IEEE P802.11
Wireless LANs

|  |
| --- |
| Resolution for comments related to MLO BA operation |
| Date: September 3, 2022 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Abhishek Patil | Qualcomm Inc. |  |  | appatil@qti.qualcomm.com |
| Alfred Asterjadhi |  |  |  |
| George Cherian |  |  |  |
| Duncan Ho |  |  |  |
| Yanjun Sun |  |  |  |
| Gaurang Naik |  |  |  |
| Abdel Karim |  |  |  |
| Arik Klein | Huawei |  |  |  |
| Tomo Adachi | Toshiba |  |  |  |

 Abstract

This submission proposes resolutions for the following 20 comments received for TGbe LB266:

10345 10346 10349 10350 10357 10387 10640 11074 11075 11079 11371 11372 11374 11612 11613 11867 12446 13602 13741 13908

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revised based on feedback from Tomo, Arik, and Po-Kai
* Rev 2: Resolution for CID 11075 is updated based on offline discussion w/ Tomo.
	+ The paragraph on independent partial state at each STA is converted to a NOTE
* Rev 3: Editorial fix to the paragraph on updating transmission window after setup (resolution to 10346)
	+ Deleted extra text

***TGbe editor: Please note baseline for this document is REVme D1.3 and 11be D2.1.1***

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 TGbe Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe Draft (i.e., they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Section** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 11374 | Qi Wang | 35.3.8 | 433.28 | "In a protected block ack agreement between twooperating on an enabled link to which the TID belonging to the block ack agreement is mapped, to advance the WinStartR and WinStartB at the recipient MLD." When a protected Block Ack agreement is established, a receiver shall not move its window based on (1) BAR, (2) MU-BAR, and (3) GCR MU-BAR. While the requirement on (1) is clearly defined, the requirement on (2) and (3) are missing, and need to be added. | As in comment. | **Revised**Agree in principle. The text in baseline spec is updated to include MU-BAR and GCR MU-BAR Trigger frame. However, this issue needs to be fixed in baseline (REVme) spec, since it applies to HE STAs as well. The commenter is encouraged to submit a comment in REVme.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11374.** |
| 10346 | Tomoko Adachi | 35.3.8 | 432.14 | "The Block Ack Timeout field in the ADDBA Request frame is advisory."This can be moved closer to the paragraph starting with "During the block ack agreement establishment, the buffer size per the Buffer Size field and the Extended Buffer Size field of the ADDBA Request frame is advisory." because it is a similar topic.I also think that this and the two paragraphs starting with "During the block ack agreement establishment, ..." and "If the buffer size specified in the Buffer Size field ..." can be moved to 35.4 as they are not only for MLO. | Move the three cited parts to 35.4 with expressions changed so that they can be applied to EHT STAs, not just for MLDs. | **Revised**Agree in principle. The following changes are made as a resolution to this comment:1. The text related to BA Timeout field being advisory in ADDBA Request frame is moved along with the sentence that says the buffer size field in the request frame is advisory.
2. Since the buffer size indication for EHT STAs and MLDs can include the value carried in Extended Buffer Size field of ADDBA Extension element (if present), the new sentence is added to eliminate multiple duplication of the same text throughout this subclause.
3. The text related to adjustment of transmission window at the originator is updated to align with baseline (REVme D1.3) spec.
4. Since the rules related to adjustment of transmission window also apply to an EHT STA that is not affiliated with an MLD, the baseline spec (REVme clause 10.25.2) is updated.

**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10346.** |
| 11371 | Qi Wang | 35.3.8 | 432.34 | "After a block Ack agreement is established between two MLDs, the originator may change the size of its transmission window if the buffer size specified in the Buffer Size field and the Extended Buffer Size field of the ADDBA Response frame is larger than the buffer size per the Buffer Size field and the Extended Buffer Size field of the ADDBA Request frame so that the transmit window meets the following conditions:..." What is meant by an originator can "change" the size of the transmission window? Does it mean "increase", "decrease" or both? How does the two MLDs synchronize the window size after the establishment of the BA agreement? | Please clarify the behaviors indicated in the comment. | **Revised**Agree in principle. The two paragraphs related to adjustment of transmission window at the originator attempt to cover the case where (during BA setup), the recipient indicates a buffer size different than what the originator’s ADDBA Request frame had indicated. The originator can adjust the size of its transmission window as long as it is not greater than that indicated by the recipient and does not exceed 1024 for EHT STA. The resolution for this comment is same as that for CID 10346.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10346.** |
| 11372 | Qi Wang | 35.3.8 | 432.48 | "If the buffer size specified in the Buffer Size field and the Extended Buffer Size field of the ADDBA Response frame is smaller than the buffer size specified in the Buffer Size field and the Extended Buffer Size field of in the ADDBA Request frame, the originator shall change the size of its transmission window (WinSizeO) so that it meets the following condition:..."What is meant by an originator can "change" the size of the transmission window? Does it mean "increase", "decrease" or both? How does the two MLDs synchronize the window size after the establishment of the BA agreement? |   | **Revised**Agree in principle. The two paragraphs related to adjustment of transmission window at the originator attempt to cover the case where (during BA setup), the recipient indicates a buffer size different than what the originator’s ADDBA Request frame had indicated. The originator can adjust the size of its transmission window as long as it is not greater than that indicated by the recipient and does not exceed 1024 for EHT STA. The resolution for this comment is same as that for CID 10346.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10346.** |
| 11613 | Lei Wang | 35.3.8 | 432.34 | The text in line 34 to 43 on page 432 specifies the case that the buffer size fields in ADDBA Response frame is larger than those in ADDBA Request frame, while the text in line 47 to 57 specifies the opposite case, i.e., the buffer size fields in ADDBA Response frame is smaller than those in ADDBA Request frame. However, the actions or handlings for those two cases are identical. Why? should the text "the ADDBA Response frame" in line 41 page 32 be changed to "the ADDBA Request frame." | Change the text "the ADDBA Response frame" in line 41 page 32 to "the ADDBA Request frame." | **Revised**The reference to ADDBA Request frame is correct. The two paragraphs related to adjustment of transmission window at the originator attempt to cover the case where (during BA setup), the recipient indicates a buffer size different than what the originator’s ADDBA Request frame had indicated. The originator can adjust the size of its transmission window as long as it is not greater than that indicated by the recipient and does not exceed 1024 for EHT STA. The resolution for this comment is same as that for CID 10346.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10346.** |
| 10349 | Tomoko Adachi | 35.3.8 | 432.43 | "Not greater than 1024 if the sender and receiver of the ADDBA Response frame are MLDs."This condition is not needed, as the buffer size specified in the ADDBA Response frame will never be larger than 1024 sent by an EHT STA. Or is it intended to be extended in R2? | Delete the condition and change pp.ll 432.39 from "so that the transmit window meets the following conditions:" to "so that the transmit window meets the following condition:". | **Revised**A future generation STA will also be an EHT STA and will support 1024 (as defined by EHT), in addition to any new (higher) value defined by the future amendment. The bullet is intended to say if both STAs are pure EHTs, then the max they can support is 1024. The resolution for this comment is same as that for CID 10346.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10346.** |
| 10350 | Tomoko Adachi | 35.3.8 | 432.56 | "Not greater than 1024 if the sender and the receiver of the ADDBA Response frame are MLDs."This condition is not needed, as the buffer size specified in the ADDBA Response frame will never be larger than 1024 sent by an EHT STA. Or is it intended to be extended in R2? | Delete the condition. | **Revised**A future generation STA will also be an EHT STA and will support 1024 (as defined by EHT), in addition to any new (higher) value defined by the future amendment. The bullet is intended to say if both STAs are pure EHTs, then the max they can support is 1024. The resolution for this comment is same as that for CID 10346.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10346.** |
| 11612 | Lei Wang | 35.3.8 | 432.32 | What does it mean by "... is advisory"? Does it mean "a reference" or "a suggestion" or ?? | Please clarify what "... is advisory" means. | **Rejected**The text is consistent with baseline (see REVme D1.3 clause 10.25.2). Advisory means it is a value suggested/proposed by the originator for the recipient to consider. |
| 12446 | Ryuichi Hirata | 35.3.8 | 432.61 | Current block ack procedure does not support sharing receive status which indicates failure among links due to ambiugity. However, in some scenarios such as the originator and recipient are aware of the most recently received MPDUs in other links, there is no ambiguity. Therefore, it is better to enable receive status sharing which indicates failure among links in such scenarios for fast retrasnmission. | as in the comment | **Rejected**The comment is unclear and doesn’t identify an issue that needs to be addressed. |
| 11074 | Po-Kai Huang | 35.3.8 | 432.05 | There has been confusion on the partial state and full state operation for MLO. You may have partial state in each link independently or partial state but record maintained globablly. You may also have full state and record maintained globally. Suggest to add these 3 combintations and clarify the allowed combinations. | Add the following to clarify the combination. "A recipient MLD may do one of the following:- Have a separate scoreboard context control with partial state operation in each link- Have one scoreboard context control with partial state operation for all links- Have one scoreboard context control with full state operation for all links" | **Revised**Agree in principle. The text in the recipient MLD clause is updated to cover the three possible configurations at the recipient MLD.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11074.** |
| 11075 | Po-Kai Huang | 35.3.8 | 432.05 | It has been discovered that full state in each link independently will have issues to respond BA when the data progress in another link say link 1 for a long time and switch to link 2, which still has old record. Similar problem exists for partial state in each link independently if the record is not constantly discarded. | Add the following to resolve the issue. "If the recipient MLD has a separate scoreboard context control in each link, the STA affiliated with the MLD in each link shall implement the partial-state operation and should discard the temporary record in the following defined time periods:\* After sending a BA where the BA and the acknowledged A-MPDU(s) are in one TXOP and before processing the scoreboard context of the next received the QoS Data frame of the TID from the initiator MLD in the link\* After the end of the current TXOP and right before processing the scoreboard context of the next received the QoS Data frame of the TID from the initiator MLD in the link in a new TXOP if BA is not transmitted at the end of the current TXOPNOTE----a STA affiliated with a recipient MLD that discards the temporary record later than the time periods mentioned in the previous paragraph could fail to update the scoreboard context per the received frame within the transmit buffer control of the initiator MLD and can't acknowledge the received frame." | **Revised**Agree in principle. A NOTE is added to provide guidance to the recipient MLD when maintaining independent partial states at each link. In such case, if a STA is not able to stay in synch with the status at other STAs, it can provide incorrect status. Therefore, encouraging implementations to either have ways to stay in sync if independent partial state is maintained or not maintain partial state.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11075.** |
| 10345 | Tomoko Adachi | 35.3.8 | 0.00 | When a link doesn't receive MPDUs at all for some period and the recorded SNs become older than 2^11 while the other links receive MPDUs, the link will respond with an outdated BlockAck frame in the next turn.The window at the scoreboard context control at that link needs to be updated at an appropriate time to catch up with those in other links. | When and how to update the scoreboard context control on the outdated link can be implementation dependent but at least the outdated link should be able to transmit a BlockAck frame to acknowledge the SN of a successfully received MPDU and to transmit a BlockAck frame in response to a BlockAckReq frame. For instance, when partial state operation is applied at the outdated link, it can be the same with when there is no temporary record (REVme D1.3 10.25.6.4 b) and d)). The outdated link can be defined as a link having recorded SNs older than 2^11 compared with the most advancing WinStartR in any of the other enabled links. | **Revised**Agree in principle. The resolution to CID 11075 addresses the issue described by this comment.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11075.** |
| 10357 | Tomoko Adachi | 35.3.8 | 0.00 | The baseline spec (10.25.6.5) allows to set any value for the status between the SSN of the BlockAck frame and adjusted WinStart\_R, if the adjusted WinStart\_R is greater than the SSN of the BlockAck frame.How this rule is applied at an MLD should be described.At an MLD, WinStart\_R or the scoreboard context control used to generate the BlockAck frame may be in link level or in the MLD level. In any case, the above rule in 10.25.6.5 should apply. The fact that WinStart\_R can be the same or later than WinStart\_O and will never be earlier applies also to MLO case, so there is no problem. | Add a description that the rule in 10.25.6.5 that allows to set any value for the status between the SSN of the BlockAck frame and adjusted WinStart\_R, if the adjusted WinStart\_R is greater than the SSN of the BlockAck frame applies depending on which scoreboard context control is used to generate the BlockAck frame. | **Revised**Agree in principle. The resolution to CID 11075 addresses the issue described by this comment.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11075.** |
| 13741 | Yunbo Li | 35.3.8 | 431.56 | The scoreboard update rules shall be provided to solve below two issues that discussed during last round of CC: 1) some MPDUs first be received through link1 (WinStartR in link1 at this time), then some following MPDUs are received through link2, after that an MPDU1 with WinStartR + 2^11 < SN1 < WinStartR is received from link1, MPDU1 will be dropped according to existing scoreboard updated rule in single link, but which is acctuly should not be droped. 2) some MPDUs first be received through link1 (WinStartR in link1 at this time), then some following MPDUs (include MPDUs with WinStartR + 2^11 < SN1 < WinStartR) are received through link2, after that an MPDU2 with WinStartR < SN2 < WinEndR is received from link1, bits within [WinStartR, WinEndR] will be feedback to the originator MLD. But some bits that are set to 1s are recoding the reception status of last round of MPDUs, which will feedback to originator MLD incorrectly. | Complet the scoreboard update rule to solve the issues in comment. | **Revised**Agree in principle. The resolution to CID 11075 addresses the issue described by this comment.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11075.** |
| 13908 | Ming Gan | 35.3.8 | 431.56 | if there is local scoreboard, the description about full status and partial status is missing | please complete the missing case | **Revised**Agree in principle. The resolution to CID 11075 addresses the issue described by this comment.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 11075.** |
| 10387 | GEORGE CHERIAN | 35.3.9 | 0.00 | Allow dynamic fragmentation when the MLD is operating with only one link is enabled | As in the comment | **Revised**Agree in principle. A sentence is added to clause 35.3.9 to clarify that an MLD does not use dynamic fragmentation when a TID is mapped to more than one link. An MLD could use dynamic fragmentation if a TID is mapped to a single link. In addition, fixed the term to non-dynamic (i.e., with hyphen) to be consistent with baseline spec.**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10387.** |
| 10640 | Abhishek Patil | 35.3.9 | 433.35 | The details of dynamic fragmentation for a TID is mapped to a single link (or when both MLDs are operating on a single link for all TIDs) are missing. | As in comment | **Revised**Agree in principle. Same resolution as CID 10387**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10387.** |
| 11079 | Po-Kai Huang | 35.3.9 | 433.36 | Suggest to disallow dynamic fragmentation when dot11EHTBaseLineFeaturesImplementedOnly equal to true because dynamic fragmentation shall not be classified as baseline features for MLD. | add the following "STA affiliated with an MLD with dot11EHTBaseLineFeaturesImplementedOnly equal to true shall set the DynamicFragmentationSupport field of the HE MAC Capabilities Information field to 0." | **Revised**Agree in principle. Same resolution as CID 10387**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10387.** |
| 13602 | Yongho Seok | 35.3.9 | 433.36 | "A STA affiliated with an MLD shall not use the nondynamic fragmentation procedure described in 10.4 (MSDU, A-MSDU, and MMPDU fragmentation)."Please describe the dynamic fragmentation procedure. Otherwise, remove "nondynamic" in the cited sentence. | As in the comment. | **Revised**Agree in principle. Same resolution as CID 10387**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10387.** |
| 11867 | Alfred Asterjadhi | 35.3.9 | 433.37 | What about the dynamic fragmentation case for a STA affiliated with an MLD. Clarify what the rules are for a STA affiliated with an MLD and dynamic fragmentation. | As in comment. | **Revised**Agree in principle. Same resolution as CID 10387**TGbe editor, please make changes as shown in 11-22/1336r3 tagged as 10387.** |

* Protected block ack agreement

***TGbe editor: Please update the following paragraph in this subclause in baseline (REVme) as shown below:***

A STA that has successfully negotiated a protected block ack agreement shall obey the following rules for that agreement as a block ack recipient in addition to rules specified from 10.25.6.3 (Scoreboard context control during full-state operation) to 10.25.6.6 (Receive reordering buffer control operation):

* The STA shall not use the Block Ack Starting Sequence Control subfield value in the BlockAckReq frame [11374]or an MU-BAR Trigger frame or a GCR-MU BAR Trigger frame for the purposes of updating the value of *WinStartB* and *WinStartR*. If the Block Ack Starting Sequence Control subfield value is greater than *WinEndB* or less than *WinStartB*, dot11PBACErrors shall be incremented by 1. If, for a block ack agreement with segmentation and reassembly, the MPDU Starting Sequence subfield value is greater than *WinEndB* or less than *WinStartB*, dot11PBACErrors shall be incremented by 1.
	+ 1. **Block ack procedures in Multi-link operation**

***TGbe editor: Please update the contents of this subclause in TGbe draft as shown below:***

An MLD shall follow the mechanisms defined in 11.5 (Block ack operation) and 35.4 (EHT acknowledgment procedure) with additional rules as defined in this subclause for performing block ack operation.

For each TID, there shall not be more than one block ack agreement established between two MLDs and the agreement shall apply to all the links to which the TID is mapped to (i.e., there are no independent block ack agreements for each TID on a per-link basis).

In this subclause, the MLD with data to send using the block ack mechanism is referred to as the *originator* MLD, and the MLD that is the intended recipient of that data is referred to as the *recipient* MLD.

To setup a block ack agreement between two MLDs, an originator MLD shall send an ADDBA Request frame through an affiliated STA to the recipient MLD, on any enabled link, indicating the TID for which the block ack agreement is being set up. [10346]Upon receiving an ADDBA Request frame, the recipient MLD shall respond through an affiliated STA, on any enabled link, with an ADDBA Response frame subject to the power states of the STAs operating on the link. The recipient MLD has the option of accepting or rejecting the request. If the recipient MLD accepts the request, then a block ack agreement is established between the originator MLD and the recipient MLD for the TID specified in the ADDBA frames as defined in 10.25.2 (Setup and modification of the block ack parameters).

NOTE 1—An originator MLD can attempt a retransmission of an ADDBA Request frame on any enabled link. A recipient MLD can attempt a retransmission of an ADDBA Response frame on any enabled link.

If an MLD has established a block ack agreement with another MLD, then QoS Data frames for the TID associated with the block ack agreement may be exchanged between the two MLDs on any link to which the TID is mapped by following the procedure described in 35.3.7.1 (TID-to-link mapping) and 35.3.12 (Multi-link power management).

An originator MLD shall maintain a single transmit buffer control that uses *WinStartO* and *WinSizeO* for each block ack agreement negotiated with the recipient MLD to submit MPDUs for transmission across links subject to TID-to-Link mapping restriction (see 35.3.7 (Link management)). An originator MLD shall release the transmit buffer associated with a successfully received MPDU upon receiving BlockAck frame containing the reception status for that MPDU.

[10346]In a block ack agreement between two MLDs, the buffer size is indicated based on the Buffer Size subfield (of the Block Ack Parameter Set field) together with the Extended Buffer Size field (when ADDBA Extension element is included).

[10346]

[10346]During the block ack agreement establishment, the Block Ack Timeout field and buffer size indicated in the ADDBA Request frame are advisory.

[10346]When a block ack agreement is established between two MLDs, the originator may change the size of its transmission window (*WinSizeO*) so that the transmit window meets the following conditions:

* Is not greater than the buffer size indicated in the ADDBA Response frame.
* Is not greater than 1024 if the sender and receiver of the ADDBA Response frame are MLDs.

[10346]

[10346]If the buffer size indicated in the ADDBA Response frame is smaller than the buffer size indicated in the ADDBA Request frame, the originator shall change the size of its transmission window (*WinSizeO*) such that:

* The transmission window is not greater than the buffer size indicated in the ADDBA Response frame.
* The transmission window is not greater than 1024 if the sender and the receiver of the ADDBA Response frame are MLDs.

A STA affiliated with a recipient MLD shall provide, to the STA affiliated with the originator MLD that is operating on the same link, the reception status for any MPDU, with ACK policy other than No Ack, that is received on the link on which the STA affiliated with the recipient MLD is operating on. When a TID is mapped to more than one link, a STA affiliated with a recipient MLD may provide (if available), to the STA affiliated with the originator MLD that is operating on the same link, reception status indicating successful reception of any MPDU, which belongs to that TID and has an ACK policy other than No Ack, that is received by a STA affiliated with the recipient MLD that is operating on a different link.

An originator MLD shall update the reception status of an MPDU in its transmit buffer corresponding to a block ack agreement if the received status indicates successful reception.

An originator MLD shall not update the reception status of an MPDU in its transmit buffer corresponding to a block ack agreement that has already been acknowledged as successful.

A recipient MLD shall maintain a single common receive reordering buffer for each <peer MLD, TID> tuple under a block ack agreement, independent of the number of links that are setup. The receive reordering buffer shall be responsible for reordering MSDUs or A-MSDUs so that MSDUs or A-MSDUs are eventually passed up to the next MAC process in the order of received sequence number. It shall also be responsible for identifying and discarding duplicate frames (i.e., frames that have the same sequence number as a currently buffered frame) that are part of this block ack agreement. It shall maintain its own state independent of the scoreboard context control to perform this reordering as specified in 10.25.6.6 (Receive reordering buffer control operation). Each received MPDU shall be analyzed by the scoreboard context control as well as by the receive reordering buffer control. [11074]For each <peer MLD, TID> tuple under a block ack agreement, a recipient MLD shall have one of the following modes of operation: maintain an independent scoreboard context control and partial state operation at each STA affiliated with the MLD, have a common (single) scoreboard context control maintained by the MLD with partial state operation on each setup link, or have a common (single) scoreboard context control maintained by the MLD with full state operation on each setup link.

NOTE 3—A peer MLD is identified based on its MLD MAC address.

[11075]NOTE 4 – For a recipient MLD that has independent scoreboard context control at each affiliated STA, if an affiliated STA (STA 1) is not capable of staying in sync with the state at the receive reordering buffer (maintained at the MLD level) or the state of the scoreboard context control at another STA (STA 2) affiliated with the same MLD such that the STA’s (STA 1’s) *WinStartR* is within 211 of the *WinStartR* at the other affiliated STA (STA 2), then the STA (STA 1) can fail to accurately update the scoreboard context and, as a result, might provide an incorrect reception status for an MPDU received in subsequent TXOP.

If two MLDs have successfully negotiated a protected block ack agreement, they shall follow the procedure described in 10.25.7 (Protected block ack agreement). In a protected block ack agreement between two MLDs, the originator MLD shall transmit a robust ADDBA Request frame, via its affiliated STA that is operating on an enabled link to which the TID belonging to the block ack agreement is mapped, to advance the *WinStartR* and *WinStartB* at the recipient MLD.

* + 1. **Fragmentation in multi-link operation**

***TGbe editor: Please update the contents of this subclause in TGbe draft as shown below:***

A STA affiliated with an MLD shall not use the [10387]non-dynamic fragmentation procedure described in 10.4 (MSDU, A-MSDU, and MMPDU fragmentation). [10387]An MLD shall not use dynamic fragmentation procedure (described in 26.3 (Fragmentation and defragmentation)) when transmitting MPDUs belonging to a TID that is mapped to more than one link.

**10.25 Block acknowledgment (block ack)**

**10.25.1 Introduction**

***TGbe editor: Please insert the following paragraph at the end of this subclause in baseline (REVme) as shown below:***

[10346]If association is between MLDs (see 11.3 (Authentication and association) and 35.3.5 (Multi-link (re)setup)), then the block ack agreement is established between two MLDs and follows the rules described in 35.3.8 (Block ack procedures in Multi-link operation). If association is between STAs, then the block ack agreement established is between the two STAs and follows the rules described in 10.25.2 (Setup and modification of the block ack parameters).

**10.25.2 Setup and modification of the block ack parameters**

***TGbe editor: Please insert the following paragraph and NOTEs in this subclause in baseline (REVme) as shown below after the paragraph starting “For each accepted block ack agreement, the originator shall set the sequence number …” :***

[10346]In a block ack agreement between two EHT STAs, the buffer size is indicated based on the Buffer Size subfield (of the Block Ack Parameter Set field) together with the Extended Buffer Size field (when ADDBA Extension element is included). During a block ack agreement establishment, the buffer size indication is advisory in an ADDBA Request frame.

[10346]NOTE —The ADDBA Extension element is optionally present in an ADDBA Request or ADDBA Response frame (see 9.6.4 (Block Ack Action frame details)). When block ack agreement is negotiated between two EHT STAs, if ADDBA Extension element is present, then the total buffer size is computed as described in 9.4.2.139 (ADDBA Extension element).

***TGbe editor: Please update the following paragraphs in this subclause in baseline (REVme) as shown below:***

[10346]When a block ack agreement is established between two HT STAs, two DMG STAs, or two S1G STAs, the originator may change the size of its transmission window (*WinSizeO*) such that:

* The transmission window (*WinSizeO*) is not greater than the value in the Buffer Size field of the ADDBA Response frame if either STA is a non-EHT STA.
* The transmission window is not greater than the buffer size indicated in the ADDBA Response frame if both STAs are EHT STAs.
* The transmission window is not greater than 64 if the sender or receiver of the ADDBA Response frame is a non-HE STA.
* The transmission window is not greater than 256 if the sender and receiver of the ADDBA Response frame are HE STAs.
* The transmission window is not greater than 1024 if the sender and receiver of the ADDBA Response frame are EHT STAs.

[10346]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 meets the following conditions:

* Is not greater than the value in the Buffer Size field of the ADDBA Response frame.
* Is not greater than 64 if the sender or receiver of the ADDBA Response frame is a non-HE STA or if the STAs that establish the block ack agreement are HT STAs or DMG STAs that are not EDMG STAs.
* Is not greater than 256 if the sender and receiver of the ADDBA Response frame are HE STAs.
* Is not greater than 1024 if the STAs that establish the block ack agreement are EDMG STAs or EHT STAs.