IEEE P802.11
Wireless LANs

|  |
| --- |
| Proposed Comment Resolution |
| Date: 2014-11-05 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Wookbong Lee | LG Electronics | 19, Yangjae-daero 11gil, Seocho-gu, Seoul, 137-1Korea | +82-2-6912-6588 | wookbong.lee@lge.com |
| Kiseon Ryu | LG Electronics |  |  |  |

Abstract

This contribution is for CID 3015, 3025, 3027, 3028, 3064, 3065, 3134, 3396, 3414, 3472, 3480, 3484, and 3515.

In this revision, proposed resolution for CID 3396 is updated.

Editing instructions are based on P802.11REVmc Draft 3.0.

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3015 | 1213/37 | 8.6.23.2 | "No vendor-specific elements are present in a VHT Compressed Beamforming..." - in that case 633.55 is in conflict. | At 633.55 replace, "present." with "present, except in VHT Compressed Beamforming frames." | MAC |

## Discussion:

Comment is correct.

In page 1213.37, “No vendor-specific elements are present in a VHT Compressed Beamforming frame.”

In page 633.55 (i.e. “Last-2” in Action frame body), “One or more vendor-specific elements are optionally present. These elements are absent when the Category subfield of the Action field is Vendor-Specific, Vendor-Specific Protected, or Self-protected.” We can add this as an additional exception.

## Proposed Resolution:

*Revised*

*At line 57 of page 633 replace,*

"These elements are absent when the Category subfield of the Action field is Vendor-Specific, Vendor-Specific Protected, or Self-protected."

*with*

"These elements are absent when the Category subfield of the Action field is Vendor-Specific, Vendor-Specific Protected, or Self-protected or when the Category subfield of the Action field is VHT and the VHT Action subfield of the Action field is VHT Compressed Beamforming."

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3025 | 1378/55 | 9.26.5.3 | "A VHT STA shall set the HT Capabilities element HT Capabilities Info field L-SIG TXOP Protection Support subfield to 0 during association and reassociation." -- this should go under \*.1 "General". | Move to 9.26.5.1. | MAC |

## Discussion:

Comment is correct.

In addition to that, the following sentence also needs to be in the General section.

“A VHT AP shall set the HT Operation element HT Operation Information field L-SIG TXOP Protection Full Support subfield to 0.”

In addition to that, “HT Capabilities Info” shall be changed to “HT Capability Information”.

## Proposed Resolution:

*Revised(3 changes)*

*Change #1*

*Move and modify following sentence(pp.1378 line 55-56) after line 2 of page 1376.*

"A VHT STA shall set the HT Capabilities element HT ~~Capabilities Info~~Capability Information field L-SIG TXOP Protection Support subfield to 0 during association and reassociation."

*Change #2*

*Move following sentence(pp. 1378 line 56-57) after line 6 of page 1376.*

"A VHT AP shall set the HT Operation element HT Operation Information field L-SIG TXOP Protection Full Support subfield to 0."

*Change #3*

*Find “HT Capabilities Info” (5 instances) and change it with “HT Capability Information”.*

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3027 | 1383/40 | 9.28.4 | "An RD responder that is a non-DMG STA may transmit a +CF-Ack non-A-MPDU frame or VHT singleMPDU in response" -- The nesting in the expression "a +CF-Ack non-A-MPDU frame or VHT single MPDU" is ambiguous. Does +CF-Ack apply only to the non-A-MPDU frame? | Reword: "... a +CF-Ack non-A-MPDU frame or +CF-Ack VHT single MPDU..." | MAC |

## Discussion:

Comment is correct.

## Proposed Resolution:

*Accept*

*In line 40 of page 1383, add* “+CF-Ack” *between* “or” *and* “VHT single MPDU”

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3028 | 1409/63 | 9.32.3 | "The value of Nr within an explicit Beamforming feedback frame transmitted by a VHT beamformee will not exceed the value indicated in the Beamformee STS Capability subfield of the VHT Capabilities element" -- Curious to use "will not" here. Is is a veiled normative statement? | To avoid any danger of mis-interpretation replace "will not" by "does not". | MAC |

## Discussion:

Comment is correct.

## Proposed Resolution:

*Revised*

*Modify sentence in line 63-64 of page 1409 as*

“The value of *Nr* within an explicit Beamforming feedback frame transmitted by a VHT beamformee shall~~will~~ not exceed the value indicated in the Beamformee STS Capability subfield of the VHT Capabilities element.”

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3064 | 537/8 | 7.3.5.6.3 | Editor writes: "Editor's Note: I do not know how to merge the change from.11ac, to the text in D2.3, which has been substantially modified by CIDs 1697 and/or 1137, and also because I do not understand the rationale for the exclusion of VHT PPDUs in .11ac." | Review the changes described here in .11ac and make any necessary changes to implement the intent of .11ac changes in the context of the text updated by these comments. | GEN |

## Discussion:

The text in D3.0 is correct. I think it is complete and consistent with the intent of 11ac; I don’t think that the proposed modification is needed/useful, since there was never any intention to not use VHT PDDUs for TIME\_OF\_DEPARTURE\_REQUESTED.

## Proposed Resolution:

***Rejected***

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3065 | 543/33 | 7.3.5.12.3 | The meaning of "otherwise" is not clear. Does it relate to "other PHYs", or does it relate to the CCATime restriction. | Reword so that it is clear. Perhaps replace "; otherwise" with ". For other PHYs". | GEN |

## Discussion:

Comment is correct.

## Proposed Resolution:

*Revised*

*Modify sentence in line 28-35 of page 543 as*

For Clause 16 (DSSS PHY specification for the 2.4 GHz band designated for ISM applications) to Clause 21 (Directional multi-gigabit (DMG) PHY specification) PHYs, this primitive is generated within aCCATime of the occurrence of a change in the status of the primary channel from channel idle to channel busy or from channel busy to channel idle or when the elements of the channel-list parameter change~~; otherwise~~. For Clause 22 and Clause 23 PHYs, this primitive is generated when the status of the channel(s) changes from channel idle to channel busy or from channel busy to channel idle or when the elements of the channel-list parameter change.

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3134 | 1277/20 | 9.7.6.1 | The bullet a) - 2) of the second paragraph states that a control frame using STBC shall be carried in an HT PPDU. However, the bullet d) allows a control frame using STBC sent in a VHT PPDU. | Modify the bullet a) as follows;a) A Control frame shall be carried in an HT PPDU or a VHT PPDU when the Control frame meets any of the following conditions: | MAC |

## Discussion:

Comment is correct.

In page 1277,

a) A Control frame shall be carried in an HT PPDU when the Control frame meets any of the following conditions:

1) The Control frame contains an L-SIG duration value (see 9.26.5 (L-SIG TXOP protection)), or

2) The Control frame is sent using an STBC frame.

d) A Control frame may be carried in a VHT PPDU when the Control frame contains an HT Control field or is an STBC frame.

## Proposed Resolution:

*Revised*

*Modify sentences in line 15-43 of page 1277 as*

a) A Control frame shall be carried in an HT PPDU when the Control frame ~~meets any of the following conditions:~~

~~1) The Control frame~~ contains an L-SIG duration value (see 9.26.5 (L-SIG TXOP protection)).~~, or~~

~~2) The Control frame is sent using an STBC frame.~~

b) A control response frame shall be carried in an HT PPDU when the Control frame is a response to a frame that meets any of the following conditions:

1) The frame eliciting the response included an HT variant HT Control field with the TRQ field equal to 1 and the NDP Announcement subfield equal to 0, and this responder set the Implicit Transmit Beamforming Receiving Capable field to 1 in its last transmitted HT Capabilities element; or

2) The frame eliciting the response was an RTS frame carried in an HT PPDU; or

3) The frame eliciting the response was an STBC frame, and the Dual CTS Protection field was equal to 1 in the last HT Operation element received from its AP or transmitted by the STA (see 9.3.2.8 (Dual CTS protection)).

c) A Control frame may be carried in an HT PPDU when the Control frame meets any of the following conditions:

1) The Control frame contains an HT variant HT Control field with the MRQ subfield equal to 1,

or

2) The Control frame contains an HT HT variant Control field with the TRQ field equal to 1.

d) A Control frame may be carried in a VHT PPDU when the Control frame contains an HT Control field ~~or is an STBC frame~~.

e) A Control frame shall be carried in an HT PPDU or a VHT PPDU when the Control frame is sent using an STBC frame.

f~~e~~) A control response frame shall be carried in a VHT PPDU if the eliciting frame was an RTS frame carried in a VHT PPDU that contains an HT Control field with MRQ subfield equal to 1.

g~~f~~) Otherwise, the Control frame shall be carried in a non-HT PPDU.

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3396 | 1290/53 | 9.7.11 | "A VHT STA shall include both theCH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT parameters in the Clause 18 RXVECTOR." in 9.7.11 -- but a VHT STA does not use the Clause 18 RXVECTOR, it uses the Clause 20 RXVECTOR (we established a while ago in TGmc that a STA has only one PHY). Also in 18.3.5.5 | Change to refer to Clause 20 -- or just delete, since the Clause 20 RXVECTOR includes the cited parameters, as it should |  |

## Discussion:

## Proposed Resolution:

***Revised***

18.3.5.5

NOTE —The receiving PHY cannot determine whether the CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT parameters were present in the TXVECTOR of the transmitting PHY; therefore, the receiving PHY in a VHT STA always includes values for the CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT parameters in the ~~Clause 18 (Orthogonal frequency division multiplexing (OFDM) PHY specification)~~ RXVECTOR if the detected PPDU is a NON-HT PPDU. It is the responsibility of the MAC to determine the validity of the RXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT.

18.3.12 Receive PHY

…

If the PHY header reception is successful (and the SIGNAL field is completely recognizable and supported), a PHY-RXSTART.indication(RXVECTOR) primitive shall be issued. If dot11TimingMsmtActivated is true, the PHY shall do the following:

-          Complete receiving the PHY header and verify the validity of the PHY Header.

-          If the PHY header reception is successful (and the SIGNAL field is completely recognizable and supported), a PHY-RXSTART.indication(RXVECTOR) primitive shall be issued and RX\_START\_OF\_FRAME\_OFFSET parameter within the RXVECTOR shall be forwarded (see 18.2.3 (RXVECTOR parameters)).

A VHT STA shall include the CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT parameters in the RXVECTOR within the PHY-RXSTART.indication(RXVECTOR) primitive.

9.7.11

A non-VHT STA shall include neither the CH\_BANDWIDTH\_IN\_NON\_HT parameter nor the DYN\_BANDWIDTH\_IN\_NON\_HT parameter in either of the ~~Clause 18 (Orthogonal frequency division multiplexing (OFDM) PHY specification)~~ TXVECTOR or RXVECTOR for NON\_HT PPDUs. A non-VHT STA shall not set the TA field to a bandwidth signaling TA. A VHT STA shall include neither the CH\_BANDWIDTH\_IN\_NON\_HT parameter nor the DYN\_BANDWIDTH\_IN\_NON\_HT parameter in the ~~Clause 22 (Very High Throughput (VHT) PHY specification)~~ TXVECTOR of a non-HT PPDU addressed to a non-VHT STA. A VHT STA shall not set the TA field to a bandwidth signaling TA in a frame addressed to a non-VHT STA. A VHT STA that includes the DYN\_BANDWIDTH\_IN\_NON\_HT parameter in the TXVECTOR shall also include the CH\_BANDWIDTH\_IN\_NON\_HT parameter in the TXVECTOR. A VHT STA shall not include the DYN\_BANDWIDTH\_IN\_NON\_HT parameter in the TXVECTOR for transmitted frames other than RTS frames with bandwidth signaling TA and that are sent in a non-HT PPDU. A STA that transmits an RTS frame with a bandwidth signaling TA shall include the DYN\_BANDWIDTH\_IN\_NON\_HT parameter in the TXVECTOR. A VHT STA shall include both the CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT parameters in the ~~Clause 18 (Orthogonal frequency division multiplexing (OFDM) PHY specification)~~ RXVECTOR if the detected PPDU format is NON\_HT.

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3472 | 544/60 | 7.3.5.14 | "The RXERROR parameter can convey one or more of the following values: NoError, FormatViolation, CarrierLost, or UnsupportedRate". What about Filtered? (Also, if it returns NoError it can't return any of the others.) | Yet another example that duplication is dangerous. Replace with "The RXERROR parameter can convey NoError or one or more values indicating an error condition." Also fix Table 7-3 to add the missing value | GEN |

## Discussion:

Agree with commenter.

## Proposed Resolution:

Accept (Two Changes)

Change #1

In line 60-61 of page 544, replace sentence

“The RXERROR parameter can convey one or more of the following values: NoError, FormatViolation, CarrierLost, or UnsupportedRate.”

*with*

“The RXERROR parameter can convey NoError or one or more values indicating an error condition.”

*Change #2*

*In Table 7-3 (page 532), add "Filtered" in value of "RXERROR" row.*

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3480 | 1036/34 | 8.4.2.161 | The VHT Transmit Power Envelope is described as being about the power limit for a "transmission bandwidth" (3 instances) but this term is not defined. Specifically, is this referring to the PPDU width, the PPDU mask, or the channel width? Note also the use of "PPDU bandwidth" in one other place, which too is ambiguous as to whether it's the PPDU or the mask | Change "transmission bandwidth" and "PPDU bandwidth" to "mask bandwidth" | MAC |

## Discussion:

PPDU bandwidth and mask bandwidth are also not defined.

## Proposed Resolution:

*Revised*

*Find and replace* “transmission bandwidth” *(1 instance) with*

Local Maximum Transmit Power For *X* MHz fields (where *X* = 20, 40, 80, or 160/80+80) define the local maximum transmit power limit of *X* MHz PPDUs.

*In Table 8-254, change note as follows;*

NOTE—This table is expected to be updated only if regulatory domains mandate the use of transmit power control with limits that cannot be converted into an EIRP value per transmission bandwidth.

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3484 | 1379/15 | 9.26.6 | 9.23.6 says that to protect non-HT STAs a VHT STA just follows the rules for HT STAs. However, things such as Table 9-12 allow protection by sending an HT\_MF as long as this requires a non-HT response. This needs to be extended to allow sending a VHT PPDU as long as this requires a non-HT response. (There may be other places where use of HT\_MF needs to be extended to allow VHT instead.) | Add something like ", where a a PPDU with the TXVECTOR FORMAT parameter set to VHT may be substituted for a PPDU with the TXVECTOR FORMAT parameter set to HT\_MF" to the first sentence | MAC |

## Discussion:

Agree with commenter.

## Proposed Resolution:

*Revised*

*In line 15 of page 1379, modify sentence as follows.*

“A VHT STA is subject to all of the rules for HT STAs that apply to its operating band,except that a PPDU with the TXECTOR FORMAT parameter set to VHT may be substituted for a PPDU with the TXVECTOR FORMAT parameter set to HT\_MF.”

| **CID** | **Page/Line** | **Clause number** | **Comment** | **Proposed Change** | **Owning Ad-hoc** |
| --- | --- | --- | --- | --- | --- |
| 3414 |  |  | "RATE", "DATARATE", "DATA\_RATE", "DATA-RATE" | Pick one and use throughout | EDITOR |
| 3515 | 532/15 | 7.3.4.4 | DATA\_RATE, DATARATE and RATE (in PHY clauses?) and L\_DATARATE(?) parameter of TXVECTOR - inconsistent usage. | Use a consistent word. | GEN |

## Discussion:

DATARATE is widely used. And L\_DATARATE parameter of the TXVECTOR is used for L-SIG RATE setting. RATE is subfield in L-SIG.

All of these parameters need to be used as it is. However, DATA\_RATE is only used in 6.5.5.2 and referring texts.

6.5.5.2 is for DSSS, and DSSS PHY defines DATARATE not DATA\_RATE.

Thus, we can change DATA\_RATE to DATARATE.

## Proposed Resolution:

*Revised*

*Find and replace* “DATA-RATE”*(1 instance),* “DATA\_Rate” *(1 instance), and* “DATA\_RATE” *(5instances) with*

“DATARATE”