IEEE P802.11
Wireless LANs

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| LB 203 Comment Resolution for 8.4.2.170j |
| Date: 2014-09-01 |
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Abstract

This submission proposes resolutions for comments in clause 8.4.2.170j of TGah Draft 2.0 with the following CIDs (TOT 7 CIDs):

* 3473, 3574, 3912, 3934, 4140, 4176, 4191

Revisions

* Rev 0: Initial version of the document

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.***

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| **CID** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 3473 | David Hunter | 144.59 | 8.4.2.170j | This text (and page 536, line 54) mention a "S1G Compressed Beamforming frame", but no such frame is defined in this amendment. | Either define the S1G Compressed Beamforming frame or remove this reference and the reference on page 536 line 54. | Revised –Agree in principle with the commenter. Proposed resolution is to clarify that it is a VHT Compressed Beamforming frame carried in an S1G PPDU.TGah editor: Replace “S1G Compressed Beamforming frame” with “VHT Compressed Beamforming frame carried in an S1G PPDU”. |
| 3574 | Hongyuan Zhang | 151.5 | 8.4.2.170j.3 | For wider BW devices, 1MHz mode is used solely for range extension, therefore only low MCSs including MCS10 are meaningful, higher QAM in 1MHz is mostly redundant as overlapping rates can always be found in 2MHz. | Allow a wider BW device to enable a small MCS set for 1MHz, while still enabling high MCSs for wider BW, for the same Nss. To achieve this, define separate Tx/Rx MCS Map for 1MHz, like Figure 8-401ai. | Revised –Agree in principle with the comment. While a device needs to support both 1Mhz and 2Mhz PPDUs it can be beneficial for the device to indicate separate MCS sets for these 2 bandwidths. Proposed resolution is to enable a STA to indicate an independent S1G-MCS set for 1 SS@1 MHz.TGah editor to make the changes shown in 11-14/1088r0 under all headings tha include CID 3574. |
| 3912 | Mingguang Xu | 151.5 | 8.4.2.170j.3 | It is not necessary to include higher QAM in 1MHz mode for wider BW devices because there are always overlapping rates in 2MHz. | Define different MCS capabilities for 1MHz and greater than or equal to 2MHz modes. Define only a few lowest MCS for 1MHz. | Revised –Agree in principle with the comment. While a device needs to support both 1Mhz and 2Mhz PPDUs it can be beneficial for the device to indicate separate MCS sets for these 2 bandwidths. Proposed resolution is to enable a STA to indicate an independent S1G-MCS for 1 SS@1 MHz.TGah editor to make the changes shown in 11-14/1088r0 under all headings tha include CID 3912. |
| 3934 | Mitsuru Iwaoka | 143.18 | 8.4.2.170j.2 | Table 8-41b (P95L14) implies that an S1G STA may support FMS. It is better to add an FMS field to the S1G Capabilities element. | 1) Assign the FMS filed to the B69 of the S1G Capabilities Info field (Figure 8-401ag).2) Add a following new row at the end of Table 8-240f (Subfields of the S1G Capabilities Info field).---| FMS | Indicates support of FMS (See 10.2.2.16 (FMS power management) and 10.24.8 (FMS multicast rate processing)). | Sets the FMS field to 1 when dot11FMSActivated is true, and sets it to 0 otherwise. |3) Modify the subclause 10.2.2.16.1 (General) of P802.11mc D3.0 as following;---Implementation of FMS is optional for a WNM STA. A STA that has a value of true for dot11FMSActivated is defined as a STA that supports FMS. A non-S1G STA for which dot11FMSActivated is trueshall set the FMS field of the Extended Capabilities element to 1. An S1G STA for which dot11FMSActivated is trueshall set the FMS field of the S1G Capabilities element to 1. | Rejected –An S1G STA that supports FMS or other features that are signalled via the Extended Capabilities element can include this element in management frames they transmit. |
| 4140 | Yakun Sun | 142.19 | 8.4.2.170j.2 | If a device supports wider bandwidth, then typically 1MHz BW is only used for range extension. For such a scenario, it is unlikely to use high rates in 1MHz BW. | Make high MCS's optional for a wider BW device, and allow it to disable the high MCS's. At the same time, high MCSs can still be enabled for wider BW. In order of doing so, a MCS map for 1MHz can be defined. | Revised –Agree in principle with the comment. While a device needs to support both 1Mhz and 2Mhz PPDUs it can be beneficial for the device to indicate separate MCS sets for these 2 bandwidths. Proposed resolution is to enable a STA to indicate an independent S1G-MCS set for 1 SS@1 MHz.TGah editor to make the changes shown in 11-14/1088r0 under all headings tha include CID 4140. |
| 4176 | Zhipei Chi | 151.12 | 8.4.2.170j.3 | For devices supporting BW greater than or equal to 1MHz, 1MHz mode is used mainly when channel exhibits higher path loss and larger delay spread. Lower MCSs including MCS10 are most likely to be adopted for reliable transmissions under these channel conditions. Therefore it is recommended to have two sets of S1G-MCS maps for 1MHz BW and for >=2MHz BW operating conditions, respectively. Each set of S1G-MCS map takes the format specified by Figure 8-401ai. | As proposed in comment. | Revised –Agree in principle with the comment. While a device needs to support both 1Mhz and 2Mhz PPDUs it can be beneficial for the device to indicate separate MCS sets for these 2 bandwidths. Proposed resolution is to enable a STA to indicate an independent S1G-MCS set for 1 SS@1 MHz.TGah editor to make the changes shown in 11-14/1088r0 under all headings tha include CID 4176. |
| 4191 | Mitsuru Iwaoka | 142.61 | 8.4.2.170j.2 | All of Dynamic AID, Multicast AID, and Unsolicited Dynamic AID uses the AID Switch Request/Response frame. It is better to unify these functions to reduce number of options. | 1) Replace "dot11MulticastAIDActivated" and "dot11UnsolicitedDynamicAIDActivated" by "dot11DynamicAIDActivated" throughout the draft.2) Remove the Multicast AID Support bit and the Unsolicited Dynamic AID bit from the S1G Capabilities Info field Figure 8-401ag and Table 8-240f). | Rejected –The comment fails to identy a technical issue. An S1G STA uses these capability indications to indicate which feature it supports. For example a STA can support Dynamic AID but not support Unsolicited Dynamic AID or Multicast AID. |

* S1G Capabilities element
* Supported S1G-MCS and NSS Set field

The Supported S1G-MCS and NSS Set field is used to convey the combinations of S1G-MCSs and spatial streams that a STA supports for reception and the combinations that it supports for transmission. The structure of the field is shown in Figure 8-575a26 (Supported S1G-MCS and NSS Set field format).

**TGah Editor: *Change the figure and the table below as follows (#3574, 3912, 4140, 4176):***

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | B0 B7 | B8 B16 | B17 B24 | B25 B33 | B34 B35 | B36 B37 | B38 B39 |
|  | Rx S1G-MCS Map | Rx HighestSupported Long GIData Rate | Tx S1G-MCSMap | Tx HighestSupported Long GIData Rate | Rx Single Spatial Stream and S1G-MCS Map for 1 MHz | Tx Single Spatial Stream and S1G-MCS Map for 1 MHz | Reserved  |
| Bits: | 8 | 9 | 8 | 9 | 2 | 2 | 2 |
| * Supported S1G-MCS and NSS Set field format
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The Supported S1G-MCS and NSS Set subfields are defined in Table 8-258a6 (Supported S1G-MCS and NSS Set subfields).

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| --- |
| * Supported S1G-MCS and NSS Set subfields
 |
| Subfield | Definition | Encoding |
| Rx S1G-MCS Map | Indicates the maximum value of the RXVECTOR parameter MCS of a PPDU that can be received at all channel widths supported by this STA for each number of spatial streams. | The format and encoding of this subfield are defined in Figure 8-575a27 (Rx S1G-MCS Map, Tx S1G-MCS Map and Basic S1G-MCS and NSS Set) and the associated description. If Rx Single Spatial Stream and S1G-MCS Map for 1 MHz subfield is greater than or equal to 1, then only the value of the Max S1G-MCS For 1 SS subfield that is indicated by the Rx Single Spatial Stream and S1G-MCS Map subfield is applicable for 1 MHz channel width. |
| Rx Highest Supported Long GI Data Rate | Indicates the highest long GI S1G data rate that the STA is able to receive. | The largest integer value less than or equal to the highest long GI S1G PPDU data rate in Mb/s the STA is able to receive (see 9.7.11a.1 (Rx Supported S1G-MCS and NSS Set)).The value 0 indicates that this subfield does not specify the highest long GI S1G PPDU data rate that the STA is able to receive. |
| Tx S1G-MCS Map | Indicates the maximum value of the TXVECTOR parameter MCS of a PPDU that can be transmitted at all channel widths supported by this STA for each number of spatial streams. | The format and encoding of this subfield are defined in Figure 8-575a27 (Rx S1G-MCS Map, Tx S1G-MCS Map and Basic S1G-MCS and NSS Set) and the associated description. If Tx Single Spatial Stream and S1G-MCS Map for 1 MHz subfield is greater than or equal to 1, then only the value of the Max S1G-MCS For 1 SS subfield that is indicated by the Tx Single Spatial Stream and S1G-MCS Map subfield is applicable for 1 MHz channel width. |
| Tx Highest Supported Long GI Data Rate | Indicates the highest long GI S1G PPDU data rate that the STA is able to transmit at. | The largest integer value less than or equal to the highest long GI S1G PPDU data rate in Mb/s that the STA is able to transmit (see 9.7.11a.2 (Tx Supported S1G-MCS and NSS Set)).The value 0 indicates that this subfield does not specify the highest long GI S1G PPDU data rate that the STA is able to transmit. |
| Rx Single Spatial Stream and S1G-MCS Map for 1 MHz | Indicates whether only a single(#Ed) spatial stream PPDU can be received at 1 MHz channel width by this STA. | 0: same number of spatial streams and same Max S1G-MCS as indicated by Rx S1G-MCS Map field.1: single spatial stream only and with Max S1G-MCS as indicated by a value of 0 in the S1G-MCS for 1 SS subfield.2: single spatial stream only and with Max S1G-MCS as indicated by a value of 1 in the S1G-MCS for 1 SS subfield.3: single spatial stream only and with Max S1G-MCS as indicated by a value of 2 in the S1G-MCS for 1 SS subfield. |
| Tx Single Spatial Stream and S1G-MCS Map for 1 MHz | Indicates whether only a single(#Ed) spatial stream PPDU can be transmitted(#Ed) at 1 MHz channel width by this STA. | 0: same number of spatial streams and same Max S1G-MCS as indicated by Tx S1G-MCS Map field.1: single spatial stream only and with Max S1G-MCS as indicated by a value of 0 in the S1G-MCS for 1 SS subfield.2: single spatial stream only and with Max S1G-MCS as indicated by a value of 1 in the S1G-MCS for 1 SS subfield.3: single spatial stream only and with Max S1G-MCS as indicated by a value of 2 in the S1G-MCS for 1 SS subfield. |

The Rx S1G-MCS Map subfield and the Tx S1G-MCS Map subfield have the structure shown in Figure 8-575a27 (Rx S1G-MCS Map, Tx S1G-MCS Map and Basic S1G-MCS and NSS Set).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 B1 | B2 B3 | B4 B5 | B6 B7 |
|  | Max S1G-MCSFor 1 SS | Max S1G-MCSFor 2 SS | Max S1G-MCSFor 3 SS | Max S1G-MCSFor 4 SS |
| Bits: | 2 | 2 | 2 | 2 |
| * Rx S1G-MCS Map, Tx S1G-MCS Map and Basic S1G-MCS and NSS Set
 |

The Max S1G-MCS for *n* SS subfield (where *n*=1,..., 4) is encoded as follows:

* 0 indicates support for S1G-MCS 2 for n spatial streams
* 1 indicates support for S1G-MCS 7 for n spatial streams
* 2 indicates support for S1G-MCS 9 for n spatial streams
* 3 indicates that n spatial streams is not supported

NOTE-An S1G-MCS indicated as supported in the S1G-MCS Map fields for a particular number of spatial streams might not be valid at all bandwidths (see 24.5 (Parameters for S1G-MCSs)) and might be limited by the declaration of Tx Highest Supported Long GI Data Rates and Rx Highest Supported Long GI Data Rates and might be affected by 9.7.11a.3 (Additional rate selection constraints for S1G PPDUs).

NOTE-For 1 MHz, MCS10 is always supported.