IEEE P802.11  
Wireless LANs

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| CC9 CID 813, 816, 825, 826, 886 comment resolution | | | | |
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| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Yongho Seok | LG Electronics |  | +82-31-450-1947 | [yongho.seok@lge.com](mailto:yongho.seok@lge.com) |
|  |  |  |  |  |

Abstract

This submission proposes comment resolutions of the following CIDs from TGah Draft 0.1 Comment Collection 9.

* 813, 816, 825, 826, 886

Interpretation of a Motion to Adopt

A motion to approve this submission means that the editing instructions and any changed or added material are actioned in the TGah Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGah Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGah Editor: Editing instructions preceded by “TGah Editor” are instructions to the TGah editor to modify existing material in the TGah draft. As a result of adopting the changes, the TGah editor will execute the instructions rather than copy them to the TGah Draft.***

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
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| 826 |  |  | 8.3.1.19 What is the format of the HT Control field for 11ah? | clarify | Revised-  TGah editor to make changes shown in 11-13-1086r0 under the heading for CID 826 |

**Discussion:**

The format of the HT Control field for 11ah is not clear. The VHT variant HT Control field can be reused for 11ah but the MFB subfields are needed to be changed.

**Propose:**

Revised for CID 826, per discussion and editing instructions in 11-13/1086r0.

***TGah editor: Within subclause 9.9 HT Control field operation, modify the paragraphs indicated and add a new paragraph as show:***

**9.9 HT Control field operation**

A VHT variant HT Control field shall not be present in a frame addressed to a STA unless that STA declares support for +HTC-VHT in the VHT Capabilities Info field of its VHT Capabilities element or in the S1G Capabilities Info field of S1G Capabilities elements that it transmits.

***TGah editor: This is the new paragraph:***

For a STA operating in the S1G band, if the value of dot11VHTControlFieldOptionImplemented is true, a S1G STA shall set the +HTC-VHT Support subfield of the S1G Capabilities Info field of the S1G Capabilities element to 1 in S1G Capabilities elements that it transmits.

***TGah editor: Modify the sub-clause 8.2.4.6.3 as the following:***

**8.2.4.6.3 VHT variant**

For a non-S1G STA, the format of the MFB subfield in the VHT variant HT Control field is shown in Figure 8-8c.

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|  | B9 B11 | B12 B15 | B16 B17 | B18 B23 |
|  | NUM\_STS | VHT-MCS | BW | SNR |
| Bits: | 3 | 4 | 2 | 6 |
| Figure 8-8c—MFB subfield in the VHT variant HT Control field | | | | |

For an S1G STA operating in the S1G band, the format of the MFB subfield in the VHT variant HT Control field is shown in Figure 8-2-4-6-3-1.

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|  | B9 B10 | B11 B14 | B15 B17 | B18 B23 |
|  | NUM\_STS | VHT-MCS | BW | SNR |
| Bits: | 2 | 4 | 3 | 6 |
| Figure 8-2-4-6-3-1—MFB subfield in the VHT variant HT Control field when used in S1G band | | | | |

The MFB subfields in the VHT variant HT Control field are defined in Table 8-13b (MFB subfield in the VHT variant HT Control field).

|  |  |  |
| --- | --- | --- |
| * MFB subfield in the VHT variant HT Control field | | |
| Subfield | Meaning | Definition |
| NUM\_STS | Recommended NUM\_STS | Indicates the recommended NUM\_STS as defined in 9.28.3 (Link adaptation using the VHT variant HT Control field).  The NUM\_STS subfield contains an unsigned integer representing the number of space time streams minus 1. |
| VHT-MCS | Recommended VHT-MCS | Indicates the recommended VHT-MCS as defined in 9.28.3 (Link adaptation using the VHT variant HT Control field).  The VHT-MCS subfield contains an unsigned integer in the range 0 to 9 representing a VHT-MCS Index value (defined in 22.5 (Parameters for VHT-MCSs)). |
| BW | Bandwidth of the recommended VHT-MCS | If the Unsolicited MFB subfield is 1, the BW subfield indicates the bandwidth for which the recommended VHT-MCS is intended, as defined in 9.28.3 (Link adaptation using the VHT variant HT Control field):  For a VHT STA:  Set to 0 for 20 MHz  Set to 1 for 40 MHz  Set to 2 for 80 MHz  Set to 3 for 160 MHz and 80+80 MHz.  For a TVHT STA:  Set to 0 for TVHT\_W  Set to 1 for TVHT\_2W and TVHT\_W+W  Set to 2 for TVHT\_4W and TVHT\_2W+2W  The value 3 is reserved.  For a S1G STA:  Set to 0 for 1 MHz  Set to 1 for 2 MHz  Set to 2 for 4 MHz  Set to 3 for 8 MHz.  Set to 4 for 16 MHz.  The values 5 to 7 are reserved.  If the Unsolicited MFB subfield is 0, the BW subfield is reserved. |
| SNR | Average SNR | Indicates the average SNR, which is an SNR averaged over data subcarriers and space-time streams.  The SNR is averaged over all the space-time streams and data subcarriers, and is encoded as a 6-bit two's complement number of SNR\_average – 22, where SNR\_average is the sum of the values of SNR per frequency tone (in decibels) per space-time stream divided by the product of the number of space-time streams, as indicated in the NUM\_STS subfield, and the number of frequency tones represented in the bandwidth in which the MFB was estimated. This encoding covers the SNR range from –10 dB to 53 dB in 1 dB steps. |

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| 825 |  |  | 8.3.1.19 VHT NDP Announcement frame format. AID is just 12 bits, need 13. | Adapt NDP Announcement fro 11ah | Revised-  Agree with the comment. But, TGah Draft 0.2 already fixed this comment. Any spec changes are not needed. |

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
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| 886 | 174.00 | 9.31.6 | For S1G band, the NDP transmission protocol should be defined. Simply, we can replace VHT of section 9.31.6 with S1G. | Define a S1G NDP transmission protocol. | Revised-  TGah editor to make changes shown in 11-13-1086r0 under the heading for CID 813, 816, 886 |
| 813 | 138.00 | 9.31.5 | the folowing sentence "For S1G band, the same sounding protocol is applied, with "VHT" replaced by "S1G"" is too simplistic and if applied generates several inconsistencies; e.g. this would indicate also an "S1G NDP Announcement", which does not exist. Is the VHT NDP announcements used? Similarly for the VHT CompressedBeamforming | Have a thorough revision of the section and make sure the desired behavior is clearly defined | Revised-  TGah editor to make changes shown in 11-13-1086r0 under the heading for CID 813, 816, 886 |
| 816 | 121.00 | 9 | "9.31.5.2 Rules for VHT sounding protocol sequences" A VHT beamformer shall not transmit either a VHT NDP Announcement+HTC frame or a Beamforming ReportPoll+HTC frame that contains an HT variant HT Control field. Does S1G supports HTC or VHTC? | Clarify Rules for S1G Sounding Protocol. | Revised-  TGah editor to make changes shown in 11-13-1086r0 under the heading for CID 813, 816, 886 |

**CID 813, 816, 886**

**Discussion:**

For S1G band, the same VHT sounding protocol is applied to a S1G STA.

But, the S1G NDP Announcement frame and S1G NDP frame are used on the behalf of the VHT NDP Announcement frame and VHT NDP frame, respectively.

However, the VHT NPD frame can not be simply reused from the VHT NDP frame because the PPDU format is very different. So, a transmission behavior of S1G NDP should be defined.

**Propose:**

Revised for CID 813, 816, 886, per discussion and editing instructions in 11-13/1086r0.

***TGah editor: Insert the following sub-clause after the sub-clause 9.31.6:***

9.31.6a Transmission of a S1G NDP

A S1G NDP shall use the 2MHz short format as described in 24.1.4 (PPDU formats). A S1G STA shall transmit a S1G NDP using the following TXVECTOR parameters:

* APEP\_LENGTH set to 0
* NUM\_USERS set to 1
* CH\_BANDWIDTH set to the same value as the TXVECTOR parameter CH\_BANDWIDTH in the preceding S1G NDP Announcement frame
* NUM\_STS indicates two or more space-time streams
* PARTIAL\_AID are set as described in 9.17b (Group ID and partial AID in S1G PPDUs)
* NDP\_INDICATION set to 0
* RESPONSE\_INDICATION set to Long\_Response

The number of space-time streams sounded and as indicated by the NUM\_STS parameter shall not exceed the value indicated in the Beamformee STS Capability field in the VHT Capabilities element of any intended recipient of the S1G NDP. The NUM\_STS parameter may be set to any value, subject to the constraint of the previous sentence, regardless of the value of the Supported S1G-MCS and NSS Set field of the S1G Capabilities element transmitted by either the transmitter or recipient of the S1G NDP.

The destination of a S1G NDP is equal to the RA of the immediately preceding S1G NDP Announcement frame.

The source of a S1G NDP is equal to the TA of the immediately preceding S1G NDP Announcement frame.