IEEE P802.11  
Wireless LANs

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| Comment Resolution on MU Ack Policy | | | | |
| Date: 2016-09-13 | | | | |
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Abstract

This submission proposes resolutions of comments received from TGax comment collection (TGax Draft 0.1).

* CIDs: 2445, 2457, 2494, 2395 (4 CID)

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.***

| **CID** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- |
| 2445 | 11.58 | 9.2.4.5.4 | When a frame solicits a HE trigger-based PPDU, the Ack Policy field of the frame is set to 01 (Trigger based UL MU Ack). Modify the Table 9-9 for supporting the Trigger based UL MU Ack. | As per comment | Revised-  Agree in principal.  As specified in TGax SFD, Table 9-9 should be updated.  TGax editor makes changes as shown in the as specified in 11-16/1131r1. |
| 2457 | 42.38 | 10.3.2.11.3 | As shown in Table 9-426a, the Action frame (ie., MMPDU) is present in the A-MPDU. Such A-MPDU can be transmitted in HE MU PPDU. But, the following Trigger based UL MU Ack indication mechanism does not work for the MMPDU. Because the MMPDU does not have QoS Control field. "A non-AP STA that is the recipient, within a HE MU PPDU, of an MPDU that solicits an immediate response with Ack Policy '01' in QoS Control field, shall send the immediate response according to the scheduling information defined by the UL trigger information that is carried either in the Trigger frame(s) or in MAC header." Please provide the Trigger based UL MU Ack indication mechanism for the MMPDU that is transmitted in HE MU PPDU. A suggestion is to use the From DS field in the MAC header. See Table 9-4(To/From DS combinations in Management frames). | As per comment | Rejected-  Because an Action frame in the DL MU PPDU is always responded with an HE Trigger-based PPDU, a trigger-based UL MU ACK indication is not needed for an Action frame.  Refer the following submission: <https://mentor.ieee.org/802.11/dcn/16/11-16-1028-03-00ax-cids-for-section-25-4-ba-variants.docx> |
| 2494 | 45.26 | 10.7.6.6 | 802.11 base specification is saying the following: "A STA that sends a Control frame in response to a frame carried in an HT PPDU or a VHT PPDU shall set the TXVECTOR parameter CH\_BANDWIDTH to indicate a channel width that is the same as the channel width indicated by the RXVECTOR parameter CH\_BANDWIDTH of the frame eliciting the response." When the HE AP transmits the VHT MU PPDU that is destined to VHT STAs and HE STAs, the VHT MU PPDU can also solicit immediate responses from the target HE STAs with Ack Policy '01'. Change the corresponding sentence as the following: "A STA that sends a Control frame carried in an SU PPDU in response to a frame carried in an HT PPDU or a VHT PPDU shall set the TXVECTOR parameter CH\_BANDWIDTH to indicate a channel width that is the same as the channel width indicated by the RXVECTOR parameter CH\_BANDWIDTH of the frame eliciting the response." | As per comment | Rejected-  Even though the VHT MU PPDU is addressed to HE STAs, it can not solicit an immediate UL MU Ack response. |
| 2395 | 43.11 | 10.3.2.11.4 | When all MPDUs are received sucessfully, the multi STA Block Ack can be sent without Block Ack Starting Sequence Control subfield and Block Ack bitmap by using the predetermined AID value(e.g. 2047) and setting ACK Type field to 0 to reduce the Ack duration. | Insert the following sentence in the paragraph as below: When receiving multiple frames from more than one STA that are part of an UL MU transmission (Clause 9.42.2) and that require an immediate acknowledgement, an AP may send multiple BlockAck frames (or ACK frames) in an OFDMA HE MU PPDU or a Multi-STA BlockAck (M-BA) frame. 'When the all MPDUs from allocated STAs are sucessfully received, the AID field of Multi-STA BlockAck is set to 2047 and ACK Type field is set to 0.' | Rejected-  Such optimization can have a minor performance gain but the implementation complexity can be significantly increased.  At least, need to show the performance gain. |

**9.2.4.5.4 Ack Policy subfield**

***TGax editor: change Table 9-9 as the following:***

**Table 9-9—Ack Policy subfield in QoS Control field of QoS Data frames**

|  |  |  |
| --- | --- | --- |
| **Bits in QoS Control field** | | **Meaning** |
| **Bit 5** | **Bit 6** |
| 0 | 1 | No explicit acknowledgment or PSMP Ack or MU Ack.  When bit 6 of the Frame Control field (see 9.2.4.1.3 (Type and Subtype subfields)) is set to 1:  There might be a response frame to the frame that is received, but it is neither the Ack frame nor any Data frame of subtype +CF-Ack.  The Ack Policy subfield for QoS CF-Poll and QoS CF-Ack +CF-Poll Data frames is set to this value.  When bit 6 of the Frame Control field (see 9.2.4.1.3 (Type and Subtype subfields)) is set to 0:  The acknowledgment for a frame indicating PSMP Ack when it appears in a PSMP downlink transmission time (PSMP-DTT) is to be received in a later PSMP uplink transmission time (PSMP-UTT).  The acknowledgment for a frame indicating PSMP Ack when it appears in a PSMPUTT is to be received in a later PSMP-DTT.  For a frame that is carried in a DL HE MU PPDU:  The Ack Policy subfield for the frame that solicits an immediate response in a HE Trigger-based PPDU is set to this value (MU Ack).  The addressed recipient returns an Ack, BlockAck, or Multi-STA BlockAck frame in the HE trigger-based PPDU format after a SIFS period, according to the procedures defined in 10.3.2.11.2 (Acknowledgement procedure for HE MU PPDU in MU format) and 25.5.2 (UL MU operation). (#2445)  NOTE—Bit 6 of the Frame Control field (see 9.2.4.1.3 (Type and Subtype subfields)) indicates the absence of a data Frame Body field. When equal to 1, the QoS Data frame contains no Frame Body field, and any response is generated in response to a QoS CF-Poll or QoS CF-Ack +CF-Poll frame, but does not signify an acknowledgment of data. When set to 0, the QoS Data frame contains a Frame Body field, which is acknowledged as described in 10.29.2.7 (PSMP acknowledgment rules). |