IEEE P802.11  
Wireless LANs

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| 802.11 TGac WG Letter Ballot LB187  Proposed resolutions to comments on Clause 22.3.7 | | | | |
| Date: 2012-03-08 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Youhan Kim | Qualcomm | 1700 Technology Drive  San Jose, CA 95110 |  | [youhan.kim@qca.qualcomm.com](mailto:youhan.kim@qca.qualcomm.com) |
| Allert Van Zelst | Qualcomm | Straatweg 66-S | +31 346 259663 | [allert@qaulcomm.com](mailto:allert@qaulcomm.com) |

##### Comments are based on 11ac D2.0. Proposed resolutions are based on 11ac D2.0. Changes indicated by a mixture of Word track-changes and instructions. For equation changes, Latex notation is sometimes used. E.g. a\_{xyz}^b denotes axyzb

This document addresses CIDs on Clause 22.3.7, except CID 4574.

Following CIDs are covered in this document (total 6):

PHY: 5474, 4684, 4082, 5150, 5151, 5152

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 5474 | 192.01 | 22.3.7 | In "the center (DC) carrier", "carrier" should be changed to "subcarrier" or "tone" | Change "carrier" to "subcarrier" or "tone" |

**Discussion:**

Context:





Searching through D2.0, there are 5 instances of “DC subcarrier” and only one instance of “DC tone” (P198L28).

**Proposed Resolution:**

REVISE. See 12/0298r0.

**Proposed Text Change:**

For a 20 MHz VHT PPDU transmission, the 20 MHz is divided into 64 subcarriers. The signal is transmitted on subcarriers -28 to -1 and 1 to 28, with 0 being the center (DC) subcarrier.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 4684 | 192.58 | 22.3.7 | Â¡Â°possible rangeÂ¡+/- is not strict in a specification. | Please provide a deterministic range. |

**Discussion:**

Context:



Given a dot11CurrentChannelBandwidth (which uniquely determines *N*20MHz), there are *N*20MHz possible choices for the primary 20 MHz channel location. Which one of these is actually chosen as the primary 20 MHz channel location is out of scope of Clause 22.

**Proposed Resolution:**

REJECT. Given a dot11CurrentChannelBandwidth, there are N\_20MHz possible choices for the primary 20 MHz channel location. P192L58 clearly specifies that n\_P20 is an integer with possible range of 0 <= n\_P20 <= N\_20MHz -1, which gives a finite deterministic values for n\_P20 (0, 1, … , N\_20MHz – 1). Which one of these is actually chosen as the primary 20 MHz channel location is out of scope of Clause 22.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 4082 | 194.32 | 22.3.7 | "is the channel starting frequency given in the operation class (Annex E)."  I looked in Annex E and found a bewildering diversity of starting frequencies. A hint as to which to use would be helpful. | If there is something that tells the phy how to determine the channel starting frequency, expand the cited statement to reference it. Otherwise add to the MAC-PHY interface a means whereby the PHY can determine the current operating domain and class. |

**Discussion:**

Context:



REVmb D12.0 uses dot11ChannelStartingFactor to configure the channel starting frequency.

REVmb D12.0, 18.3.8.4.2 (Channel numbering), P1678L1:



REVmb D12.0, 20.3.15.3 (Channel allocation in the 5 GHz band), P1809L47:



11ac should do the same.

**Proposed Resolution:**

REVISE. See 12/0298r0.

**Proposed Text Change:**

Change P194L32 as follows:

*f*CH,start is defined as dot11ChannelStartingFactor x 500 kHz or is defined as 5.000 GHz for systems where dot11OperatingClassesRequired is false.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 5150 | 195.36 | 22.3.7 | Indicate time starting point in Figure 22-10 | Add an arrow pointing to the beginning of L-STF, with the corresponding value 0. |

**Proposed Resolution:**

ACCEPT. See 12/0298r0 for updated figure.

**Proposed Text Change:**

Change Figure 22-10 on P195 as follows:





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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 5151 | 198.02 | 22.3.7 | Value of M\_u for pre-VHT modulated fields | Using M\_u=1 means that space-time means that the column index of the Q matrix (as in (24)) starts at 2. This doesn't look like the right value for pre-VHT modulated fields. Would it be more correct to say that M\_u is undefined, since it doesn't feature in the signal descriptions for pre-VHT modulated fields? |

**Discussion:**

Context:









*Mu* is used in two places in equation (24) – once for the column index of , and once for the input argument of *T*CS,VHT(*l*). Note that *T*CS,VHT(*l*) is defined to be 0 for the pre-VHT modulated fields, so the definition of *Mu* does not matter for in that case. For pre-VHT modulated fields,  is defined as a column vector. Since *Mu* + *m* is the column index of , and since *m*=1 (because *NSTS,u*=1) for pre-VHT modulated fields, *Mu* must defined to be 0 for pre-VHT modulated fields.

**Proposed Resolution:**

REVISE. See 12/0298r0.

**Proposed Text Change:**

Change P196L2 as follows:

For pre-VHT modulated fields, *Mu* = 0.

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** |
| 5152 | 198.14 | 22.3.7 | Does Q matrix include CSD for pre-VHT modulated fields? | This section states that for pre-VHT modulated fields, Q contains the CSD. In later sections, there is no Q matrix for pre-VHT modulated fields and the cyclic shifts are shown explicitly. |

**Discussion:**

Context:





Also, as an example, equation for the L-STF waveform is:



Note that Equation (24) is a generalized equation encompassing all fields in a PPDU. It is clearly defined on P196L12 that  is a column vector representing the CSDs used in the pre-VHT modulated fields. If one substitutes



into Equation (24), then one arrives at exactly Equation (31).

**Proposed Resolution:**

REJECT. The Q matrix includes the CSD for pre-VHT modulated fields as specified on P198L15.