IEEE P802.11
Wireless LANs

|  |
| --- |
| LB225 11ax D1.0 Comment Resolution 9.7.3 |
| Date: 2017-06-01 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Liwen Chu |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

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

* .

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.***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **PP** | **LL** | **Comment** | **Proposed Change** | **Resolution** |
| 4757 | 107 | 65 | This sentence is confusing "The further restrictions of A-MPDU content are defined in the conditions of various contexts." | Replace it with "The content of an A-MPDU depends on the context at which it is transmitted as defined in the tables below." | RevisedGenerally agree with the commenter.TGax editor makes changes under CID 4757 in 11-17/1069r0 |
| 3133 | 108 | 1 | "the conditions of various contexts" - tells me nada, zip, nuttin' | Delete sentence or make it say something useful. | RevisedGenerally agree with the commenter.TGax editor makes changes under CID 4757 in 11-17/1069r0 |
| 3134 | 108 | 7 | "An HE MU PPDU does not carry more than one A-MPDU that contains one or moreMPDUs soliciting an immediate response that is not carried in an HE trigger-based PPDU."Don't you just love the English language?Does the final "that" bind to the "HE MU PPDU", the "more than one A-MPDU" or the "one or more MPDUs"? | Make it unambiguous. For example, break similar conditions into a list. Break it into parts. Name conditions. |  RevisedGenerally agree with the commenter.TGax editor makes changes under CID 3134 in 11-17/1069r0 |
| 4758 | 108 | 7 | I don't think this sentence is needed because both cases are allowed for an HE MU PPDU, and both of them are defined in clause 10. So remove this sentence as it brings no new informaiton. If necessary modify it to say that an HE DL MU PPDU can carry more than one A\_MPDU that ... as defined somewhere in clause 10 (where acknowledgment procedures are defined). | As in comment. | RevisedThe sentence here calrifies the rules of A-MPDU in HE MU PPDU just like the first sentence in the paragraph in IEEE 802.11 2016. However the sentence should be updated.TGax editor makes changes under CID 4778 in 11-17/1069r0 |
| 8407 | 108 | 7 | The underlined sentence does not exclude the cast that HE MU PPDU solicits one immediate response not carried in an HE trigger-based PPDU and solicits one immediate response carried in an HE trigger-based PPDU. | Add descriptions to exclude the case. | RevisedGenerally agree with the commenter.TGax editor makes changes under CID 8407 in 11-17/1069r0 |
| 8302 | 108 | 10 | "The TIDs present in a data enabled A-MPDU context are also constrained by the channel access rules (for aTXOP holder; see 10.22.2 (HCF contention based channel access (EDCA)) and 10.22.3 (HCF controlled channel access(HCCA))) and the RD response rules (for an RD responder, see 10.28.4 (Rules for RD responder)). This is not shown inthese tables."The rules to choose TIDs in a data enabled A-MPDU is not described for TXOP responder. It is described only for a TXOP holder and a RD responder. For a MU UL TX, the STA are TXOP responder and we are not in a RD transmission. | Proposal: "The TIDs present in a data enabled A-MPDU context are also constrained by the channel access rules (for aTXOP holder and a TXOP responder; see 10.22.2 (HCF contention based channel access (EDCA)) and 10.22.3 (HCF controlled channel access(HCCA))) and the RD response rules (for an RD responder, see 10.28.4 (Rules for RD responder)). This is not shown inthese tables." | Revised.Generally agree with the commenter.TGax editor makes changes under CID 8302 in 11-17/1069r0. |
| 5849 | 108 | 19 | Need to mention that the 4095 size limitation of A-MSDU inside an A-MPDU does not apply to HE | Add "HE" as following: "The 4095-octects MPDU length limitation does not apply to A-MPDU carried in HE or VHT or DMG PPDUs" | Revised.Generally agree with the commenter.TGax editor makes changes under CID 5849 in 11-17/1069r0. |
| 6486 | 108 | 19 | "The 4095-octet limit does not apply to A-MPDUs carried in VHT or DMG PPDUs". Well and good, but what about HE PPDUs? | Add appropriate statement about HE PPDUs. | Revised.Generally agree with the commenter.TGax editor makes changes under CID 6486 in 11-17/1069r0. |
| 6487 | 108 | 40 | Garbled text, unclear meaning: "by a TXOP holder, TXOP responder that does not include or solicit an immediate response". Apart from being ungrammatical, does the clause starting "that" apply to both TXOP holder and TXOP responder or just to the latter? Here we are left to try to guess from the change tracking marks. | Change "TXOP holder, TXOP responder" to "TXOP holder or TXOP responder" (if that is what is meant). | **Rejected****Discussion: The text “that does not include or solicit…” is from IEEE 802.11 2016. The commenter should raise similar comment in 802.11md.** |
| 4759 | 108 | 50 | What is so special about the A-MPDU transmitted by an AP in an HE BSS that needs the addition of it in the Control response context? If there is nothing special then remove the following part "or the A-MPDU is transmitted by AP in an HE BSS". | As in comment. | RejectedDiscussion: The original text precludes the TXOP holder from transmitting Ack/BA. However an HE AP as the TXOP holder can transmit Ack/BA/M-BA in A-MPDU when responding to HE TB PPDU. |

**9.7.3 A-MPDU contents**

***TGax editor changes the 7th and 8th paragraph as follows:***

An A-MPDU is transmitted in one of the contexts specified in Table 9-424 (A-MPDU contexts) as defined by the description in the “Definition of context” column~~, independently of whether the A-MPDU is contained in a VHT MU PPDU or an SU PPDU~~. The content of an A-MPDU depends on the context at which it is transmitted as defined in the tables below (#4767, 3133). Ordering of MPDUs within an A-MPDU is not constrained, except where noted in these tables. See 10.13.1 (A-MPDU contents).

A VHT MU PPDU does not carry more than one A-MPDU that contains one or more MPDUs soliciting an immediate response.

An HE MU PPDU does not carry more than one A-MPDU that contains MPDU(s) soliciting immediate response if the immediate response is carried in a PPDU that is not an HE TB PPDU. An HE MU PPDU can carry more than one A-MPDU that contains MPDU(s) soliciting immediate response if the immediate response is carried in an HE TB PPDU.(CID #3134, 4758, 8487)

***TGax editor changes Note 2 as follows(CID #8302):***

NOTE 2—The TIDs present in a data enabled A-MPDU context are also constrained by the channel access rules (for a TXOP holder; see 10.22.2 (HCF contention based channel access (EDCA)) and 10.22.3 (HCF controlled channel access (HCCA))), the TXOP responder rules ( see 27,10 (A-MPDU Content), and 27.5.2 (UL MU Operation)) and the RD response rules (for an RD responder, see 10.28.4 (Rules for RD responder)). This is not shown in these tables.

***TGax editor changes Note 3 as follows (CID #5849, 6486):***

NOTE 3—If a STA supports A-MSDUs of 7935 octets (indicated by the Maximum A-MSDU Length field in the HT Capabilities element), A-MSDUs transmitted by that STA within an A-MPDU carried in a PPDU with FORMAT HT\_MF or HT\_GF are constrained so that the length of the QoS Data frame carrying the A-MSDU is no more than 4095 octets. The 4095-octet MPDU length limit does not apply to A-MPDUs carried in VHT, HE or DMG PPDUs. The use of A-MSDU within A-MPDU might be further constrained as described in 9.4.1.14 (Block Ack Parameter Set field) through the operation of the A-MSDU Supported field.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **PP** | **LL** | **Comment** | **Proposed Change** | **Resolution** |
| 9387 | 109 | 3 | In a Multi-TID A-MPDU of data enabled immediate response context, QoS Data with Ack policy set to No Ack may also be aggregated with QoS Data soliciting immediate response of other TID. | Add a row for QoS Data with Ack Policy set to No Ack in Table 9-425 | RejectedDiscussion: QoS Data frames with No Ack is not allowed to be aggregated in A-MPDU of data enabled immediate response context. The same rule as 802.11 baseline is followed by 802.11ax. |
| 9388 | 109 | 3 | In Multi-TID A-MPDUs of data enabled immediate response, Action No Ack can be aggregated as well. | Add a row for Action No Ack in Table 9-425 | RejectedDiscussion: Action no Ack is already in Table 9-425, i.e. P109L37 in 11ax D1.0 (originally from 802.11 baseline specification) |
| 3191  | 109 | 3 | There should be a restriction on aggregation of ACK/BA/M-BA for a STA with a Trigger frame that incudes a User Info for the same STA. Without this restriction, the STA might realize that it has to do a retransmission (from ACK/BA/..) and it has to do the retransmission a SIFS after the current PPDU that includes the ACK/BA and Trigger frames. Suggest to to modify the text in P110L47 third column to indicate that at most one of Basic Trigger frame or an ACK/BA/M-BA exists between two HE STAs. | As in the comment |  Rejected.Discussion: the rules to avoid Ack/BA/M-BA and Trigger frame exists in 11ax draft: Ack/C-BA/M-BA + Trigger is used in MU cascading frame sequence (subclause 27.5.4). If a STA doesn’t announce MU cascading support, the STA will not receives Ack/C-BA/M-BA + Trigger.  |
| 6185 | 109 | 3 | The current A-MPDU contents table prevents QoS No Ack Data aggregation with other QoS Data of other TIDs that solicit immediate responses | Update table 9-425 | RejectedDiscussion: QoS Data frames with No Ack is not allowed to be aggregated in A-MPDU of data enabled immediate response context. The same rule as 802.11 baseline is followed by 802.11ax. |
| 7038 | 109 | 3 | As 11ax allows Multi-TID A-MPDU aggregation, QoS Data of one TID with No Ack policy may be aggregated with QoS Data of other TID with Immediate Ack policy. Please add the contents in Table 9-425. | As per comment. | RejectedDiscussion: QoS Data frames with No Ack is not allowed to be aggregated in A-MPDU of data enabled immediate response context. The same rule as 802.11 baseline is followed by 802.11ax. |
| 5793 | 109 | 9 | ACK, Block ACK, Multi-STA Block ACK are all required to be placed at the first of subframe of an A-MPDU. How is it possible to place them if both ACK and Block ACK (or multi-STA Block ACK) are included in an A-MPDU? | Need to add a rule to ensure that in an A-MPDU, it can only contain at most one ACK, or Block ACK, or multi-STA Block ACK | RejectedDiscussion: the rule of at most one of Ack, C-BA and M-BA is aggregated is already defined, e.g. In an HE STA: at most one of these MPDUs is present. |
| 4763 | 110 | 7 | These items (third column) are confusing as certain frames presence has nothing to do with the others. See proposed change for a possible organization as part of the single TID A-MPDU context, and multi-TID A-MPDU context. | Define a single TID A-MPDU context that applies to non-DMG STAs (to HE STAs as well [first round of conditions in this colum falls in this category]). And specify that Data frames without HT-immediate block agreement, and Action frames are not allowed in this context.Define a multi-TID A-MPDU context that applies to HE STAs only which specifies that: "Of these, at most one of the following is present:- QoS Data frames from more than one TID, each TID corresponding to an HT-immediate blockack agreement if the recepient supports multi-TID A-MPDU aggregation.- A BAR frame or a Multi-TID BAR frame with TID(s) that correspond to HT-immediate blockack agreement(s) for which QoS Data frames are not present in the A-MPDU.If the recipient supports ack-enabled multi-TID A-MPDU one or more of the following is additionally allowed in the multi-TID A-MPDU context; otherwise they are not allowed:- One or more QoS Data frames with TID(s) that either dont correspond to an HT-immediate agreement or that correspond to an ht-immediate aggreement but do solicit a single acknowledgment (EOF = 1)- At most one Action frame"And add " Zero or more QoS Null MPDUs are present in an A-MPDU sent to an HE STA in both single TID A-MPDU and multi-TID A-MPDU contexts." | RejectedDiscussion: multi-TID A-MPDU is also allowed in IEEE 802.11 2016. It is not good to have a separate multi-TID A-MPDU context. Subclause 27 will define multi-TID A-MPDU further. |
| 3180 | 110 | 50 | BQRP and GCR MU-BAR should be added to: "One or more Trigger frames where the Trigger Type field is Basic Trigger, MU-BAR, or BSRP." | "One or more Trigger frames where the Trigger Type field is Basic Trigger, MU-BAR, GCR MU-BAR, BSRP or BQRP." | Revised.Agree with the commenter in principle. TGax editor to make the changes shown in 11-17/1069r0 under all headings that include CID 3180. |
| 4762 | 110 | 36 | There is only one of the following cases. So no need to organize this way the second column. Also it is not technically correct because it would mean that a BAR and a Multi-TID BAR can be present (but that is not the case). Add the following sentence as the first sentence of the second column: "In a single TID A-MPDU context:"Replace the newly added paragraph in the second column with the following sentence: " In a multi-TID A-MPDU context:At most one Multi-TID BlockAckReq frame with one or more TIDs that correspond to established HT-immediate block ack agreements. It is not present if a BlockAckReq frame is present.This is the last MPDU in the A-MPDU." | As in comment. | Revised.Agree with the commenter in principle. TGax editor to make the changes shown in 11-17/1069r0 under all headings that include CID 4762. |
| 8408 | 110 | 38 | In Table 9-425, there is a description for Ack Policy equal to Ack requrest. However, in table 9-9, there is no description for Ack policy equal to "Ack request". Is Ack request a new policy or should it be revised as normal Ack? Same comment for the description in Note 1. | Clarify what is Ack policy equal to Ack request. | Revised Agree with the comment in principle.TGax editor makes changes under CID 8408 in 11-17/1069r0. |
| 9678 | 110 | 37 | What does "AckRequest" mean?Remove "/AckRequest". | As per comment. | Revised It should Normal Ack.TGax editor makes changes under CID 8408 in 11-17/1069r0. |
| 9679 | 110 | 11 | "Of these, at most one of the following is present in a non-DMG BSS except HE BSS:-- One or more QoS Data frames with the Ack Policy field equal to Implicit Block Ack Request-- A BlockAckReq frame"A downlink transmission of an HE BSS also needs a same restriction.Change it as the following:"Of these, at most one of the following is present in a non-DMG BSS except for an UL MU transmission in an HE BSS:" | As per commnet. | RejectedDiscussion: What the commenter mentioned is already covered by HE BSS case. |
| 4764 | 110 | 51 | This row has nothing in common with the above ones. Also MU BAR cannot be aggregated along with other Data (if can be as a self contained frame in the S\_MPDU context) | Place the row that contains the Trigger as an independent row, which second column contains the following "Zero or more Basic or BSRP Trigger frames if the A-MPDU is transmitted by an AP. The BSRP Trigger frame can be present only when the receiving STA indicates support of its reception in the A-MPDU context (see 27.5.2.5 (HE buffer status feedback operation for UL MU))." Also there is no need for a third column for this case so remove it. Also make the same change for the Trigger row in Table 9-426. | RejectedDiscussion: If P110 L51 is an independent row, P110 L51 will be combined with Column 3 of P110 L7 to P110 L50. This is not right. However Column 2 can be changed accordingly per the comment. |
| 4796 | 110 | 53 | The presence of the MU BAR in the second column is inconsistent with trigger frame types listed in the third column and with the normative behaviors described in clause 27. | Remove MU-BAR from the second column. | Rejected.Discussion: there is no such rule in slause 27 htat MU BAR can’t be aggregated with BA. |
| 7566 | 110 | 53 | Change to "One or more Trigger frames where the Trigger Type field is Basic Trigger, MU-BAR,or BSRP." to "One or more Trigger frames where the Trigger Type field is Basic Trigger, MU-BAR, or BSRP, or BQRP."Change to "Basic Trigger frame or BSRP Trigger frame only when AP transmits the A-MPDU" to "Basic Trigger frame, or BSRP Trigger frame or BQRP Trigger frame only when AP transmits the A-MPDU" | As in comment | Revised.Agree with the commenter in principle. TGax editor to make the changes shown in 11-17/1069r0 under all headings that include CID 7566. |

***TGax editor changes as follows:***

|  |
| --- |
| Table 9-425 A-MPDU contents in the data enabled immediate response context  |
| MPDU Description | Conditions |
| Ack | If the preceding PPDU contains an MPDU that requires an Ack frame response, a single Ack frame at the start of the A‑MPDU. | In a non-DMG STA other than an HE STA: at most one of ~~these~~ Ack and HT-immediate BlockAck MPDUs is present.In an HE STA: at most one of these MPDUs is present.In a DMG STA: at most one Ack frame is present, and zero or more HT-immediate BlockAck frames are present. |
| HT-immediate BlockAck | In a non-DMG STA: if the preceding PPDU contains an implicit or explicit block ack request for a TID for which an HT-immediate block ack agreement exists, at most one BlockAck frame for this TID, in which case it occurs at the start of the A-MPDU.In a DMG STA: if the preceding PPDU contains an implicit or explicit block ack request for a TID for which an HT-immediate block ack agreement exists, one or more copies of the same BlockAck for this TID. |
| Multi-STA BlockAck | In an HE STA: If the preceding PPDU that carried a multiple-TID A-MPDU contains implicit or explicit block ack requests for multiple TIDs for which HT-immediate block ack agreement exist, at most one Multi-STA BA frame, in which case it occurs at the start of the A-MPDU. |
| Delayed BlockAcks | BlockAck frames with the BA Ack Policy subfield equal to No Acknowledgment with a TID for which an HT-delayed block ack agreement exists. |
| Delayed block ack data | QoS Data frames with a TID that corresponds to a Delayed or HT-delayed block ack agreement.These have the Ack Policy field equal to Block Ack. |
| Action No Ack | Action No Ack frames. |
| Delayed BlockAckReqs | BlockAckReq frames with a TID that corresponds to an HT-delayed block ack agreement in which the BA Ack Policy subfield is equal to No Acknowledgment. |
| Data frames without HT-immediate block ack agreement | QoS Data frames with multiple TIDs which have no HT-immediate block ack agreement See NOTE 1. | Of these, at most one of the following is present in a non-DMG BSS except HE BSS:* One or more QoS Data frames with the Ack Policy field equal to Implicit Block Ack Request
* A BlockAckReq frame

Of these, at most one of the following is present in a DMG BSS:* One or more QoS Data frames with the Ack Policy field equal to Implicit Block Ack Request
* QoS Null MPDU with Ack Policy set to No Ack
* A BlockAckReq frame with an optional QoS Null MPDU with Ack Policy set to No Ack

In a single TID A-MPDU context between two HE STAs at most one of the following is present:* One or more QoS Data frames with a single TID value with the Ack Policy field equal to Implicit Block Ack Request or HTP Ack or Block Ack(#4723), zero or more QoS Null frames with Ack Policy set to No Ack, and zero or more Trigger frames
* One frame with a single TID value with the Ack Policy field equal to Noraml Ack(CID 8408, 9678) or one Action frame, at least one of QoS Null frame with Ack Policy set to No Ack and Trigger frame
* QoS Null MPDU with Ack Policy set to No Ack
* One of BlockAckReqBasic Trigger frame, MU-BAR, GCR MU-BAR, BQRP,(CID #3180, 7566) or BSRP Trigger frame only when AP transmits the A-MPDU.

In a non-Ack-enabled multi-TID A-MPDU context between two HE STAs at most one of the following is present:* Two or more QoS Data frames from two or more TIDs with the Ack Policy field equal to Implicit Block Ack Request, HTP Ack or BlockAck(#4723) or (CID 8408, 9678)(#Ed),zero or more QoS Null frames with Ack Policy set to No Ack, and zero or more Trigger frames. There are at least two different values of TID subfield in this context.
* One of BolckAckReq and Multi-TID BlockAckReq frame.
* Basic Trigger frame, MU-BAR, GCR MU-BAR, BQRP,(CID #3180, 7566) or BSRP Trigger frame only when AP transmits the A-MPDU

In an Ack-enabled multi-TID A-MPDU context between two HE STAs att most one of the following is present:* Zero or more QoS Data frames from one or more TIDs with the Ack Policy field equal to Implicit BAR, HTP Ack, Normal Ack or BlockAck(#4723) (CID 8408, 9678)(#Ed),zero or more QoS Null frames with Ack Policy set to No Ack, up to one Action frame, and zero or more Trigger frames. There is at least two nonzero length MPDU delimiters in the A-MPDU of which at least one has the EOF field equal to 1.
* Basic Trigger frame, MU-BAR, GCR MU-BAR, BQRP,(CID #3180, 7566) or BSRP Trigger.
 |
| Data frames sent under an HT-immediate block ack agreement  | QoS Data frames with the same TID, which corresponds to an HT-immediate block ack agreement.QoS Data frames with multiple TIDs, which correspond to multiple HT-immediate block ack agreements.See NOTE 1. |
| QoS Null MPDUs with Ack Policy set to No Ack | In a DMG BSS, QoS Null MPDUs with Ack Policy set to No Ack.In an HE BSS, QoS Null MPDUs with Ack Policy set to No Ack. |
| Immediate BlockAckReq | In single TID A-MPDU context, at most one BlockAckReq frame with a TID that corresponds to an HT-immediate block ack agreement.In multi-TID A-MPDU context, at most one multi-TID BlockAckReq frame with TIDs that correspond to HT-immediate block Ack agreements.This frame (if present) is the last MPDU in the A-MPDU.Neither BlockAckReq nor a multi-TID BlockAckReq is present if any QoS Data frames are present.(CID #4762)See Note 3 |
| Action | At most one Action frame |
| Trigger | One or more Trigger frames when the A-MPDU is sent by an HE AP, where the Trigger Type field is Basic Trigger, MU-BAR, GCR MU-BAR, BQRP, or BSRP. (CID #3180, 7566)See NOTE 2  |
| NOTE 1—~~These~~ The MPDUs from the same TID all have the Ack Policy field equal to the same value, which is either Implicit Block Ack Request (Normal Ack (CID #8478) ), HTP Ack(#4723) or Block Ack.NOTE 2—An AP including a Trigger frame and BlockAck frame is not required to include QoS Data in that A-MPDUNote 3—Block Ack Request and QoS Data frames are not allowed to be aggregated in an A-MPDU  |

**9.4.2.237 HE Capabilities element**

**9.4.2.237.2 HE MAC Capabilities Information field**

***Tgax editor: Change the BSRP A-MPDU Aggregation to BSRP BQRP A-MPDU Aggregation in Figure 9-589ck and through the draft.***

***TGax editor: Change the row about BSRP A-MPDU Aggregation in Figure 9-589ck as follows (CID #3180, 7566).***

***TGax editor adds the following row in Table 9-262z(CID #3180, 7566):***

|  |  |  |
| --- | --- | --- |
| BSRP BQRP A-MPDU Aggregation | Indicates whether or not the STA accepts a BSRP or a BQRP Trigger frame that is aggregated with other control, data and management frames in an A-MPDU destined to the STA | Set to 1 if supported.Set to 0 otherwise. |

**27.5.1.3 HE bandwidth query report operation for MU**

***TGax editor adds the following paragraph at the end of subclause 27.5.1.3 (CID #3180, 7566):***

An AP may include a BQRP Trigger frame together with other control, data and management frames in one A-MPDU to a STA if the HE Capabilities element received from the STA has the BSRP BQRP A-MPDU Aggregation field equal to 1. If a STA receives a BQRP Trigger frame aggregated with control, data and management frames that solicits an acknowledgement, the response A-MPDU shall contain MPDUs in the order described in Table 9-425 (A-MPDU contents in the data enabled immediate response context).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **PP** | **LL** | **Comment** | **Proposed Change** | **Resolution** |
| 6186 | 111 | 3 | In MU cascading, TXOP holder may transmit Ack/M-BA frame in response to HE TB PPDU aggregated with QoS Data not soliciting an immediate response. Table 9-426 must be updated | As in comment | **Revised****Discussion:** HT-delayed block ack agreement is obsolete. So there is no reason to update Table 9-426 (A-MPDU contents in the data enabled no immediate response context).TGax editor removes Table 9-426 from 11ax draft. |
| 7039 | 111 | 3 | For example in MU Cascading case, TXOP holder may transmit Ack, HT-immediate BlockAck, M-BA in an A-MPDU of data enabled no immediate response context. Please add the contents in Table 9-426. | As per comment. | **Revised****See CID 6188** |
| 9389 | 111 | 3 | In data enabled no immediate response context, Data frames without block ackagreement from multiple different TIDs can be aggregated. | Change to: QoS Data frames with multiple TIDs that does not correspond to a block ack agreement.These have the Ack Policy field equal to No Ack and the A-MSDU Present subfield equal to 0. | **Revised****See CID 6188** |
| 9390 | 111 | 3 | In HE BSS, TXOP holder may transmit Ack, HT-immediate BlockAck, M-BA in an A-MPDU of data enabled no immediate response context (e.g., MU cascading). | Add rows for Ack, HT-immediate BlockAck, M-BA in Table 9-426 | **Revised****See CID 6188** |
| 3181 | 111 | 24 | Should BQRP be added to: "If the A-MPDU is transmitted by an AP, one or more Trigger frames where the Trigger Type field is Basic Trigger or BSRP."? | "If the A-MPDU is transmitted by an AP, one or more Trigger frames where the Trigger Type field is Basic Trigger, BSRP, and BQRP." | **Revised****See CID 6188** |
| 4761 | 111 | 32 | This note has nothing to do with this context because delayed BA is deprecated, and Trigger plue BlockAck can be added only in the Data enabled immediate response context. Remove this note (eventually add it to the immediate response context). | As in comment. | **Revised****See CID 6188** |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **PP** | **LL** | **Comment** | **Proposed Change** | **Resolution** |
| 4760 | 111 | 48 | The case of an AP sending a multi-STA BlockAck frame as a response to TB PPDUs from multi STAs is missing in the control response context. Also it is good to explicitly call out the two cases: when the M-BA contains Ack and when it contains BlockAck so that it is clear that the M-BA is not neccessarily tied to the HT\_Immediate agreement. | As in comment. Also referring in one case (third column) to not HE BSS and in another to HE STAs is confusing. Make this an itemized list specifying the condition on a per receiving STA basis. Same observations for the third column of the other two preceding Tables (Data no immediate resp, and Data immediate resp) and for the conditions on the multi-STA BlockAck frame. | Revised Agree with the comment in principle.TGax editor makes change under CID 4760 in 11-17/1069r0 |
| 8409 | 111 | 45 | It should be "One Ack or Block Ack frame is ..." for the description of no HE BSS. | Revise the sentence as suggested by the comment. | Revised Agree with the comment in principle.TGax editor makes change under CID 8409 in 11-17/1069r0 |

***TGax editor changes Table 9-428 (A-MPDU contents MPDUs in the control response context) as follows:***

|  |
| --- |
| Table 9-428----A-MPDU contents MPDUs in the control response context |
| MPDU | Conditions |
| Ack | Ack frame transmitted in response to an MPDU that requires an Ack frame. | One of Ack and BlockAck frame is present at the start of the A-MPDU between two STAs which are not both HE STAs (CID #8409, 4760)One of Ack, BlocAck and Multi-STA BlockAck is present at the start of the A-MPDU between two HE STAs. |
| BlockAck | BlockAck frame with a TID that corresponds to an HT-immediate block ack agreement. |
| Multi-STA BlockAck | At most one Multi-STA BlockAck frame if: The preceding PPDU carries a multi-TID A-MPDU (see 27.10.4) that includes at least two frames soliciting immediate responses and contains:* Zero or more Implicit or explicit block ack requests for multiple TIDs for which HT-immediate block ack agreement exist
* Up to one Action frame
* Zero or more MPDUs that solicit an immediate acknowledgment

The preceding PPDU is an HE TB PPDU (CID #4760) |
| Action No Ack | +HTC Action No Ack frames carrying a Management Action Body containing an explicit feedback response or BRP frame. |
| QoS Null frame with Ack Policy field set to No Ack | Zero of more QoS Null MPDUs with Ack Policy field set to No Ack when the A-MPDU is sent by an HE STA. |