IEEE P802.11
Wireless LANs

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| 802.11 REVmc Initial Sponsor ballot - Proposed resolutions for some VHT PHY comments  |
| Date: 2015-11-08 |
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**Abstract**

This document contains proposed resolutions for some of SB0 comments in the VHT PHY.

R0: Proposed resolutions for CIDs: 5938, 6264, 6265, 6266, 6267, 6296, 6675, 6678

**CID 5938**

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 5938 | 2539.42 | 22.3.11.2 | sun | "The beamformee decides the tone grouping value to be used in the beamforming feedback matrix V. A STA with dot11VHTSUBeamformerOptionImplemented equal to true shall support all tone grouping values and Codebook Information values."The first sentence is a transmit requirement, while the second is a receive requirement. | Clarify |  | GEN |

**Referred content:**

*“The beamformee decides the tone grouping value to be used in the beamforming feedback matrix V. A STA with dot11VHTSUBeamformerOptionImplemented equal to true shall support all tone grouping values and Codebook Information values.”*

**Discussion**

As the commentor pointed out, the referred content includes transmit behavior requirement and reveive capability requirement. It’s an accepted way to describe the protocol behaviour of tx side and the capability requirement of the rx side. A similar case is that a transmitting STA decides whether to send RTS or not, while the receiving STA must support receiving RTS.

**Proposed resolution:**

Revised

Replace “A STA with dot11VHTSUBeamformerOptionImplemented equal to true shall support all tone grouping values and Codebook Information values” with “A beamformer shall support all tone grouping values and Codebook Information values”.

And delete the note at 2539.46 of D4.0.

**CID 6264/6266**

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6264 | 2552.09 | 22.3.18.2 | sun | It says "compliant with the OFDM PHY" | Change to "compliant with the VHT PHY" |  | GEN |
| 6266 | 2553.20 | 22.3.18.3 | sun | It says "compliant with the OFDM PHY" | Change to "compliant with the VHT PHY" |  | GEN |

**Referred content:**

*“The interfering signal in the adjacent channel shall be a signal compliant with the OFDM PHY, unsynchronized with the signal in the channel under test, and shall have a minimum duty cycle of 50%. For a conforming OFDM PHY, the corresponding rejection shall be no less than specified in Table 22-26 (Minimum required adjacent and nonadjacent channel rejection levels).”*

**Discussion**

The interfering signal in the adjacent channel or nonadjacent channel is intended to be taken as if it’s an OFDM PHY signal. And the same description applies to HT PHY as well.

**Proposed resolution:**

Rejected

**CID 6265/6267**

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6265 | 2552.10 | 22.3.18.2 | sun | It says "For a conforming OFDM PHY" | Change to "For a VHT PHY" |  | GEN |
| 6267 | 2553.21 | 22.3.18.3 | sun | It says "For a conforming OFDM PHY" | Change to "For a VHT PHY" |  | GEN |

**Referred content:**

 “*The interfering signal in the nonadjacent channel shall be a signal compliant with the OFDM PHY, unsynchronized with the signal in the channel under test, and shall have a minimum duty cycle of 50%. For a conforming OFDM PHY, the corresponding rejection shall be no less than specified in Table 22-26 (Minimum required adjacent and nonadjacent channel rejection levels).*”

**Discussion**

The approved solution to a comment (CID 6257) has covered the same comment of CID 6265 and CID 6267. And the approved resolution stated “*Change "For a conforming OFDM PHY, the" to "The" at the locations: 2367.42, 2368.6, 2552.12, 2553.23*”

Although agreed with the commentor’s intention, to avoid redundant modification to the spec draft, there’s no need for additional resolution to these two comments.

**Proposed resolution:**

Revised

Apply the same resolution as CID 6257.

**CID 6296**

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6296 | 2502.01 | 22.3.8.3.3 | Sun | If STBC is set in VHT-SIG-A then GID needs to indicate SU and the SU NSTS needs to be even -- there should at least be a NOTE to that effect | Add a NOTE to that effect |  | GEN |

**Referred content:**

Table 22-12

**Discussion**

The table 22-12 provides a general description for the meaning of the value of each field of the VHT-SIG-A. Detailed implementation restriction of particular field values is described in corresponding function description section. For example, in *22.3.10.9.4 Space-time block coding* subclause, the spec draft has stated that the spec only defines STBC for VHT SU PPDUs.

Meanwhile, the spec also provides notes as below to remind the fact that STBC is only defined for SU PPDUs:

“*Note that the mapping of the STBC field, the NSTS/Partial AID field, the SU/MU[0] Coding field, the SU VHT-MCS/MU[1-3] Coding field, and the Beamformed field is different for VHT SU and MU PPDUs.*”

Further more, in Table 22-20, the Nsts for STBC is defined as even.

But I agreed with the commentor that to provide a reference link in the Description column will provide convenience to the reader to seek for corresponding function description sections.

**Proposed resolution:**

Revised

*Please 802.11revmc tech editor to modify the Descritpion column of the STBC field of VHT-SIG-A1part in Table 22-12 as below:*

For a VHT SU PPDU:

 Set to 1 if space time block coding (see 22.3.10.9.4 Space-time block coding) is used and set to 0 otherwise.

For a VHT MU PPDU:

 Set to 0.

**CID 6675**

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6675 | 2455.00 | 22 | sun | "The Clause 20 (High Throughput (HT) PHY specification) PHY TXVECTOR and RXVECTOR contain additional parameters related to the operation of the Clause 20 (High Throughput (HT) PHY specification) PHY modes of operation as described in 20.2 (HT PHY service interface). In certain modes of operation, the DATARATE parameter is replaced by a MCS value. The mapping from Clause 20 (High Throughput (HT) PHY specification) MCS to data rate is defined in 20.5 (Parameters for HT MCSs)." needs to be extended to VHT. | As it says in the comment |  | GEN |

**Referred content:**

*“*7.3.4.4 Vector descriptions

**……**

*The Clause 20 (High Throughput (HT) PHY specification) PHY TXVECTOR and RXVECTOR contain additional parameters related to the operation of the Clause 20 (High Throughput (HT) PHY specification) PHY modes of operation as described in 20.2 (HT PHY service interface). In certain modes of operation, the DATARATE parameter is replaced by a MCS value. The mapping from Clause 20 (High Throughput (HT) PHY specification) MCS to data rate is defined in 20.5 (Parameters for HT MCSs).”*

**Discussion**

The commenter is correct that VHT defines MCS in the similar way as HT as in subclause 22.5 *Parameters for VHT-MCSs.*It’s reasonable to modify the corresponding description in 7.3.4.4 to reflect VHT’s MCS definition.

**Proposed resolution:**

Revised

*Please 802.11revmc tech editor to modify the last paragraph of subclause 7.3.4.4 Vector descriptions in page 546, line 22 as below:*

The Clause 20 (High Throughput (HT) PHY specification) PHY TXVECTOR and RXVECTOR contain additional parameters related to the operation of the Clause 20 (High Throughput (HT) PHY specification) PHY modes of operation as described in 20.2 (HT PHY service interface). In certain modes of operation, the DATARATE parameter is replaced by ~~a~~ MCS, CH\_BANDWIDTH and GI\_TYPE values. The mapping from ~~Clause 20 (High Throughput (HT) PHY specification) parameters~~ these values to data rate is defined in 20.5 (Parameters for HT MCSs).

*Please 802.11revmc tech editor to add a new paragraph as below to the end of the last paragraph of subclause 7.3.4.4 Vector descriptions in page 546, line 28 as below:*

The Clause 22 (Very High Throughput (VHT) PHY specification) PHY TXVECTOR and RXVECTOR contain additional parameters related to the operation of the Clause 22 (Very High Throughput (VHT) PHY specification) PHY modes of operation as described in 22.2 (VHT PHY service interface). In certain modes of operation, the DATARATE parameter is replaced by MCS, CH\_BANDWIDTH, NUM\_STS, STBC and GI\_TYPE values. The mapping from these values to data rate is defined in 22.5 (Parameters for VHT MCSs), where VHT-MCS is MCS and NSS is NUM\_STS / (STBC + 1).

**CID 6678**

| **CID** | **Page** | **Clause** | **Resn Status** | **Comment** | **Proposed Change** | **Resolution** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 6678 | 2455.00 | 22 | sun | "Table 22-2--- PPDU format as a function of CH\_BANDWIDTH parameter" only talks of CBW\_n even for HT formats, but the CBW for HT formats is HT\_CBW\_n. | Use the correct terminology |  | GEN |

**Referred content:**

**“**Table *22-2--- PPDU format as a function of CH\_BANDWIDTH parameter*”

**Discussion**

As the commentor pointed out, the value of the CH\_BANDWIDTH parameter for a HT format PPDU is as defined in *Table 20-1-- TXVETOR and RXVECTOR parameters*. And in Revmc D4.3, a similar modification has made to *Table 22-1 – TXVETOR and* RXVECTOR parameters when referring CH\_BANDWIDTH for HT\_MF or HT\_GF.

**Proposed resolution:**

Revised

*Please 802.11revmc tech editor to modify the CH\_BANDWIDHT fields of the first two raws in Table 22-2 – PPDU format as a function of CH\_BANDWIDTH parameter in page 2539, line 38 and line 45 as shown below:*

**Table 22-2 – PPDU format as a function of CH\_BANWIDHT parameter**

|  |  |  |  |
| --- | --- | --- | --- |
| **FORMAT** | **NON-HT-MODULATION** | **CH\_BANDWIDTH** | **PPDU format** |
| VHT, HT\_MF or HT\_GF | N/A | CBW20 when FORMAT is VHT;HT\_CBW20 when FORMAT is HT\_MF or HT\_GF | The STA transmits an HT-mixed PPDU (whenFORMAT is HT\_MF) or HT-greenfield PPDU (when FORMAT is HT\_GF) or VHT PPDU (when FORMAT is VHT) of 20 MHz bandwidth. If the operating channel width is wider than 20 MHz, then the transmission shall use the primary 20 MHz channel. |
| VHT, HT\_MF or HT\_GF | N/A | CBW40 when FORMAT is VHT;HT\_CBW40 when FORMAT is HT\_MF or HT\_GF | The STA transmits an HT-mixed PPDU (whenFORMAT is HT\_MF) or HT-greenfield PPDU (whenFORMAT is HT\_GF) or VHT PPDU (when FORMAT is VHT) of 40 MHz bandwidth. If the operating channel width is wider than 40 MHz, then the transmission shall use the primary 40 MHz channel. |
| … | … | … | … |