered service class.*

*— It is set to 1 in a QoS data or management frame transmitted with a value of HT\_GF or HT\_MF for the FORMAT parameter of the TXVECTOR to indicate that the frame contains an HT Control field.*

*Otherwise, the Order field is set to 0.*”

And in 802.11ac Draft 2.0, VHT is included:

“*8.2.4.1.10 Order field*

*Change the second bullet in the first paragraph as follows:*

*— It is set to 1 in a QoS data or management frame transmitted with a value of HT\_GF or, HT\_MF or*

*VHT for the FORMAT parameter of the TXVECTOR to indicate that the frame contains an HT Control field*.”

So all VHT PPDU can carry both VHT variant HT control field and HT variant HT control field, while HT PPDU transmitted by HT STA but not VHT STA can only carry HT variant HT control field. To carry which type of HT control field is determined by the transmitter and implementation specific.

**Proposed Resolution:**

REJECTED.