IEEE P802.11
Wireless LANs

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| TGac SB01Various comments resolved |
| Date: 12 Nov 2012 |
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These comments were submitted with SB01 on TGac D5.0. The proposed resolutions are relative to TGac D5.0 (as indicated in each resolution). Changes are indicated by a mixture of Word track-changes and editing instructions.

History:

R0 - initial revision

## Comment

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| **CID** | **Page** | **Line** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 10266 | 48.30 | 30 | 8.2.1.20 | "is ... 1 when the feedback segment with the Remaining Feedback Segments subfield in the VHT MIMO control field set to n is requested." Huh? Just what in this jumble is being requested? Segment? Subfield? Control field? What is the "feedback segment with the Remaining Feedback Segments subfield -- when do segments have subfields? Just what is requesting what from what? | Break these compound statements into separate clear statements. Replace "feedback segment with the Remaining Feedback Segments subfield" with direct statements about what STA transmits the frame that includes the Remaining Feedback Segments subfield, the relationships of feedback segments to the values in that subfield and the intended result in the receiving STA. Replace all passive ("is requested") verbs -- what STA transmits the values in what frame to what other STA directing it to do what? | REVISED. The clarity of the text is improved with the editing instructions provided in <this doc> under #10266 |

## Proposed Resolution

***Edit the paragraph at 48.27 as follows:***

The Feedback Segment Retransmission Bitmap field indicates the feedback segments of a VHT

Compressed Beamforming report that are requested. If the bit in position *n* (*n=0* for LSB and *n=7* for MSB) is 1 then the feedback segment with the Remaining Feedback Segments subfield in the VHT MIMO Control field equal to *n* is requested. If the bit in position *n* is 0 then the feedback segment with the Remaining Feedback Segments subfield in the VHT MIMO Control field set to *n* is not requested.

## Comment

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 10023 | 122.05 | 9.2.1 | Subclause 9.2.1 is amended by IEEE Std 802.11ad-2012 and need to be amended by 802.11ac. | Modify the 1st paragraph of 9.2.1 and Figure 9-1 as following.--- proposed text ----The MAC architecture is shown in Figure 9-1. When operating with any of the Clause 14 through 20 PHYs or Clause 22 PHY, ....---- Figure 9-1 modification ----Replace the text in the left lowest box by "FHSS, IR, DSSS, OFDM, HR/DSSS, ERP, HT or VHT PHY". |  |

Proposed Resolution

## Comment

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 10184 | 146.18 | 9.15 | A STA that sets the Tx STBC subfield to 1 in the HT Capabilities element is an HT STA, but the first sentence just starts from "Only a STA ...". On the other hand, in the second sentence, a STA that sets the Tx STBC subfield to 1 in the VHT Capabilities element is a VHT STA and it starts with "Only a VHT STA ...". Is there some kind of intention here? | Change the second sentence to start with "Only a STA that ...".Or change the first sentence to start with "Only an HT STA that ...". | REVISED – The intent of this paragraph is clarified with the proposed change in <this doc> under CID 10184. |

## Context

Only a STA that sets the Tx STBC subfield to 1 in the HT Capabilities element may transmit f~~rames~~ HT PPDUs with a TXVECTOR parameter STBC set to a nonzero value to an HT STA from which the ~~most recently received~~ value of the Rx STBC field of the HT Capabilities element is nonzero. Only a VHT STA that sets the Tx STBC subfield to 1 in the VHT Capabilities element may transmit VHT SU PPDUs with a TXVECTOR parameter STBC set to a nonzero value to a VHT STA from which the value of the Rx STBC field of the VHT Capabilities element is nonzero. The number of spatial streams of such a VHT PPDU shall not exceed the supported number of spatial streams of the receiving VHT STA as indicated by the Rx STBC field of its VHT Capabilities element.

## Discussion

The intent of this paragraph was to prevent a STA that has not declared a capability for Tx STBC from sending an STBC frame. Further, it is intended to prevent a STA that does send an STBC frame from sending it with more spatial streams than is supported by the recipient. However, this is not achieved with the current wording.

## Proposed change

*Change the paragraph in 9.15 as follows:*

A STA that sets the Tx STBC subfield to 0 in the HT Capabilities element shall not transmit f~~rames~~ HT PPDUs with a TXVECTOR parameter STBC set to a nonzero value. A STA that sets the Tx STBC subfield to 0 in the VHT Capabilities element shall not transmit VHT SU PPDUs with a TXVECTOR parameter STBC set to a nonzero value.

A STA shall not send a VHT PPDU with the TXVECTOR parameter STBC set to a nonzero value to a recipient STA unless the recipient STA has indicated in the Rx STBC field of its VHT Capabilities element that it supports the reception of PPDUs using STBC with a number of spatial streams equal to or greater than the number of spatial streams in the VHT PPDU.

## Comment

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 10312 | 143.30 | 9.12.4 | Many of the changes being made here to the 11mc text are not marked as changes. Some seem to be unintentional and some can be made clearer. | Mark the changes being made to the 11mc "NOTE--", but also:a. Do not add the "1" to the 11mc NOTE.b. Do restore the missing "An" before "HT AP".c. Do not insert NOTE 2, but instead add the following sentence after the sentence in the 11mc NOTE:"Since a VHT STA is an HT STA, the VHT AP and VHT mesh STA can also transmit an A-MPDU containing an MPDU that has a group addressed RA." | REVISED – The commenter correctly points out some editorial errors. Editor: make the changes in the “Proposed change” section under CID 10312, which essential limit the changes to correcting editorial errors. |

## Context

A~~n HT~~ STA that is neither an AP nor a mesh STA shall not transmit an A-MPDU containing an MPDU with a group addressed RA.

NOTE 1—HT AP and an HT mesh STA can transmit an A-MPDU containing MPDUs with a group addressed RA.

NOTE 2—As a VHT STA is an HT STA, NOTE 1 also applies to VHT APs and VHT mesh STAs.

A STA that is an~~An HT~~ AP ~~and an HT~~ or a mesh STA shall not transmit an A-MPDU containing group addressed MPDUs if the HT Protection field is equal to non-HT mixed mode.

## Discussion

The commenter points out that there are some edits are not marked. On checking the section it was found that NOTE 2 is a new insert and should be underlined. NOTE 1 is missing “An” at the beginning of the sentence. The commenter suggests more extensive changes than format changes. In particular, the suggested change includes converting NOTE 2 to a statement. It is proposed that changes be limited to correcting the editorial errors, i.e. inserting the missing “An” and underlining the second note.

## Proposed change

***Change 9.12.4 as follows:***

A~~n HT~~ STA that is neither an AP nor a mesh STA shall not transmit an A-MPDU containing an MPDU with a group addressed RA.

NOTE 1—An HT AP and an HT mesh STA can transmit an A-MPDU containing MPDUs with a group addressed RA.

NOTE 2—As a VHT STA is an HT STA, NOTE 1 also applies to VHT APs and VHT mesh STAs.

A STA that is an~~An HT~~ AP ~~and an HT~~ or a mesh STA shall not transmit an A-MPDU containing group addressed MPDUs if the HT Protection field is equal to non-HT mixed mode.

## Comment

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| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 10039 | 372.00 | C.3 | Range of dot11NumberOfSpatialStreamsImplemented object needs to be 1..8. | Insert modification of dot11NumberOfSpatialStreamsImplemented object.--- proposed text ----dot11NumberOfSpatialStreamsImplemented OBJECT-TYPE SYNTAX Unsigned32 (1..8) MAX-ACCESS read-only STATUS current DESCRIPTION "This is a capability variable. Its value is determined by device capabilities. This attribute indicates the maximum number of spatial streams implemented." DEFVAL { 2 } ::= { dot11PhyHTEntry 5 } | ACCEPTED |
| 10040 | 372.00 | C.3 | Range of dot11NumberOfSpatialStreamsActivated object needs to be 1..8. | Insert modification of dot11NumberOfSpatialStreamsActivated object.--- proposed text ----dot11NumberOfSpatialStreamsActivated OBJECT-TYPE SYNTAX Unsigned32 (1..8) MAX-ACCESS read-write STATUS current DESCRIPTION "This is a control variable. It is written by an external management entity. Changes take effect as soon as practical in the implementation. This attribute indicates the maximum number of spatial streams enabled." DEFVAL { 2 } ::= { dot11PhyHTEntry 6 } | ACCEPTED |
| 10041 | 372.00 | C.3 | Range of dot11NumberBeamFormingCSISupportAntenna object needs to be 1..8. | Insert modification of dot11NumberBeamFormingCSISupportAntenna object.--- proposed text ----dot11NumberBeamFormingCSISupportAntenna OBJECT-TYPE SYNTAX Unsigned32 (1..8) MAX-ACCESS read-only STATUS current DESCRIPTION "This is a capability variable. Its value is determined by device capabilities. This attribute indicates the maximum number of beamforming antennas the beamformee can support when CSI feedback is required." ::= { dot11TransmitBeamformingConfigEntry 12 } | REJECTED – Since the protocol for CSI feedback only supports up to 4 antennas, this change is unnecessary. |
| 10042 | 372.00 | C.3 | Range of dot11NumberNonCompressedBeamformingMatrixSupportAntenna object needs to be 1..8. | Insert modification of dot11NumberNonCompressedBeamformingMatrixSupportAntenna object.--- proposed text ----dot11NumberNonCompressedBeamformingMatrixSupportAntenna OBJECT-TYPE SYNTAX Unsigned32 (1..8) MAX-ACCESS read-only STATUS current DESCRIPTION "This is a capability variable. Its value is determined by device capabilities. This attribute indicates the maximum number of beamforming antennas the beamformee can support when noncompressed beamforming feedback matrix feedback is required." ::= { dot11TransmitBeamformingConfigEntry 13 } | REJECTED – Since the protocol for uncompressed feedback only supports up to 4 antennas, this change is unnecessary. |
| 10043 | 372.00 | C.3 | Range of dot11NumberCompressedBeamformingMatrixSupportAntenna object needs to be 1..8. | Insert modification of dot11NumberCompressedBeamformingMatrixSupportAntenna object.--- proposed text ----dot11NumberCompressedBeamformingMatrixSupportAntenna OBJECT-TYPE SYNTAX Unsigned32 (1..8) MAX-ACCESS read-only STATUS current DESCRIPTION "This is a capability variable. Its value is determined by device capabilities. This attribute indicates the maximum number of beamforming antennas the beamformee can support when compressed beamforming feedback matrix feed- back is required." ::= { dot11TransmitBeamformingConfigEntry 14 } | ACCEPTED |

## Discussion

The commenter points out that the number of antenna ranges for various objects introduced with 802.11n (1..4) are too small for 802.11ac which supports up to 8 spatial streams. However, not all objects apply to both 11n and 11ac feedback mechanisms. In particular, the 11ac mechanisms do not support CSI feedback and uncompressed feedback.