IEEE P802.11
Wireless LANs

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| Comment Resolution for Beamforming Report Field |
| Date: 2011-07-18 |
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Abstract

This document provides resolution for the comments listed below.

Notes on this document:

* Comments are from: 11-11-0907-04-00ac-tgac-d1.0-comments.xls.
* Comments refer to: Draft P802.11ac\_D1.0.pdf.

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| 2002 | 32.00 | 8.4.1.37 |  |  | B18-B23 carries the sounding sequence number (the last 6 bits of the sounding sequence field) not the sounding sequence filed (which is 8-bit long) | change "sounding sequence" to "Sounding sequence number" in Figure 8-ac8 and Table 8-ac4 on page 33. |

Proposed Solution: Accept

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| 2027 | 36.38 | 8.4.1.38 |  |  | "averaged over subcarriers" is not clear. It is seemed that pilot subcarriers are not used to calculate the average SNR of each space-time stream because V matrices corresponding to pilot subcarriers are not included in VHT compressed beamforming report field; however, there is no definition to identify whether pilot subcarriers are included or not to calculate the average SNR.  | Please clarify the subcarriers which are used for average SNR calculation. If only data subcarriers are used for calculation of SNR, change "averaged over subcarriers" to "averaged over all data subcarriers".  |

Proposed Solution: Accept

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| 2666 | 32.30 | 8.4.1.37 |  |  | a matrix' is ambiguous. Same comment on P32L35 | Change 'a matrix' to 'the compressed beamforming matrix' |
| 3668 | 32.30 | 8.4.1.37 |  |  | "Indicates the number of columns, Nc, in a matrix minus one" -> in what matrix? | Clarify by changing to "in a beamforming matrix" |
| 3669 | 32.35 | 8.4.1.37 |  |  | "Indicates the number of rows, Nr, in a matrix minus one" -> in what matrix? | Clarify by changing to "in a beamforming matrix" |

Proposed Solution: Accept in principle. Change 'a matrix' to 'the compressed beamforming matrix'

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| 2667 | 39.20 | 8.4.1.38 |  |  | Subcarriers +-25, +-53, +-89 and +-117 are also pilot subcarriers in 160 MHz. | Delete +-25, +-53, +-89 and +-117 from the list. Also, add +-25, +-53, +-89 and +-117 to the list of pilot subcarriers. |
| 3673 | 39.20 | 8.4.1.38 |  |  | Ns is 468, but the number of indices is 476, it seems that only 8 pilot tones are skipped whereas 160 MHz has 16 pilot tones. | Also skip [+/-25 +/-53 +/-89 +/-117] |

Proposed Solution: Accept; Remove those 8 tones from the list and add them into pilots list in the Note at line 35 (page 39) in Table 8-ac8 (the case of 160MHz, Ng=1) [reference: 22.3.10.10]

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| 2744 | 36.38 | 8.4.1.38 |  |  | Whether pilot subcarriers are included in the calculation of averaged SNR or NOT is not clear.  | Please clarify.  |

Proposed Solution: Counter: Resolved by CID 2027

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| 2804 | 32.00 | 8.4.1.37 |  |  | "in a matrix" is rather wishy-washy; ditto "a measurement" | Clarify: what matrix and measurement? |

Proposed Solution: Counter: Resolved by CID 2666 for ‘matrix’ part.

 **For ‘measurement’ part, Suggest to change in Table 8-ac4, Channel Width Description (Page 32, Line 41) to ‘Indicates the width of the channel in which a measurement to create ‘Compressed Beamforming matrix’ was made’**

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| 2797 | 33.50 | 8.4.1.38 |  |  | The packing rules are not specified | Say something like "No padding is present between angles, even if they correspond to different subcarriers. The last angle is followed with zero pad to make the VHT Compressed Beamforming Report field an integer number of octets in size.". Perhaps an example could be given |

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| 2798 | 43.14 | 8.4.1.39 |  |  | The packing rules are not specified | Say something like "No padding is present between delta SNRs, even if they correspond to different subcarriers.". Perhaps an example could be given |

Proposed Solution: Reject

 Reason: We believe it is clear from the text. The same concept is described in 802.11n spec with examples for CID 2797. It is not necessary to add further text.

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| 2800 | 42.51 | 8.4.1.39 |  |  | Spurious prime after "Ng" | Delete the prime after "Ng" |

Proposed Solution: Counter: Ng’ description is new and missing the description. Since it is not mentioned anywhere else, we may remove Ng’ in the text.

 **Replace the sentence in Page 42, Line 51 with following**

 **‘**subset of the subcarriers spaced 2xNg apart, where Ng is signaled in VHT MIMO Control field (Figure 8-ac8),’

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| 3042 | 32.14 | 8.4.1.37 |  |  | Reserved fields B16..B17 in Figure 8-ac8 are claimed to be 4 bits in size. | Replace "4" with "2" as the length of the Reserved field in Figure 8-ac8. |
| 3771 | 32.14 | 8.4.1.37 |  |  | Reserved Subfield is 2 bits | Change to 2 bits |

Proposed Solution: Accept

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| 3043 | 33.27 | 8.4.1.37 |  |  | Table 8-ac4 does not include the Reserved subfield. While this is not really used now, it would be better to explicitly define how it is to be set and ignored to allow for future extensions. | Add following row to Table 8-ac4: “Reserved | Set to 0 on transmission. Ignored on reception.” |

Proposed Solution: Reject

 **Reason: No need for subscription on ‘reserved’**

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| 3172 | 42.45 | 8.4.1.39 |  |  | Feedback Type values are 0 or 1 | change "MU" to "1 indicating MU" |

Proposed Solution: Accept.

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| 3173 | 42.51 | 8.4.1.39 |  |  | what is Ng'? | please clarify |

Proposed Solution: Counter: Resolved by CID 2800.

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| 3194 | 45.00 | 8.4.1.39 |  |  | Second column of table is Ng not Ng'. As such valid values for Ng are 1,2 and 4. | as per comment |
| 3195 | 46.00 | 8.4.1.39 |  |  | Second column of table is Ng not Ng'. As such valid values for Ng are 1,2 and 4. | as per comment |
| 2280 | 45.01 | 8.4.1.39 | 2661 |  | Table 8-ac11 for 160MHz, Ng needs to be 1,2 and 4, Not 2,4 and 8, to be consistent with BW=20/40/80MHz | change it as recommended |
| 2661 | 45.01 | 8.4.1.39 |  |  | Table 8-ac11 for 160MHz, Ng needs to be 1,2 and 4, Not 2,4 and 8, to be consistent with BW=20/40/80MHz | change it as recommended |
| 3455 | 45.00 | 8.4.1.39 |  |  | Ng for 160MHz appears to be incorrect. | I think they should be 1,2 and 4 respectively. |

Proposed Solution: Accept as per suggested change in CID 2661/2280/3455

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| 3251 | 33.20 | 8.4.1.37 |  |  | For the phrase ", the field is set to all ones", shouldn't the field be set to "Reserved"? Do we have a standard assignment for Reserved fields? Why does this clause explicitly specify this reserved field is set set to all ones? | Change this field to follow the standard behaviour for a reserved field. |

Proposed Solution: Reject

 Reason: Need to define bits when it is not used. Setting all ones is clear to set and it would not be used for other purpose.

Duplicates:

 CID 3252 is a duplicate of CID 3251

 CID 3294 is a duplicate of CID 2804

 CID 3287 and CID3288 are duplicates of CID 2797 and CID 2798

 CID 3290 is a duplicate of CID 2800