IEEE P802.11
Wireless LANs

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| Comment Resolutions for 11be D0.3 ML retransmission CIDs |
| Date: 2021-02-22 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Rojan Chitrakar | Panasonic |  |  | Rojan.chitrakar@sg.panasonic.com |
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Abstract

This submission proposes resolutions of comments received from TGbe comment collection (TGbe Draft 0.3).

* CIDs: 1064, 1687, 2503, 2598, 2714, 3338, 3381, 3382 (8 CIDs)

Revisions:

* Rev 0: Initial version of the document.
1. **Introduction**

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. The introduction and the explanation of the proposed changes are 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 802.11be 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.***

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| CID | Commenter | Clause  | Page | Line | Comment | Proposed Change | Resolution |
| 1064 | Abhishek Patil | 35.3.6.3 | 135 | 6 | Subclause on retransmission procedure is a misfit under Link Mgmt topic. | Move the contents of this subclause as the last paragraph of 35.3.7.1.1 and delete subclause 35.3.6.3. Also delete NOTE 2 at P135L42. | **Revised.**Agree with the comment that subcalsue for ML retransmission is is a misfit under Link Management but 35.3.7.1 ML BlockAck Procedure is also not the right subclause to move to since ML retransmission is not directly related to ML BlockAck procedure. The ML retransmission subclause is moved under 35.3.13 (Multi-link channel access) following the style of baseline where 10.23.2.12 (Retransmit procedures) is under 10.23.2 (EDCA). Also agree that the NOTE 2 is not required since the NOTE 2 is captured in the normative text. TGbe editor to make the changes shown in 11-21/0302r0 under all headings that include CID 1064. |
| 1687 | GEORGE CHERIAN | 35.3.7.1.1 | 135 | 42 | "NOTE 2--QoS Data frames that are not fragments might be (re)transmitted on any link(s) where the corresponding TID is mapped to.".Modify as follows:NOTE 2--QoS Data frames can be (re)transmitted on any link(s) where the corresponding TID is mapped to. | As in the comment | **Rejected.**While we agree with the comment, the referred NOTE 2 has been deleted as part of resolution of CID 1064. |
| 2503 | Po-Kai Huang | 35.3.6.3 | 135 | 6 | Retransmission in other links should be a desirable behavior but there are limitation like different maximum MPDU length in different link that may prevent this behavior and limit the MLD benefits. We should have STAs of an MLD to have common maximum MPDU length in different link. | Add the following. Each STA in a MLD has common capabilities for the maximum MPDU length, and the capability for the maximum MPDU length of HE and EHT PPDU across links includes the following values: 3895, 7991, 11454. | **Revised.**Agree with the comment that if different links have different maximum MPDU length constraints, retransmissions of a larger MPDU may not be possible in a link with a smaller maximum MPDU length constraint. However, 11be has not yet agreed that all STAs in an MLD have the same common maximum MPDU length constraint. The text is modified to capture that retransmissions on another link are also subjected to transmission restrictions on the link and also add a NOTE to clarify that the maximum MPDU length constraint of that link is one example of such restrictions. We note that similar expression is also used in 35.3.6.1 TID-to-link mapping. TGbe editor to make the changes shown in 11-21/0302r0 under all headings that include CID 2503. |
| 2598 | Rojan Chitrakar | 35.3.6.3 | 135 | 8 | The PN used to protect a frame should not be incremented when the frame is re-transmitted by the MLD on another link to prevent the frame being dropped as replayed frame by the receiving MLD. | Clarify that the PN used to protect a frame shall not be incremented when the frame is re-transmitted by the MLD on another link. | **Revised.**Agree with the comment that the PN used to protect a frame should not be incremented when the frame is re-transmitted by the MLD on another link. However, the normative behaviour should be covered in clause 12. Here, we add a NOTE and refer the readers to clause 12. TGbe editor to make the changes shown in 11-21/0302r0 under all headings that include CID 2598. |
| 2714 | Ryuichi Hirata | 35.3.6.3 | 135 | 8 | An MLD may be unable to attempt retransmission on other link if other link entered doze state. | Solve this issue. This could be solved by defining indication of pending retransmission of the frame transmitted on other link. | **Revised.**Agree with the comment that retransmissions of a frame on a link is subject to the power state of the STA operating on the link. However, existing power save mechanisms can already cover such cases. The text is modified to capture such restrictions and we also add a NOTE to clarify that the power state of STAs is one example of such restrictions. We note that similar expression is also used in 35.3.6.1 TID-to-link mapping. TGbe editor to make the changes shown in 11-21/0302r0 under all headings that include CID 2714. |
| 3338 | Yusuke Tanaka | 35.3.6.3 | 135 | 10 | The spec texts allow retransmission on any links, but the receiver doesn't know whether and in which link retransmission will be attempted, so the receiver can't put any link into sleep state. | Allow a receiver to know whether retransmission will be attempted by for example a frame exchange prior to the retransmission or indication in the transmitted frame. | **Rejected.**There is no difference between a retransmission and the original transmission in terms of a receiver STA’s power state. If a receiving STA is operating in power save mode, the rules that apply to the initial transmission also apply for the retransmitted frame (e.g., buffering of BUs at the AP etc.).  |
| 3381 | Zhou Lan | 35.3.6.3 | 135 | 6 | A MPDU that doesn't belong to any bloack ack agreement can not be retrasmitted? Please clarify. | As stated in the comment | **Revised.**Agree with the comment that MPDus that do not have block ack agreements may also be retransmitted on other links. However, this case is already described in 35.3.11 (Multi-link device individually addressed data delivery without block ack negotiation). Text is added to refer the readers to 35.3.11 for retransmissions in the case without block ack agreement.TGbe editor to make the changes shown in 11-21/0302r0 under all headings that include CID 3381. |
| 3382 | Zhou Lan | 35.3.7.1.1 | 135 | 42 | Turn this Note to formative text | As stated in the comment | **Rejected.**While we agree with the comment, the referred NOTE 2 has been deleted as part of resolution of CID 1064. The content of the NOTE 2 is already captured as normative text in 35.3.7.1.2 (Multi-link retransmit procedures) |

**Discussion:** None.

**Propose:**

Revised for CIDs 1064, 2503, 2714, 2598, 3381 as per discussion and editing instructions in 11-21/0302r0.

35.3.7 Multi-link block ack

35.3.7.1 Multi-link BlockAck procedure

35.3.7.1.1 General (CID 1064)

***TGbe editor: Delete NOTE 2 in the sub-clause as the following (Track Changes ON):***

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 and subject to existing restrictions for transmissions of frames that apply to those enabled links, following the procedure described in 35.3.7.1 (Multi-link BlockAck procedure).

 (#1064)

***TGbe editor: Modify sub-clause 35.3.6.3 as the following and move subclause 35.3.6.3 to the end of subclause 35.3.13 (Track Changes ON):***

35.3.13 Multi-link channel access

35.3.13.7 Multi-link retransmit procedures (CIDs 1064, 2503, 2714, 2598, 3381) (#1064)

If an MLD has established block ack agreement with another MLD for a TID, and the transmission of a QoS Data frame of the TID in a link is unsuccessful, and if the frame is not a fragment, the MLD may attempt retransmissions of the frame on any link that has the TID mapped to it, subject to the applicable lifetime limit and any existing restrictions for transmissions of frames that apply to the link. (#2503, #2714)

NOTE 1 – Examples of restrictions are: the maximum MPDU length constraint of the link, or the power state of the STAs operating on the link. (#2503, #2714)

If an MLD does not have a block ack agreement with another MLD for a TID, the MLD shall follow the procedure in 35.3.11 (Multi-link device individually addressed data delivery without block ack negotiation) to deliver the failed frames. (#3381)

NOTE 2 – In order to prevent the receiver from discarding a retransmitted frame as a replayed frame, the PN used to protect the frame is not incremented when the frame is retransmitted. (#2598)