IEEE P802.11
Wireless LANs

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| 11ax D3.0 Comment Resolution 27.15.2 |
| Date: 2018-08-28 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D3.0 with the following CIDs:

* 15915, 16127, 16135, 16136.

Revisions:

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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** | **PP** | **LL** | **Comment** | **Proposed Change** | **Resolution** |
| 15915 | 365 | 28 | The rules related to control frame PPDU format is not complete. | Change the text according to the comment. | **Revised****Discussion: The paragraph P365 L28 defines the control frame formats from HE STA to HE STA. Per the paragraph, the initiating control frmae RTS, NDPA will follow 11ac since no additional rules in the paragraph P365L28 metioned them in the paragraph. Argurablly P365L28 paragraph also contradicts with the following sentence “**An HE STA may transmit an HE SU PPDU to a peer HE STA**” (the sentence is also not suitable to RTS/CTS and CTS-to-self). Some options can be used to fix the issue: option 1: HE PPDU is used for initiating control if it is absolutely necessary, otherwise no-HT (duplicate) PPDU is used (this follows 11ac/11n); option 2: HE PPDU is used for initiating control frame except RTS and CTS-to-Self, however HE SU/ER-SU PPDU should be used for RTS/CTS and CTS-to-Self in 6GHz band. The following text is based on option 1.****TGax editor to make changes in 11-18/1484r0 under CID 15915** |
| 16127 | 365 | 6 | The resolution to CID 12627 on HE MU tx by a STA claims that this is desirable because "the MU PPDU has a SIG-B field that contains additional information (most importantly the identifier of the transmitter or receiver) that can be used by the recipient of the MU PPDU to determine which is the generator of the PPDU". However, the only such field in HE-SIG-B is the STA-ID, and other parts of the spec make it clear that this contains the STA-ID of the recipient not the transmitter (see 8.3.5.2.2, 27.11.1, 28.3.2.5) | Delete the Rx HE MU PPDU From Non-AP STA subfield in the HE PHY Capabilities Information field (Figure 9-589cl and Table 9-262aa) and "to a peer STA unless it has received from the peerSTA an HE Capabilities element with the Rx HE MU PPDU From Non-AP STA subfield in the HE PHYCapabilities Information field equal to 1" and following NOTE in 27.15.2 | **Rejected****Discussion: in P352L57, STAID field with transmitter’s AID is defined, i.e. “**If an RU is intended for an AP, then the STA\_ID\_LIST contains only one element that is set to the 11 LSBs of the AID of the non-AP STA transmitting the PPDU**”.**  |
| 16135 | 365 | 6 | "A non-AP STA transmitting an HE MU PPDU sets the TXVECTOR parameter UPLINK\_FLAG to 1 if thePPDU is sent to the AP" is not necessarily true (see 27.11.2). And "transmitter's AID if the UPLINK\_FLAG is 1 and thereceiver's AID if the UPLINK\_FLAG is 0" -- the link between the AID (actually STA-ID) setting and the UPLINK\_FLAG setting is not required by the spec anywhere | Delete the NOTE at the referenced location | **Rejected****Discussion: UPLINK\_FLAG setting being 1 for HE MU PPDU addressed to an AP is defined in 27.11.2 “**A STA transmitting an HE PPDU that is addressed to an AP shall set the TXVECTOR parameter UPLINK\_FLAG to 1, except when the HE PPDU is an HE ER SU PPDU with the TXVECTOR parameter TXOP\_DURATION set to UNSPECIFIED and contains an RTS or CTS frame in which case the STA may set the TXVECTOR parameter UPLINK\_FLAG to 0**”. The exception applies to HE ER SU PPDU. Transmitter’s AID for HE MU PPDU to AP and receiver’s AID for other HE MU PPDU are defined in 27.11.1, i.e. P352 L57 and P352L52 in D3.0.**  |
| 16136 | 365 | 6 | "transmitter's AID if the UPLINK\_FLAG is 1 and thereceiver's AID if the UPLINK\_FLAG is 0" -- the link between the AID (actually STA-ID) setting and the UPLINK\_FLAG setting is not required by the spec anywhere, but it seems to be relied upon in 27.14.1 Intra-PPDU power save for non-AP HE STAs | Add a requirement that the UPLINK\_FLAG be 1 if the STA-ID in an HE MU PPDU is the transmitter's ID, and be 0 if it is the receiver's | **Rejected****Discussion: see CID 16135.** |
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**27.15 PPDU format, BW, MCS, NSS, and DCM selection rules**

**27.15.2 PPDU format selection**

***TGax editor: change the first paragraph in 27.15.2 as follows:***

An HE STA that transmits non-HT, HT, or VHT PPDUs shall follow the rules defined in 10.7 (Multirate support). An HE STA may transmit an HE SU PPDU to a peer HE STA if the the HE SU PPDU doesn’t carry a Control frame that is not solicited by other frame. (#15915)

***TGax editor: change the last three paragraphs in 27.15.2 as follows:***

An HE STA shall send Control frames following the rules defined in 10.7.6 (Rate selection for Control frames)) with the following exceptions:

* A Control frame sent in response to an HE ER SU PPDU or HE SU PPDU that uses STBC shall be carried in the same PPDU format as the soliciting PPDU.
* A Control frame sent by the AP as a response to an HE TB PPDU may be carried in any PPDU format that is supported by the intended receiver(s).
* A Trigger frame that is not an MU-RTS Trigger frame(#13317) may be carried in any PPDU format that is supported by the intended receiver(s).
* A Control frame is carried in an HE TB PPDU if it is sent as a response to a PPDU that contains a Trigger frame that is not an MU-RTS Trigger frame or if it is sent as a response to a PPDU that contains a frame containing a TRS Control subfield(#13136)(#14137) (see 27.5.3 (UL MU operation)).(18/12r3)
* An Ack frame sent as a response to an HE ER SU PPDU or HE SU PPDU containing an FTM frame shall be sent in the same PPDU format as the soliciting PPDU except when the FTM frame is carried in HE SU PPDU and the most recent successfully received PPDU sent by the responding STA to the soliciting STA after association was an HE ER SU PPDU in which case the Control frame shall be carried in HE ER SU PPDU.
* A Control frame sent as a response to an HE ER SU PPDU shall be carried in an HE ER SU PPDU unless the most recently received PPDU(#11692) sent by the responding STA to the soliciting STA after association was not an HE ER SU PPDU in which case the Control frame shall be carried in non-HT PPDU.
* A Control frame sent as a response to an HE SU PPDU shall be carried in a non-HT PPDU unless the most recent received PPDU(#11692) sent by the responding STA to the soliciting STA after association was an HE ER SU PPDU in which case the Control frame shall be carried in an HE ER SU PPDU.
* A Control frame sent in 6GHz band which is not solicited by other frame shall be carried in a non-HT PPDU, HE SU PPDU or HE ER SU PPDU.(#15915)
* A Control frame in a band other than 6GHz band which is not solicited by other frame shall be carried in an HT PPDU, VHT PPDU, HE SU PPDU or HE ER SU PPDU when the frame is sent using STBC frame. (#15915)
* An Control frame in a band other than 6GHz band which is not solicited by other frame and is not a Trigger frame may be carried in an HE ER SU PPDU.(#15915)

NOTE 1—PPDU format switching between non-HT and ER SU PPDU occurs in subsequent TXOPs. A STA that solicits a Control frame from a responding STA accounts for the PPDU format of the Control frame to calculate the expected duration of the TXOP. The responding STA determines that the most recent PPDU sent to the soliciting STA is successfully received if it receives an immediate acknowledgment by the soliciting STA in response to the PPDU.

NOTE 2—A STA does not transmit a Control frame in an HE ER SU PPDU to a receiving STA unless the receiving STA indicates that HE ER SU PPDU reception is enabled.(#11687, #14124)