IEEE P802.11
Wireless LANs

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| D2.0 Sounding Comment Resolutions – Part 1 |
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Abstract

This document provides resolutions to the following comments: CID 4726, 4442, 4873, 4790, 5090.

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| 4726 | 128.47 | 9.31.5 | A beamformee may not be in a position to give a VHT Compressed Beamforming Report (e.g. because the NDP was such a long time ago that it has gone stale), but this is not allowed for | Restore the text from previous drafts which made it clear that a beamformee is not required to provide a VHT Compressed Beamforming Report | REJECT1.Restoring the deleted text causes ambiguity as stated in 11/1259/r02.The beamformee has the freedom to not send anything if the report is gone stale. |

**Discussion:**

Some background:

The D2.0 text

“A beamformee that transmits a VHT Compressed Beamforming frame shall not include the VHT Compressed Beamforming Report field and the MU Exclusive Beamforming Report field if the transmission duration of the VHT Compressed Beamforming frame with the VHT Compressed Beamforming Report field or both the VHT Compressed Beamforming Report field and the MU Exclusive Beamforming Report field would exceed the maximum PPDU duration.”

The D1.0 text

“A beamformee shall transmit a VHT Compressed Beamforming frame without including the VHT Compressed Beamforming Report field and the MU Exclusive Beamforming Report field if:

a) the transmission duration of the VHT Compressed Beamforming frame would exceed the maximum

PPDU duration; or

b) the beamformee does not have any stored VHT Compressed Beamforming Report after receiving a

Beamforming Report Poll frame.”

Condition b) in D1.0 text was removed per 11/1259r0, with following discussion:

We believe the current spec has an option that VHT Compressed Beamforming frame without Compressed report field (so called Null feedback) if those information is not available for certain cases as described in 9.30.5. However, the condition to send this Null feedback, especially “stored” in the second condition, is not clear, nor testable. If we have additional option for the beamformee to choose how to send the feedback under some conditions, those conditions should be clear and testable, otherwise the beamformee can do whatever it wants by claiming the condition is met arbitrarily. We don’t have a problem with the first condition, but worry about the second condition; “stored” is not testable. The second condition is to cover the case that the beamformee missed NDPA+NDP sequence but polled, so nothing to feed back. We don’t think it is a serious problem that the beamformee does not send any if that happens. We’d like to make the clear condition to send the Null feedback by removing the second condition as follows.

Additional discussion:

1. The condition raised by the commenter is actually not the same as the original condition b).
2. Restoring the deleted text causes ambiguity as stated in 11/1259/r0
3. The beamformee has the freedom to not send anything if the report is gone stale. When the beamformee sends a report which it believes still valid, the beamformer also has freedom not to use it if the beamformer believes the report is stale. No reason to restore the text from D1.0 to cause another confusion.

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| 4442 | 133.02 | 9.31.5 | send | send in order, ditto P133L5 | REVISEMake changes under heading CID 4442 in 11-12/0323r1. These changes add a requirement for BFmee to include segments in order within a Compressed BFming frame. |
| 4873 | 132.35 | 9.31.5 | Is the beamformee allowed to return the segments out-of-order, i.e. with Remaining Segments set to 4,2,1,0,3, say? | Add a "NOTE---Segments in an A-MPDU can be in any order." | REJECTBFmee is required to deliver segments in order within a Compressed BFming frame.See CID 4442 resolution  |

Discussion:

 SP: do you support to require that segments within a beamforming feedback frame shall be delivered in order (based on the remaining segment values)?

Y: 17: N: 1; A:7

Proposed text changes:

If a VHT Compressed Beamforming frame would result in an MMPDU that exceeds the beamformer’s maximum

MPDU length capability, the VHT Compressed Beamforming Report field and MU Exclusive report

field shall be split into up to 8 segments, with each segment sent in a different MPDU. Each of the segments

except the last shall contain the maximum number of octets allowed by the beamformer’s maximum MPDU

length capability. The last segment may be smaller. Each segment is identified by the value of the Remaining

Segments subfield and the First Segment subfield in the VHT MIMO Control field as defined in 8.4.1.46

(VHT MIMO Control field). All segments shall be sent in a single A-MPDU, and shall be included in the A-MPDU in the descending order of the Remaining Segments values.

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A beamformee that transmits a VHT Compressed Beamforming frame including the VHT Compressed

Beamforming Report field in response to a Beamforming Report Poll frame shall either send only the segments

indicated in the Segment Retransmission Bitmap field in the Beamforming Report Poll frame if the

segments are present or send all the segments disregarding the Segment Retransmission Bitmap field in the

Beamforming Report Poll fame. The segments shall be included in the VHT Compressed Beamforming frame in the descending order of the Remaining Segments values.

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| 4790 | 130.00 | 9.31.5 | Are STAs guaranteed to be polled in the order they are in the NDPA? | Add a sentence like "Beamforming Report Poll frames shall be sent to STAs in the order the STAs are listed in the NDPA frame." | REJECTDon’t see the necessarity to poll STAs in order. It is up to the Beamformer to decide whether and when to poll a STA listed in the NDPA for Beamforming report (except for the first STA). |

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| 5090 | 133.10 | 9.31.5 | Not clear what happens if beamformer does not receive any segments from beamformee. | Document states that "A beamformer shall not transmit a Beamforming Report Poll frame to an SU only beamformee unless it has received at least one segment of the VHT Compressed Beamforming frame from the beamformee"What is the course of action if for some reason the beamforming report frame is lost and no segments are received? | REJECTIt is up to the BFmer to decide any behaviour other than sending a BFming Report Poll frame. |