IEEE P802.11  
Wireless LANs

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| Comment Resolutions on Clause 9.4.2.218.3 (HE PHY Capabilities)  Part 3 | | | | |
| Date: 2017-02-08 | | | | |
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Abstract

This submission proposes resolutions for the following 17 comments on 9.4.2.218.3 (HE PHY Capabilities) of TGax D1.0:

5147, 5148, 5149, 5150, 5151

5152, 5153, 5154, 5155, 5841,

5842, 7557, 7559, 7573, 8346,

8347, 8381

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 TGax Draft. This introduction is not part of the adopted material.

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

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

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| **CID** | **Clause Number** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 5147 | 9.4.2.218.3 | 83.40 | I don't see MU Beamforee capability bit. Does that mean its mandatory for AP and non-AP? Please clarify. | As in comment | Reject—  UL MU Beamforming is not part of specification. Hence MU Beamformee role for AP is not needed.  DL MU MIMO reception is mandatory at the STA. Operation of DL MU MIMO requires MU Beamformee role for STA.  Thus MU Beamformee capability bit is not defined. |
| 5148 | 9.4.2.218.3 | 84.49 | Regarding "Beamformee STS", what are the settings for MU beamformee? Please clarify. | As in comment | Reject—  The capability is about maximum number of Nsts that STA can receive in an HE NDP. Both SU and MU MIMO use the same NDP for sounding. Hence the same capability value holds true, regardless of SU and MU MIMO.  MU Beamformee is no capability and hence cannot be referenced in the description of capability.  Furthermore, SU Beamformee is specifically called out in description since AP may not support SU Beamformee capability. |
| 5149 | 9.4.2.218.3 | 84.49 | Regarding "NSTS Total...", Please clarify whether this is for DL MU-MIMO Beamformee or SU Beamformee or both. | As in comment | Reject—  Both SU and MU MIMO use the same NDP for sounding. Hence the same capability value holds true, regardless of SU and MU MIMO.  Furthermore, MU beamformee is no capability and cannot be referenced in the description. |
| 5150 | 9.4.2.218.3 | 85.06 | Regarding "Beamformee STS...", what are the settings for MU beamformee? Please clarify. | As in comment | Reject—  The capability is about maximum number of Nsts that STA can receive in an HE NDP. Both SU and MU MIMO use the same NDP for sounding. Hence the same capability value holds true, regardless of SU and MU MIMO.  MU Beamformee is no capability and hence cannot be referenced in the description of capability.  Furthermore, SU Beamformee is specifically called out in description since AP may not support SU Beamformee capability. |
| 5151 | 9.4.2.218.3 | 85.13 | Regarding "NSTS Total...", Please clarify whether this is for DL MU-MIMO Beamformee or SU Beamformee or both. | as in comment | Reject—  Both SU and MU MIMO use the same NDP for sounding. Hence the same capability value holds true, regardless of SU and MU MIMO.  Furthermore, MU beamformee is no capability and cannot be referenced in the description. |
| 5152 | 9.4.2.218.3 | 85.20 | Regarding "Number Of  Sounding Dimensions...", what are the settings for MU beamformer? Please clarify. | As in comment. | Reject –  Capability pertains to sounding protocol, which is common for both SU and MU MIMO.  Note a STA has to be SU Beamformer in order to be MU Beamformer. |
| 5153 | 9.4.2.218.3 | 85.26 | Regarding "Number Of  Sounding Dimensions...", what are the settings for MU beamformer? Please clarify. | As in comment. | Reject –  Capability pertains to sounding protocol, which is common for both SU and MU MIMO.  Note a STA has to be SU Beamformer in order to be MU Beamformer. |
| 5154 | 9.4.2.218.3 | 86.11 | Regaring, "DL MU-MIMO on Partial BW". Does this imply that reception by a non-AP STA of DL MU-MIMO on full BW is mandatory? Please clarity and indicate where the shall statement is for this. | As in comment. | Reject—  Yes DL MU-MIMO rececption on full BW is mandatory to support for the non AP STA. Please see Pg 211, ln 46. |
| 5155 | 9.4.2.218.3 | 86.18 | Define SRP | As in comment. | Reject—  This section is strictly capability definition and not feature definition. The acornym will be expanded in the acronym table of the spec. |
| 5841 | 9.4.2.218.3 | 82.27 | When B1 = 0, B5 in Channel Width Field indicates support for 242/106/52/26 tones in 20MHz, not 40MHz for 2.4G | Change "40MHz", to "20MHz" | Reject—  When B1 = 0, it means 20 MHz-only device in 2.4 GHz. Bit B5 indicates optional RU support in a 40 MHz channel for a 20 MHz-only device. |
| 5842 | 9.4.2.218.3 | 82.30 | If B2, B3 & B4 are all zero, which means only 20MHz is supported, how can the B6 indicating support 242 tones in 40MHz and 80MHz mode? | I think the B6 means it only support 242-tones in 20MHz mode, so need to change the sentence to: "B6 to indicate only 242-tones are supported, when B2, B3 & B4 are all zeros" | Reject—  When B2 = B3 = B4 = 0, it means 20 MHz-only device in 5 GHz. Bit B5/6 indicates optional RU support in 40 and 80 MHz channel for a 20 MHz-only device. |
| 7557 | 9.4.2.218.3 | 79.42 | It is not necessary to add Dual Band Support in HE PHY Capabilities Information field. If it is 1, what does it mean and what is the purpose of it? | Remove Dual Band Support from the field. | Reject—    Dual band support indication is very meaningful for APs. For e.g., it may be used for band steering associated clients based on their capability. |
| 7559 | 9.4.2.218.3 | 83.34 | It is not necessary for a transmitter to announce its transmitting capability of a feature to the receiver. | Change the definition per the comment | Reject—  AP needs to know STAs STBC transmission capability if it wants HE\_TRIG PPDU with STBC. |
| 7573 | 9.4.2.218.3 | 86.11 | It is atrange that DL MU on partial BW is defined only for RX side but UL MU on partial BW is defined for both TX and RX sides. | Harmonize the definiition. | Reject—  Reception of DL MU MIMO on full BW is mandatory for a STA and hence no not needed as a capability.  UL MU MIMO is optional on full and partial BW. |
| 8346 | 9.4.2.218.3 | 81.9 | Dual band support field is not used in this draft and should be replaced by a more useful capability indication. Support for 5GHz and/or 2.4 GHz can be inferred from the Channel Width Set field | Make this "Dual Band Support" field a reserved field for future assignment. | Reject—    Dual band support field is very meaningful for the AP. For e.g., AP can use this information for band steering its clients.  The dual band support cannot be inferred from Channel Width Set field. Bits B0 and B1 indicate support of 40 MHz and 40 and 80 MHz in 2.4 GHz and 5 GHz band, respectively. It does not indicate support of 2.4 GHz and 5 GHz band. |
| 8347 | 9.4.2.218.3 | 82.45 | Support of preamble puncturing in all secondary 20/40MHz channels should be mandatory to reduce complexity on the AP scheduling and to improve network efficiency | Remove or change the Preamble Puncturing Rx field to "reserved" | Reject—  Preamble puncturing Tx and Rx is agreed as an optional feature. Commentor is welcome to bring proposal to change this agreement in the group. |
| 8381 | 9.4.2.218.3 | 81.8 | Currently STBC capability if enabled would need to be supported over all BWs. STBC processing for 160MHz channels results in extra Si cost and value of using STBC in 160MHz is low and negligible. There should be a capability bit for Tx/Rx STBC with 160 MHz, so this cost is not needed for every STA supporting STBC. | Change "STBC Tx and Rx" to "STBC Tx and Rx for PPDU with bandwidth smaller than or equal to 80MHz." Add a new field with two bits at the end for "STBC Tx and Rx for PPDU with bandwidth equal to 160 MHz" | Reject—  The channel bandwidths are same (20/40/80/160 (80+80)) in 802.11ac and 802.11ax. The 802.11ac did not define STBC capability depending on the bandwidth. Hence it is reasonable to follow 11ac style in 11ax. |
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