IEEE P802.11
Wireless LANs

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| MU Comment Resolution, Part 2 |
| Date: 2012-09-19 |
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Abstract

This document proposes resolutions for the following CIDs: 6680, 6797, 6087, 6088, 6529, 6394, 6526, 6457.

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| CID | Commenter | Clause | Page | Comment | Proposed Change | Resolution |
| 6680 | Simone Merlin | 8.4.1.48 | 50.50 | Background: The VHT Compressed Beamforming frame includes the VHT Compressed Beamforming Report (note the capital R) [field] and the MU Exclusive Beamforming Report [field]; the VHT Compressed Beamforming Report (note the capital R) [field] includes the VHT Compressed Beamforming Report information; the MU Exclusive Beamforming Report includes the MU Exclusive Beamforming Report information; moreover there is a VHT Compressed Beamforming report (note the small r and the absence of a qualifier such as field/frame/information), which is never explicitly defined, but it is used as if it was a container for the VHT Compressed Beamforming Report information and MU Exclusive Beamforming Report information.--- All of this makse logically sense (except for the missing explicit definition of the VHT Compressed Beamforming report), but the naming is likely to create headaches to the average reader (including myself). | Possible solutions in order of increasing complexity: 1) easiest: define the VHT Compressed Beamforming report; 1+2) give names that are not different only by the capital initial letter but rather help the poor reader. 3) say that the VHT Compressed Beamforming frame includes simply a VHT Compressed Beamforming Report field; the VHT Compressed Beamforming Report includes the VHT Compressed Beamforming Information and the MU Exclusive Beamforming Information (when present). this way there is no need to define VHT Compressed Beamforming report, and MU Exclusive Beamforming Report and the fragmetnation can be simply expressed in terms of the VHT Compressed Beamforming Report field. |   |

**Discussion:**

The commenter points out that the terminology used to describe VHT Compresseed Beamforming feedback is confusing in a number of aspects.

Status quo:

After receiving an NDP, BFee assembles the “VHT Compressed Beamforming report”

“VHT Compressed Beamforming report” = VHT MIMO Control Field + VHT Compressed BF Report field (SU or MU feedback) + MU Exclusive BF Report field (only for MU feedback)

If this VHT Compressed Beamforming report is not larger than the the VHT beamformer’s maximum MPDU length capability, then the VHT Compressed Beamforming report becomes the “VHT Compressed Beamforming frame” (a single PPDU).

If the VHT Compressed Beamforming report is larger than the the VHT beamformer’s maximum MPDU length capability, then the VHT Compressed Beamforming report is segmented into multiple“VHT Compressed Beamforming frames” (each frame is a single MPDU, and these MPDUs are assembled into one A-MPDU). Each “VHT Compressed Beamforming frame” consists of: VHT MIMO Control Field (feedback segment # is one of the fields) + successive portion of VHT Compressed BF Report field and/or MU Exclusive BF Report field

The status quo terminology was discussed at an earlier ad-hoc, and there was general consensus that the terminology was confusing, especially since VHT Compressed Beamforming report” is different from the of “ VHT Compressed Beamforming Report” (field).

Proposed terminology:

After receiving an NDP, BFee assembles “VHT Compressed Beamforming feedback”

“VHT Compressed Beamforming feedback” = VHT MIMO Control field + VHT Compressed BF Report field (SU or MU feedback) + MU Exclusive BF Report field (only for MU feedback)

A frame is created by pre-pending the VHT MIMO Control field before the VHT Compressed Beamforming feedback, and if that frame is not larger than the VHT beamformer’s maximum MPDU length capability, then that frame becomes the “VHT Compressed Beamforming frame” (a single PPDU).

If the frame created is larger than the the VHT beamformer’s maximum MPDU length capability, then the VHT Compressed Beamforming feedbackis segmented into multiple“VHT Compressed Beamforming frames” (each frame is a single MPDU). Each “VHT Compressed Beamforming frame” consists of: VHT MIMO Control Field (feedback segment # is one of the fields) + successive portion of VHT Compressed Beamforming feedback.

**Instructions to Editor:**

Change all instances of “a VHT Compressed Beamforming report” (case-sensitive: please do not modify instances of “VHT Compressed Beamforming Report”) to “VHT Compressed Beamforming feedback”

Before p. 147.58 insert the following paragraph:

VHT Compressed Beamforming feedback is comprised of the VHT Compressed Beamforming Report information (see Table 8-53f—VHT Compressed Beamforming Report information) and the MU Exclusive Beamforming Report information (see Table 8-53i—MU Exclusive Beamforming Report information). Clause 8.5.23.2 (VHT Compressed Beamforming frame format) specifies how VHT Compressed Beamforming feedback is converted into a VHT Compressed Beamformiong frame, and it also specifies the rules for the presence or absence of the two fields listed here.

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| CID | Commenter | Clause | Page | Comment | Proposed Change | Resolution |
| 6797 | Matthew Fischer | 8.4.1.48 | 50.62 | "portions of this" - the antecedent is a bit ambiguous | Please reword the sentence to clarify the meaning of "this" | REVISED: see resolution to CID 6087. |
| 6087 | Liwen Chu | 8.4.1.48 | 50.62 | "this" is not clear. | change to "The VHT Compressed Beamforming Report field contains the whole VHT Compressed Beamforming Report information or successive (possibly zero-length) portions of the VHT Compressed Beamforming Report information in the case of a segmented VHT Compressed Beamforming report (see 9.31.5 (VHT sounding protocol))" | ACCEPTED. See proposed change under CID 6087 in 1155r0. |

**Discusssion:**

The sentence under question is:

The VHT Compressed Beamforming Report field contains VHT Compressed Beamforming Report

information or successive (possibly zero-length) portions of this in the case of a segmented VHT Compressed

Beamforming report (see 9.31.5 (VHT sounding protocol)).

The commenters are correct that “this” could be clarified in this sentence.

**Proposed Change:**

Change sentence beginning on 50.61 to:

The VHT Compressed Beamforming Report field contains all VHT Compressed Beamforming Report

information, or successive (possibly zero-length) portions of the VHT Compressed Beamforming Report

information in the case of segmented VHT Compressed Beamforming feedback (see 9.31.5 VHT sounding protocol).

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| CID | Commenter | Clause | Page | Comment | Proposed Change | Resolution |
| 6088 | Liwen Chu | 8.4.1.48 | 50.65 | "VHT Compressed Beamforming report" is not clear. Is it "VHT Compressed Beamforming Report field"? If it is yes, do you need this sentence? | Make it clear. |  REVISED. See resolution of CID 6680. |

Discussion: This confusion is resolved by the proposed change to CID 6680, by which “VHT Compressed Beamforming report” is changed to “VHT Compressed Beamforming feedback”.

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| CID | Commenter | Clause | Page | Comment | Proposed Change | Resolution |
| 6529 | Sigurd Schelstraete | 8.4.1.48 | 52.01 | The word "information" is too generic. Use "field" instead | Change "The VHT Compressed Beamforming Report information contains ..." to "The VHT Compressed Beamforming Report field contains ..." |  REJECTED. “Information” is distinct from “field” in this particular case. |

**Discussion:**

 The “VHT Compressed Beamforming Report information” is actually distinct from the “VHT Compressed Beamforming Report field”. The “VHT Compressed Beamforming Report information” is precisely the set of bits described in Table 8-53f, and that set of bits can be contained in a single VHT Compressed Beamforming frame (in the case of no feedback segmentation), or can be contained in multiple VHT Compressed Beamforming frames (in the case of feedback segmentation). The “VHT Compressed Beamforming Report field” is something that is contained in every VHT Compressed Beamforming frame, and thus in the case of feedback segmentation the “VHT Compressed Beamforming Report field” can be a subset of the “VHT Compressed Beamforming Report information”.

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| **CID** | **Commenter** | **Clause Number(C)** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 6394 | Bo Sun | 8.4.1.48 | 51.49 | it is not clear about the description of Remaining segments´╝îthe description of subfield"Remaining Segments" is inconsistent with the comment resolution for 3476. | Make changes agreed upon in 11/1469r2 | Rejected: Changes agreed upon in 11/1469r2 (CID 4667) were over-ridden by the changes in 11/587r2 (in response to CID 4667).  |

**Discussion:** Changes agreed upon in 11/1469r2 (CID 4667) were over-ridden by the changes in 11/587r2 (in response to CID 4667). The description of how to set the fields of the VHT MIMO Control field are now clearly specified in the final paragraph of 8.4.1.47 (VHT MIMO Control field), so there is no need for the table referred to in 11/1469r2.

**Proposed Resolution:** Rejected

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| **CID** | **Commenter** | **Clause Number(C)** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 6526 | Sigurd Schelstraete | 8.4.1.47 | 50.49 | Unlike other fields, this section does not state where the VHT MIMO Control field will be used. | Add sentence to section:"The VHT MIMO Control field shall always be included in the VHT Compressed Beamforming frame." | Revised. After last sentence on 50.42, add sentence "The VHT MIMO Control field is included in every VHT Compressed Beamforming frame (see 8.5.23.2)."  |

**Discussion:** The commenter is correct that the purpose and context of this field is not stated here, and explaining that it is always in the VHT Compressed Beamforming Frame would be helpful to the reader. The commenter proposed the word "shall be contained", but "shall" must not be used in clause 8, so "shall" is changed to "is". Note that 8.5.23.2 (VHT Compressed Beamforming frame format) already contains the sentence: "The VHT MIMO Control field is always present in the frame."

**Proposed Resolution:** Revised.

After last sentence on 50.42, add sentence "The VHT MIMO Control field is included in every VHT Compressed Beamforming frame (see 8.5.23.2 VHT Compressed Beamforming frame format)."

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| **CID** | **Commenter** | **Clause Number(C)** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 6457 | Mark RISON | 8.4.1.48 | 51.56 | "if it is not the first feedback segment or if the VHT Compressed Beamforming Report field and MU Exclusive Beamforming Report field are not present in the frame." is duplication | Change to just "otherwise" | Rejected.The text describing the “0” case does add some information, and so should not be replaced with “otherwise”. |

**Discussion: T**he description of the "0" case does add some information as the “0” case is not just the simple complement of the “1” case, and therefore it seems prudent to keep the definition as-is.

**Proposed Resolution:** Rejected.