IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Comment Resolution for Beamforming Report Field | | | | |
| Date: 2011-07-18 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | Email |
| Joonsuk Kim | Broadcom | 190 Mathilda Pl, Sunnyvale, CA 94086 | 4085433455 | [joonsuk@broadcom.com](mailto:joonsuk@broadcom.com) |
|  |  |  |  |  |

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.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Agree. Current words are confusing.

*Editor: Change “sounding sequence” in Figure 8-ac8 and Table 8-ac4 to “sounding sequence number”*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Agree. Current words are confusing.

*Editor: Change “averaged over subcarriers” in Meaning subfield for Average SNR subfield in Figure 8-ac7 to “averaged over all data subcarriers”*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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.

*Editor: Change “a matrix” in Description of Nc and Nr Index subfield in Figure 8-ac4 to “the compressed beamforming matrix”*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 in Principle; But better to describe in better way rather than state individual tone index. So *Deferred* for better resolution.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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, Agreed that it is confusing.**

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Agree in principle. Deferred for more specific change

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.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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.

*Editor:* ***Replace the sentence in Page 42, Line 51,* ‘subset of the subcarriers spaced apart,’ *with ‘subset of the subcarriers spaced 2xNg apart, where Ng is signaled in Grouping subfield in VHT MIMO Control field (Figure 8-ac8),’***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Agree.

*Editor: Replace ‘4’ with ‘2’ for the bits as the length of the Reserved field in Figure 8-ac8*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Disagree

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

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

Proposed Solution: Counter; Better to describe it with the specific meaning that it is a feedback for MU. However, we’d better change the description on Feedback type in Table 8-ac4 since we don’t really use SU-BF or MU-BF in the text.

*Editor: Replace ‘SU-BF’ with ‘SU’ and ‘MU-BF’ with ‘MU’ in the description of FeedbackType in Table 8-ac4.*

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

Proposed Solution: Counter: Resolved by CID 2800.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Agree in Principle

*Editor: Replace ‘2’,’4’ and ‘8’ with ‘1’,’2’ and’4’, respectively, in Ng values for 160MHz and 80+80MHz of Table 8-ac11.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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: Disagree

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