IEEE P802.11  
Wireless LANs

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| LB225 11ax D1.0 Comment Resolution 27.10.4 Part 1 | | | | |
| Date: 2017-09-03 | | | | |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs :

* 6187, 6183, 7605, 4793, 5402, 9392, 9393, 10332, 8136, 8135, 7947, 7944, 7943, 7942, 7941, 7940, 7949, 7950, 7948, 7962, 7863, 7864, 8401, 8393, 9672, 9671.

Revisions:

* Rev 0: Initial version of the document.
* Rev 3: update per 11-17/949.

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** |
| 6187 | 193 | 32 | The criteria for distinguishing among S-MPDU, A-MPDU, and multiple TID A-MPDU is not clear enough | Need to clarify | **Rejected.**  **S-MPDU and A-MPDU is defined in IEEE 802.11 2016 specification. Multi-TID A-MPDU is defined in 27.10.4.** |
| 6183 | 193 | 58 | As discussed till now, the shorter Multi-STA BlockAck frame is desirable. When a STA receives all of nonzero length MPDUs with the corresponding EOF subfield set to 0 in a multi-TID A-MPDU, the STA can acknowledge the reception for the MPDUs using a Multi-STA BlockAck frame without the bitmap for the MPDUs indicating each TID. | Please extend the case of a Per STA Info subfield without the Block Ack Starting Sequence Control field and the Block Ack Bitmap field. | Rejected  Discussion: if the other modes of M-BA optimization are introduced, the implementation of M-BA becomes more complicated. We believe opther optimization of M-BA is not needed. |
| 7605 | 193 | 44 | Change the text to "An HE transmitter shall not aggregate MPDU that asks for Ack in a multiple-TID A-MPDU to the HE recipient unless the HE transmitter received the recipient's HE Capabilities element with Ack Enabled Multi-TID A-MPDU Support subfield being set to 1" | As in comment | Revised.  Agree with the commenter in principle.  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7605. |
| 4793 | 193 | 34 | A multi-TID A-MPDU can also contain QoS Data frames of one TID and one Action frame and still be called MT A-MPDU. Ensure this definition is consistent. Also there is a certain independence between multi-TID A-MPDU that contains contiguous valued EOFs and multi-TID A-MPDU that contains non-contiguous EOFs. Please use two different terms for these cases so that it is clear that they are not the same, and as such tx, rx and operation for these MPDUs. | As in comment. | Revised  Agree with the commenter in principle.  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 4793. |
| 5402 | 193 | 58 | A multi-TID A-MPDU may contain A-MPDU subframes with the EOF subfield set to 1 and the MPDU Length subfield set to nonzero value. The STA that receives the A-MPDU acknowledges successful receptions of MPDUs in the above mentioned A-MPDU subframes with Per STA Info fields indicating an Ack. The TID value of a frame in an A-MPDU subframe with the EOF subfield set to 1 and the MPDU Length subfield set to nonzero value is unique among TID values of frames in the A-MPDU. Therefore, when every unsuccessful receptions of MPDUs are for a MPDU in an A-MPDU subframe with the EOF subfield set to 1 and the MPDU Length subfield set to nonzero, the Per STA Info field without Block Ack Starting Sequence Control and Block Ack Bitmap can acknowledge the successful reception of all MPDUs of a TID value without the ambiguity. This can reduce the length of the Multi-STA BlockAck frame. | An HE STA that receives a multi-TID A-MPDU shall respond with a Multi-STA BlockAck frame that contains - One Per STA Info field indicating an Ack for each successfully received MPDU that solicits a response that is preceded by a nonzero length MPDU delimiter whose EOF is 1 (TID value equals that of the QoS Data/QoS Null frame or 15 for the Action frame), - One Per STA Info field indicating a BlockAck for each TID of a successfully received MPDU that solicits a response that is preceded by a nonzero length MPDU delimiter whose EOF is 0 (TID value equals that of the QoS Data frame), - One Per STA Info field with the Ack Type subfield set to 1 for each TID of a successfully received MPDU that solicits a response that is preceded by a nonzero length MPDU delimiter whose EOF is 0 (TID value equals that of the QoS Data frame) only when every unsuccessful receptions are for MPDUs of which the corresponding MPDU delimiter includes the EOF subfield set to 1 and the MPDU Length subfield set to nonzero value. | Rejected  Discussion: if the other modes of M-BA optimization are introduced, the implementation of M-BA becomes more complicated. We believe opther optimization of M-BA is not needed. |
| 9392 | 193.54 | 54 | The baseline says "The STA shall not add an A-MPDU subframe with EOF equal to 0 after any A-MPDU subframe with EOF set to 1." It is better to clarify MPDU aggregation rule for consistency and receiver's procedure | MPDUs with EOF 1 and non-zero length should not be present before MPDUs with EOF 0 | **Revised**  **Generally agreed with the commenter. Please also see the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 9392 |
| 9393 | 193.32 | 32 | An MPDU with EOF 1 and non-zero length may be aggregated with other MPDUs not soliciting immediate responses (QoS Data No Ack, Action No Ack, QoS Null) in an A-MPDU. Is the A-MPDU an S-MPDU or a single TID A-MPDU or a Multi TID A-MPDU? | Need to clarify | Revised  Discussion: The TIDs of QoS Data No Ack, Action No Ack, QoS Null in A-MPDU are not counted when deciding whether a A-MPDU is a single TID A-MPDU or multi-TID A-MPDU.  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 9393. |
| 10332 | 193 | 53 | "A multi-TID A-MPDU may contain multiple noncontiguous nonzero length MPDU delimiters with EOF subfield equal to 1, one for each TID that solicits Ack and/or multiple noncontiguous nonzero length MPDU delimiters with EOF subfield equal to 0, one for each TID that solicits BlockAck." is conflicting with the baseline that says"An A-MPDU subframe with EOF set to 0 shall not be added after any A-MPDu subframe with EOF set to 1 " clarify the benefit of allowing this flexibility in terms of supporting MPDU with different ACK policy, othwise remove this | per comment | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 10332. |
| 8136 | 193 | 50 | The use of the word "solicits" here is interesting, because a few lines later, it says that the response shall be MBA, so is it really soliciting an immediate ACK, or is it soliciting an MBA? Does it depend on what the contents of the AMPDU were? i.e. single VHT vs Multi-TID, etc? | Make the language consistent. | **Revised**  **Generally agree with the commenter**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 8136. |
| 8135 | 193 | 58 | How does the recipient know whether the received PPDU was a multi-TID AMPDU or a single TID AMPDU? If some of the delimiters are bad, the recipient could mistake a multi-TID AMPDU for a single AMPDU. | Make the response always the same - i.e. it is always an MBA, even if the recipient thinks it was a single TID AMPDU. | **Rejected**  **Discussion: if the responder always uses MBA, the initiator’s assumption of responding PPDU length may not be right. The assumption of initiator’s accurate estimation of responding PPDU length is not true. If the recipient correctly receives MPDUs of one TID from a multi-TID A-MPDU, the respnding C-BA has no harm.** |
| 7947 | 194 | 1 | "One Per STA Info field indicating a BlockAck for each TID of a successfully received MPDU that solicits a response that is preceded by a nonzero length MPDU delimiter whose EOF is 0 (TID value equals that of the QoS Data frame)." -- this is unclear in the case where there is more than one such frame per TID | Change to "One Per STA Info field indicating a BlockAck for each TID present in the successfully received MPDUs that solicited a response that is preceded by a nonzero length MPDU delimiter whose EOF is 0 (TID value equals that of the QoS Data frame)." | **Revised**  **Agree with the commenter in general**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7947. |
| 7944 | 193 | 58 | "that receives a multi-TID A-MPDU" -- it is not clear how such an A-MPDU is identified | Change to "that receives an A-MPDU with more than one MPDU delimiter with the EOF subfield equal to 1 and the MPDU Length subfield not equal to 0, or with MPDUs from more than one TID, or with both Management and Data frames" | **Rejected**  **Discussion: multi-TID A-MPDU is described in the first paragraph in subclause 27.10.4** |
| 7943 | 193 | 53 | "A multi-TID A-MPDU may contain multiple noncontiguous nonzero length MPDU delimiters with EOF subfield equal to 1, one for each TID that solicits Ack and/or multiple noncontiguous nonzero length MPDU delimiters with EOF subfield equal to 0, one for each TID that solicits BlockAck." -- this is extremely unclear (and some aspects seem wrong, e.g. there can be more than one per TID for the BA case) | Change to "A multi-TID A-MPDU may contain multiple nonzero length MPDU delimiters with EOF subfield equal to 1, but no more than one for each TID. A multi-TID A-MPDU may contain multiple nonzero length MPDU delimiters with EOF subfield equal to 0. NOTE---The MPDUs may be in any order, irrespective of their TID and the EOF subfield of their delimiter." | **Revised**  **Agree with the commenter in general**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7943. |
| 7942 | 193 | 56 | " that solicits BlockAck" -- this is unclear | Change to "[...] that solicits a BlockAck indication in a Multi-STA Block Ack frame" | **Revised**  **Agree with the commenter in general**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7942. |
| 7941 | 193 | 50 | " if the QoS Data frame or Action frame solicits an immediate Ack frame." -- as indicated at line 61, it does not solicit an Ack frame, it solicits a MSBA frame | Change to "[...] that solicits an Ack indication in a Multi-STA Block Ack frame" | **Revised**  **Agree with the commenter in general**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7941. |
| 7940 | 193 | 32 | There are 5 instances of "nonzero length MPDU delimiter". All MPDU delimiters have non-zero length (they all have a length of 4 octets) | Change each instance to "MPDU delimiter with the MPDU Length subfield not equal to 0" | **Revised**  **Agree with the commenter in general**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7940. |
| 7949 | 193 | 56 | "that solicits BlockAck" -- it is not clear what the condition is | Add a "NOTE---A QoS Data frame solicits an immediate block acknowledgement if the Ack Policy is Normal Ack or Implicit Block Ack Request and the TID corresponds to a block ack agreement." | **Revised**  **Agree with the commenter in general**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7949. |
| 7950 | 193 | 47 | There is no need for this overloading of the EOF field | Replace lines 193.47 to 194.4 with:  An HE STA shall construct a multi-TID A-MPDU as defined in 9.7 (Aggregate MPDU (A-MPDU)) and 10.13 (A-MPDU operation) except that there may be QoS Data frames with different TIDs in the A-MPDU (but no more than one per TID if not sent under a block ack agreement) and there may be an Action frame in the A-MPDU.  An HE STA that receives a multi-TID A-MPDU shall respond with a Multi-STA BlockAck frame that contains (see 27.4 (Block acknowledgement)) one Per STA Info field per TID of the successfully received MPDUs and also one Per STA Info field if an Action frame was successfully received, where:  - For MPDUs sent under a block ack agreement, the Ack Type subfield shall be set to 0 and the TID subfield set to that of the QoS Data frame  - For MPDUs not sent under a block ack agreement, the Ack Type subfield shall be set to 1 and the TID subfield set to that of the QoS Data frame, or to 15 in the case of an Action frame  Alternatively, if all MPDUs in the A-MPDU were successfully received, the Multi-STA BlockAck frame may contain just a Per STA Info field with the Ack Type subfield set to 1 and the TID subfield to 14.  NOTE---A STA does not consider all MPDUs in an A-MPDU successfully received if any MPDU delimiters were received with errors. | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7950. |
| 7948 | 193 | 50 | " if the QoS Data frame or Action frame solicits an immediate Ack frame." -- it is not clear what the condition is | Add a "NOTE---A QoS Data frame solicits an immediate non-block acknowledgement if the Ack Policy is Normal Ack or Implicit Block Ack Request and the TID does not correspond to a block ack agreement. An Action frame always solicits an immediate acknowledgement." | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7948. |
| 7962 | 193 | 49 | In an A-MPDU containing multiple MPDUs of different TID, each with EOF = 1, it is unclear whether each of these MPDUs is to be treated as a VHT Single MPDU | At the end of the sentence add "(these frames are treated as S-MPDUs)" | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7962. |
| 7863 | 193 | 49 | Setting EOF to 1 in this manner is inconsistent with the statement "set to 0 otherwise" in first row of Table 9-422 | Remove from 27.10.4 all mentions of EOF | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7863. |
| 7864 | 193 | 49 | Setting EOF to 1 in this manner conveys no additional information and is unnecessary | Remove from 27.10.4 all mentions of EOF | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 7864. |
| 8401 | 193 | 47 | 11ax introduces new EOF setting rule. However, the EOF setting rule in 10.13.7 and table 9-422 in 9.7.1 is not changed correspondingly. | Make sure that the description for EOF setting in 10.13.7 and Talbe 9-422 are consistent with the new EOF setting rule added in 27.10.4. | **Revised**  **See the discussion under CID 8393**  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 8401. |
| 8393 | 193 | 58 | Currently, it is required that Multi-STA Block Ack is used for response to multi-TID A-MPDU. However, if the receiver only receives one MPDU with EOF in the delimiter set to 1 due to error of receiving other MPDUs, and the A-MPDU is carried in VHT PPDU, then the receiver may treat the MPDU as VHT single MPDU and responds with Ack frame rather than Multi-STA Block Ack. Similarly, if the receiver only receivers one MPDU carrying QoS Data with EOF in the delimiter set to 0 due to error of receiving other MPDUs, then the receiver may treat the MPDU as single TID and respond with Block Ack rather than Multi-STA Block Ack. | There are several options to resolve the ambiguity. Option 1: Have an indication to differentiate multi-TID A-MPDU from single TID A-MPDU or S-MPDU. The reserved bit in MPDU delimiter can be used for this purpose. Option 2: HE STA always responds Multi-STA Block Ack to A-MPDU sent from HE STA that supports Multi-STA Block Ack. Option 3: Relax the restriction that response to multi-TID A-MPDU shal be Multi-STA Block Ack and allow Ack and Block Ack. Add the condition that in multi-TID A-MPDU, there is only one MPDU that solicits Ack frame. | Revised.  Discussion: generally agree with the commenter. When only a MPDU with EoF being 1 and Length being non zero in a A-MPDU is received correctly, the receiver will always respond with M-BA. The reason is that the receiver can’t figure out whether the transmitter transmits a S-MPDU or multi-TID A-MPDU. However, this may make medium time of S-MPDU responding longer which is not desirable. There are three possible solutions: option 1 is If a STA sends an Ack-Enabled multi-TID A-MPDU with multiple frames whose MPDU delimiters are 1 and receives an Ack as the response, the STA ignore the received Ack; option 2 is that at most one MPDU in multi-TID A-MPDU can ask for Ack; option 3 is that MPDU asking for Ack is the only MPDU from TID with no BA agreement; option 4 is that the reserved bit in MPDU delimiter is used to indicate the Ack acknowledgement. We propose to use option 1.  TGax editor to make the changes shown in 11-17/553r8 under all headings that include CID 8393. |
| 9672 | 79 | 14 | Regarding the "Ack Enabled Multi-TID A-MPDU Support" subfield, TGax draft 1.0 says the following: "An HE transmitter shall not aggregate MPDU that asks for Ack in a multiple-TID A-MPDU to the HE recipient unless the recipient sets Ack Enabled Multi-TID A-MPDU Support subfield to 1 in its announced HE Capabilities element."  The definition of subfield should be changed as the following: "Indicates support by a STA to receive a multi-TID A-MPDU that can solicit Ack, as described in 27.10.4 (A-MPDU with multiple TIDs)." | As per comment. | **Revised**  **TGax editor to make changes shown in 11-17/553r8 under CID 9672** |
| 9671 | 79 | 14 | The below subfield name is wrong. "Ack-enabled Multi-TID Aggregation Support" It shall be replaced with the following: "Ack Enabled Multi-TID A-MPDU Support" | As per comment. | **Revised**  **TGax editor to make changes shown in 11-17/553r8 under CID 9671** |

**27.10.4 A-MPDU with multiple TIDs or ack-enabled A-MPDU**

***TGax editor: Modify the first paragraph until 5th paragraph of 27.10.4 as following:***

**27.10.4.1 General**

An HE STA with dot11MultipleTIDAMPDUOptionImplemented equal to true shall set the Multi-TID Aggregation Support subfield of the HE Capabilities element it transmits to a nonzero value. An HE STA with dot11MultipleTIDAMPDUOptionImlemented equal to false shall set the Multi-TID Aggregation Support subfield of the HE Capabilities element it transmits to 0.

An HE STA with dot11AckEnabledAMPDUOptionImplemented equal to true shall set the Ack Enabled Aggretation Support subfield of the HE Capabilities element it transmits to 1; otherwise, the HE STA shall set the Ack Enabled Aggregation Support subfield to 0. A first HE STA may transmit an ack-enabled A-MPDU to a second HE STA if the first HE STA has received from the second HE STA an HE Capabilities element where the Ack Enabled Aggregation Support subfield is 1. (CID 7949, 8136, 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332).

An ack-enabled A-MPDU is an A-MPDU that follows the rules in in 9.7 (Aggregate MPDU (A-MPDU)) and 10.13 (A-MPDU operation) except that it shall contain:

* one QoS Data frame with the Ack Policy field set to Normal Ack or HTP Ack each carried in an A-MPDU subframe with the EOF field set to 1, or one Action frame carried in an A-MPDU subframe with the EOF field set to 1
* One or more frames in A-MPDU subframes with the EoF field set to 0 that are not under the block ack agreements

An HE STA shall not transmit a multi-TID A-MPDU in a VHT PPDU or a HT PPDU.

A multi-TID A-MPDU is either a non-ack-enabled multi-TID A-MPDU or an ack-enabled multi-TID A-MPDU. A first HE STA may transmit a non-ack-enabled multi-TID A-MPDU to a second HE STA if the first HE STA has received from the second STA an HE Capabilities element where the Multi-TID Aggregation Support subfield is nonzero. A first HE STA may transmit an ack-enabled multi-TID A-MPDU or a non-ack-enabled multi-TID A-MPDU to a second HE STA if the first HE STA has received from the second HE STA an HE Capabilities element where the Multi-TID Aggregation Support subfield is nonzero and where the Ack Enabled Aggregation Support subfield is 1. Otherwise the first HE STA shall not transmit a multi-TID A-MPDU to the second HE STA (CID 7949, 8136, 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332).

An HE STA shall construct a multi-TID A-MPDU as defined in 9.7 (Aggregate MPDU (A-MPDU)) and 10.13 (A-MPDU operation) and following the rules defined in the subclauses below. (CID 7949, 8136, 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332).

**27.10.4.2 Non-ack-enabled Multi-TID A-MPDU operation (**CID 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332**)**

For non-ack-enabled A-MPDU operation, a STA shall follow the rules in 9.7 (Aggregate MPDU (A-MPDU)) and 10.13 (A-MPDU operation) except as defined below.

* A non-ack-enabled multi-TID A-MPDU is an A-MPDU that meets the following conditions:Contains two or more QoS Data frames that belong to two or more block ack agreements and that have the Ack Policy field set to Implicit Block Ack Request, HTP Ack, or Block Ack and are carried in A-MPDU subframes that have the EOF field set to 0
* Does not contain any Management frames except Action no Ack frame
* Does not contain any QoS Data frames with the Ack Policy field set to Normal Ack or HTP Ack carried in an A-MPDU subframe with the EOF field set to 1

NOTE—,A non-ack-enabled multi-TID A-MPDU might include other frames such as Trigger frame, BlockAck frame, QoS Null frame. (see Table 9-425 (A-MPDU contents in the data enabled immediate response context)

The EOF field of each A-MPDU subframe with an MPDU Length field with a nonzero value in a non-ack-enabled multi-TID A-MPDU carried in a HE PPDU shall be set to 0.A STA that receives a non-Ack-enabled multi-TID A-MPDU responds as defined in 27.4.4 (Per-PPDU acknowledgment selection rules).

**27.10.4.3 Ack-enabled Multi-TID A-MPDU operation (**CID 4793, 7943, 7942, 7941,7940, 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332)

For ack-enabled multi-TID A-MPDU operation, a STA shall follow the rules in 9.7 (Aggregate MPDU (A-MPDU)),10.13 (A-MPDU operation) except as defined below.

An ack-enabled multi-TID A-MPDU is an A-MPDU that contains one of the following combinations of frames:

* One or more QoS Data frames with the the Ack Policy field set to Implicit Block Ack Request, HTP Ack, or Block Ack belonging to one or more block ack agreements each carried in an A-MPDU subframe with the EOF field set to 0 and one Action frame carried in an A-MPDU subframe with the EOF field set to 1
* One or more QoS Data frames with the Ack Policy field set to Implicit Block Ack Request, HTP Ack, or Block Ack belonging to one or more block ack agreements each carried in an A-MPDU subframe with the EOF field set to 0, and one or more QoS Data frames with the Ack Policy field set to Normal Ack or HTP Ack each from different TID and carried in an A-MPDU subframe with the EOF field set to 1
* Zero or more QoS Data frames with the Ack Policy field set to Implicit Block Ack Request, HTP Ack, or Block Ack belonging to one or more block ack agreements each carried in an A-MPDU subframe with the EOF field set to 0, and one or more QoS Data frames with the Ack Policy field set to Normal Ack or HTP Ack each from different TID and carried in an A-MPDU subframe with EOF field set to 1, one Action frame carried in an A-MPDU subframe with the EOF field set to 1
* Zero or more QoS Data frames with the Ack Policy field set to Implicit Block Ack Request, HTP Ack, or Block Ack belonging to one or more block ack agreements each carried in an A-MPDU subframe with the EOF field set to 0, and two or more QoS Data frames with the Ack Policy field set to Normal Ack or HTP Ack each from different TID and carried in an A-MPDU subframe with the EOF field set to 1

NOTE—An ack-enabled multi-TID A-MPDU might include other frames, such as Trigger frame, BlockAck frame, or QoS Null frame (see Table 9-425 (A-MPDU contents in the data enabled immediate response context)).

QoS Data frames with the same TID shall have the same Ack Policy field setting.

All QoS Data frames with the same TID value shall be preceded by MPDU delimiters with the same value in the EOF fields.

In an ack-enabled multi-TID A-MPDU, the EOF field of each A-MPDU subframe carrying a frame that solicits an Ack acknowledgement shall be set to 1, the EOF field of all other A-MPDU subframes carrying frames shall be set to 0. A STA that receives an ack-enabled multi-TID A-MPDU responds as defined in 27.4.4 (**Per-PPDU acknowledgment selection rules**).

A STA that transmits an ack-enabled multi-TID A-MPDU that contains at least two MPDUs with different TIDs carried in A-MPDU subframes that have the EOF field equal to 1 shall ignore the immediate response if it is an Ack frame.

**27.5.1 HE DL MU operation**

**27.5.1.1 General**

***TGax editor: Add the following paragraph at the end of 27.5.1.1:***

An AP shall not send to a STA an A-MPDU contained in an HE MU PPDU that contains one of the following combinations of frames:

* A QoS Data frame with Ack Policy field set to HTP Ack carried in an A-MPDU subframe with the EOF field set to 1 and a Trigger frame
* A management frame carried in an A-MPDU subframe with the EOF field set to 1 where the management frame is a Disassociation frame, Re(Association) Response frame, Authentication frame or Action frame, and a Trigger frame

Unless the AP has received from the STA an HE Capabilities element with the Ack Enabled Aggregation Support subfield equal to 1.

9.4.2.237 HE Capabilities element

9.4.2.237.2 HE MAC Capabilities Informaiton field

***TGax editor: Change the row of Ack-enabled Multi-TID Aggregation Support in Table 9-262z as follows (*** CID 4793, 7943, 7942, 7941,7940, 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332, 9672, 9671***):***

|  |  |  |
| --- | --- | --- |
| Ack Enabled Aggregation Support | Indicates support by a STA to receive an A-MPDU that contains two or more frames, at least one of which solicits(#7765) an acknowledgement carried in Ack frame or acknowledgement context in Multi-STA BlockAck, as described in 27.10.4 (A-MPDU with multiple TIDs) and 27.5.1.1(General). | Set to 1 when the STA supports reception of this A-MPDU format.  Set to 0 otherwise. |

***TGax editor: Change Ack-enabled Multi-TID Aggregation Support to Ack Enabled Aggregation Support through 11ax D1.4 (*** CID 4793, 7943, 7942, 7941,7940, 8393, 9392, 8401, 7864, 7863, 7962, 7948, 7950, 10332, 9672, 9671***).***