IEEE P802.11
Wireless LANs

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Abstract

This submission proposes resolutions of comments received from TGax LB225.

(The proposed change is based on TGax Draft 1.4.)

* CIDs: 9429 (1 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** |
| --- | --- | --- | --- | --- | --- |
| 9429 | 121.55 | 10.3.2.10.3 | The sentence "A STA may use a BlockAckReq frame to solicit the acknowledgment frame(s), to whom the STA sent the QoS Data frame(s) with Ack Policy subfield equal to Block Ack or from whom the STA did not receive the immediate acknowledgement frames after sending QoS Data frame(s) in a HE trigger-based PPDU with Ack Policy subfield equal to Normal Ack or Impilcit BAR." is confusing and not clear. It should be rewritten. Also "impilcit" is spelled wrong. | change the sentence "A STA may use a BlockAckReq frame to solicit the acknowledgment frame(s), to whom the STA sent the QoS Data frame(s) with Ack Policy subfield equal to Block Ack or from whom the STA did not receive the immediate acknowledgement frames after sending QoS Data frame(s) in a HE trigger-based PPDU with Ack Policy subfield equal to Normal Ack or Impilcit BAR." into " A STA may send a BlockAckReq frame to solicit the acknowledgment frame(s) from a STA, to whom it sent the QoS Data frame(s) with Ack Policy subfield equal to Block Ack. A STA may send a BlockAckReq frame to solicit the acknowledgement frame(s) from a STA if it did not receive the immediate acknowledgement frames after sending QoS Data frame(s) in a HE trigger-based PPDU with Ack Policy subfield equal to Normal Ack or Implicit BAR." | Revised- Agree in principle. The sentence should be rewriteen. Also, please refer the below CID 9854. Comment- The case "to whom the STA sent the QoS Data frame(s) with Ack Policy subfield equal to Block Ack" is not for UL MU PPDU transmission. Therefore, it's better to exclude this explanation in this subclause, as this sub-clause describes acknowledgement procedure for UL MU PPDU.In July 2017 Berlin TGac F2F meeting, the following proposed change was accepted for CID 9854. Propsoed Change - Delete ", to whom the STA sent the QoS Data frame(s) with Ack Policy subfield equal to Block Ack or" from the paragraph.Meanwhile, for a Multi-TID BlockAckReq frame, additional discussion and text change are necessary. Please see the discussion part in 11-17/1272r0. TGax editor makes changes as shown in the as specified in 11-17/1272r0.  |

**Discussion 1:**

Please see the the below BlockAckReq Transmission Rule specified in 802.11-2016.

*BlockAckReq and BlockAck frames shall be sent using the same access category for medium access as the corresponding QoS Data frames.*

But, in a case of the Multi-TID BlockAckReq frame that explicitly requests the acknowledgement information of the Multi-TID MPDUs, which TIDs’s acknowledgement information can be requested through the Multi-TID BlockAckReq frame?

Especially, for TIDs correspond to AC that has a higher priority with respect to the primary AC, what is a desired transmission rule?

Option1) Multi-TID BlockACKReq can ask the acknowledgement information for the MPDUs of which TIDs correspond to a primary AC.

In this case, the STA have to transmit multiple Multi-TID BlockACKReq if some TIDs of MPDUs carried in the Multi-TID A-MPDU do not correspond to the primary AC.

Option2) Multi-TID BlockACKReq can ask the acknowledgement information for the MPDUs of which TIDs correspond to any AC regardless of the primary AC.

In this case, the STA ignores the basic QoS concept in the baseline spec.

Option3) Multi-TID BlockACKReq can ask the acknowledgement information for the MPDUs of which TIDs correspond to AC that has the same or higher priority with respect to the primary AC.

In this case, issues of Option 1 and 2 are addressed. We are proposing the text changes for this option in this document.

But, if a Compressed BlockAckReq frame or a Multi-TID BlockAcKReq frame is carried in an HE TB PPDU, it can ask the acknowledgement information for the MPDUs of which TIDs correspond to any AC regardless of the primary AC. This exceptation case is also included in the document.

**Discussion 2:**

An HE STA that receives a Multi-TID BlockAckReq frame or an MU-BAR Trigger frame that contains a Multi-TID BlockAckReq variant in the User Info field addressed to the STA shall respond with a Multi-STA BlockAck frame.

And, regarding a Block Ack Bitmap subfield in Multi-STA BlockAck frame,

Sub-clause 27.4.3 (Negotiation of block ack bitmap lengths) has the following constaint:

*The recipient shall not include in the Buffer Size field of an ADDBA Response frame a value that would cause the BlockAck Bitmap length of its block ack responses to exceed the BlockAck Bitmap length that is derived by the Buffer Size field of the ADDBA Request frame sent by the originator.*

But, the Buffer Size field in the ADDBA Request frame is advisory. It can be set to 0 that implies that the originator of the block ack has no information to specify its value. See the below references specified in 802.11-2016

*When a block ack agreement is set up between HT STAs, the Buffer Size and Block Ack Timeout fields in the ADDBA Request frame are advisory.*

*When a block ack agreement is set up between HT or DMG STAs, the Buffer Size and Block Ack Timeout fields in the ADDBA Request frame are advisory.*

*When a block ack agreement is set up between a non-HT non-DMG STA and another STA, the Block Ack Policy and Buffer Size fields in the ADDBA Request frame are advisory.*

*In an ADDBA Request frame, the Buffer Size subfield provides guidance for the frame receiver to decide its reordering buffer size. If the Buffer Size subfield is equal to 0, it implies that the originator of the block ack has no information to specify its value.*

So, when the Buffer Size field in the ADDBA Request frame is set to 0, the recipient can not derive the BlockAck Bitmap length from the Buffer Size field of the ADDBA Request frame sent by the originator.

For addreesing this issue, we suggest that the BlockAck Bitmap length that is derived from the recipient is default 64 when the Buffer Size field in the ADDBA Request frame is set to 0. Because all HE STA shall support the BlockAck Bitmap length of 64.

***TGax editor: change the sub-clause 10.3.2.10.3 as the following:***

* + - * 1. Acknowledgement procedure for an UL MU transmission

…

A STA may ~~use~~ send a BlockAckReq frame or a Multi-TID BlockAckReq frame to solicit the acknowledgment frame(s) from ~~whom the STA~~ an AP if it did not receive the immediate acknowledgement frames after sending QoS Data frame(s) in a HE TB PPDU with Ack Policy subfield equal to Normal Ack or Imp~~i~~licit BAR. (#9429)

***TGax editor: insert the following paragraph at the end of 27.4.1:***

* 1. Block acknowledgement
		1. Overview

…

An HE STA that transmits a Multi-TID BlockACKReq frame shall contains the TID Values of the Per TID Info subfields of the the BAR Information field of the Multi-TID BlockAckReq frame for the MPDUs of which TIDs correspond to AC that has the same or higher priority with respect to the primary AC, except when the Multi-TID BlockAcKReq frame is carried in an HE TB PPDU in which case the HE STA contains the TID Values of the Per TID Info subfields of the the BAR Information field of the Multi-TID BlockAckReq frame for the MPDUs of which TIDs correspond to any AC.

An HE STA that transmits a BlockACKReq frame carried in an HE TB PPDU contains the TID Values of the Per TID Info subfields of the the BAR Information field of the BlockAckReq frame for the MPDUs of which TIDs correspond to any AC.

***TGax editor: change the sub-clause 10.2.4.2 as the following:***

10.2.4.2. HCF contention based channel access (EDCA)

…

BlockAckReq and BlockAck frames shall be sent using the same access category for medium access as the corresponding QoS Data frames. When an HE STA transmits a BlockAckReq, Multi-TID BlockAckReq or Multi-STA BlockAck frames, further constraints defined in 27.4 (Block acknowledgement) are applied.

***TGax editor: change the sub-clause 27.4.3 as the following:***

* + 1. Negotiation of block ack bitmap lengths

…

The recipient shall not include in the Buffer Size field of an ADDBA Response frame a value that would cause the BlockAck Bitmap length of its block ack responses to exceed the BlockAck Bitmap length that is derived by the Buffer Size field of the ADDBA Request frame sent by the originator. When the Buffer Size field in the ADDBA Request frame is set to 0, the Buffer Size field of an ADDBA Response frame is within [1,64]. The originator sets the Duration field value accounting for the largest BlockAck Bitmap length based on negotiated buffer size.

* + 1. Setup and modification of the block ack parameters

*TGax editor: underline the below (existing) sentence in TGax D1.4:*

When a block ack agreement is established between two HT STAs or two DMG STAs, the originator may change the size of its transmission window if the value in the Buffer Size field of the ADDBA Response frame is larger than the value in the ADDBA Request frame. ~~If the value in the Buffer Size field of the ADDBA Response frame is smaller than the value in the ADDBA Request frame, the originator shall change the size of its transmission window (WinSizeO) so that it is not greater than the value in the Buffer Size field of the ADDBA Response frame and is not greater than the value 64.~~ If the value in the Buffer Size field of the ADDBA Response frame is smaller than the value in the ADDBA Request frame, the originator shall change the size of its transmission window (WinSizeO) so that it is not greater than the value in the Buffer Size field of the ADDBA Response frame and is not greater than the value 64 if the sender of the ADDBA Response frame is a non-HE STA and not greater than 256 if the sender of the ADDBA Response frame is an HE STA.(Ed) (#8471)