IEEE P802.11
Wireless LANs

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| 11be D2.0 CR for 35.3.13 |
| Date: 2022-07-07 |
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Abstract

This submission proposes resolutions for the following CIDs:

11872, 11873, 11874, 11875, 12469

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Revision based on the discussion during meeting
* Rev 2: We further revise 11873 based on the comments from Yongho for the difference between dot11QAPEDCATableMSDULifetime and dot11EDCATableMSDULifetime. Changes are marked with green.

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 D2.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D2.0 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.***

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| **CID** | **Commenter** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 11872 | Alfred Asterjadhi | 35.3.13 | 447.16 | I don't think 35.3.7 is the only subclause that have constraints for these types of frames. E.g., 35.3.9 (Fragmentation in multi-link operation) also contains certain constraints. Suggest to simply say "subject to additional constraints defined in 35.3 (Multi-link operation). | As in comment. | Revised –We add the reference to 35.3.9.TGbe editor to make the changes shown in 11-22/1009r1 under all headings that include CID 11872 |
| 11873 | Alfred Asterjadhi | 35.3.13 | 447.29 | "An MLD shall maintain a transmit MSDU timer for each MSDU passed to the MAC." It is a bit ambiguous to say "to the MAC" since each STA affiliated with the MLD has its own (at least a portion of) MAC. Hence this would need clarification as to the MAC of which STA. Simplest is to replace "passed to the MAC" with "that is pending transmission". Also is the transmit MSDU timer the one stored in dot11EDCATableMSDULifetime? Please clarify if that is the case. | As in comment. | Revised – Agree that the term MAC can be improved due to existence of upper MAC and lower MAC. We revise it as adding through the MAC-SAP at the end. MLD only has one MAC-SAP, which avoids the confusion. Note that dot11EDCATableMSDULifetime is a fixed value used to compare with the value of timer rather than the timer itself. We further revise the sentence to differentiate the difference between dot11QAPEDCATableMSDULifetime, which is for AP in the baseline, and dot11EDCATableMSDULifetime, which is for non-AP STA in the baseline.*dot11QAPEDCATableMSDULifetime OBJECT-TYPESYNTAX Unsigned32 (1..4294967295)UNITS "TUs"MAX-ACCESS read-writeSTATUS currentDESCRIPTION"This is a control variable.It is written by an external management entity.Changes take effect as soon as practical in the implementation.This attribute specifies the maximum duration an MSDU/MMPDU, for a givenAC, would be retained by the MAC at the AP before it is discarded."DEFVAL { 500 }::= { dot11QAPEDCAEntry 6 }**dot11EDCATableMSDULifetime OBJECT-TYPESYNTAX Unsigned32 (1..4294967295)UNITS "TUs"MAX-ACCESS read-writeSTATUS currentDESCRIPTION"This is a control variable at a non-AP STA.It is written by an external management entity.Changes take effect as soon as practical in the implementation.This attribute specifies the maximum duration an MSDU/MMPDU, for a givenAC, would be retained by the MAC at the non-AP STA before it is discarded."DEFVAL { 500 }::= { dot11EDCAEntry 6 }*TGbe editor to make the changes shown in 11-22/1009r2 under all headings that include CID 11873 |
| 11874 | Alfred Asterjadhi | 35.3.13 | 447.38 | In this subclause we sometimes refer to TID and sometimes to TC. Perhaps a good idea to refer to the same identifier, and if not add a note that describes the relationship between the two. | As in comment. | Revised – We revise TC as TID.TGbe editor to make the changes shown in 11-22/1009r1 under all headings that include CID 11874 |
| 11875 | Alfred Asterjadhi | 35.3.13 | 447.46 | Commas rather than periods for the first two bullets? And in the subsequent paragraph is the lifetime expiration referring to the MSDU timer that corresponds to the MSDU or A\_MSDU carried in the MPDU? I think yes, and in which case it is best to simply say MSDU timer expiration rather than using lifetime expiration whcih is not a quantity that is defined anywhere). | As in comment. | Revised – It is about any condition that is met, so each condition is separate, and we then use period. As for the description of the timer, the description follows the baseline as follows. Note that “transmit MSDU timer” is used.*The transmit MSDU/MMPDU timer for the MSDU/MMPDU or any undelivered fragments of that MSDU/MMPDU exceeds dot11EDCATableMSDULifetime.*However, agree that a clarification if needed for A-MSDU is useful and we can add “or the A-MSDU (if A-MSDU is used)”TGbe editor to make the changes shown in 11-22/1009r1 under all headings that include CID 11875 |
| 12469 | Michail Koundourakis | 35.3.13 | 447.51 | "to another STA affiliated with the associated MLD" seems to allowtransmitting other unicast Data frames to the same STA.Also, this seems incompatible with EMLSR, as the same unicast Data framecan be (re)transmitted only any link. | Maybe the spirit of this paragraph is that the unicast QoS Data frametransmission shall conclude, before the MLD is allowed to transmit a differentSN unicast Data frame (of the same TID) on any of the STA affiliated with theassociated MLD. | Revised – We change “another” to “any”.TGbe editor to make the changes shown in 11-22/1009r1 under all headings that include CID 12469 |

**Discussion: None**

**Proposed:**

***TGbe editor: Change 35.3.13 Multi-link device individually addressed data delivery without block ack negotiation as follows (track change on):***

 **35.3.13 Multi-link device individually addressed data delivery without block ack negotiation**

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1. An MLD may deliver individually addressed QoS Data frames belonging to a TID without block ack
2. negotiation to an associated MLD on the setup links subject to additional constraints in [35.3.7 (Link](#bookmark33)
3. [management)](#bookmark33) and 35.3.9 (Fragmentation in multi-link operation).(#11872)

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1. An MLD shall follow the rules described in 10.3.2.14.2 (Transmitter requirements) to determine the
2. sequence number of an individually addressed QoS Data frame belonging to a TID that is delivered to the
3. associated MLD.

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1. An MLD shall follow the rules as described in 10.3.2.14.3 (Receiver requirements) to discard duplicate
2. individually addressed QoS Data frames belonging to a TID without block ack negotiation that are delivered
3. from the associated MLD.

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28 An MLD shall maintain a transmit MSDU timer for each MSDU passed to the MAC through the MAC SAP. The transmit MSDU timer shall be started when the MSDU is passed to the MAC through the MAC SAP. Non-AP STAs affiliated with an non-AP MLD shall have the same dot11EDCATableMSDULifetime, and APs affiliated with an AP MLD shall have the same dot11QAPEDCATableMSDULifetime. (#11873)

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1. When A-MSDU aggregation is used, the MLD maintains a single timer for the whole A-MSDU. The timer
2. is restarted each time an MSDU is added to the A-MSDU. The result of this procedure is that no MSDU in

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36 the A-MSDU is discarded before a period of dot11EDCATableMSDULifetime or dot11QAPEDCATableMSDULifetime has elapsed. (#11873)

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1. For an MLD, the frame retry count and retry limit for each MSDU or A-MSDU that belongs to a TID that requires acknowledgment is implementation specific.(#11874)

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1. An MLD shall continue to deliver the failed individually addressed QoS Data frame belonging to a TID
2. without block ack negotiation to an associated MLD on the setup links subject to additional constraints (see
3. [35.3.7 (Link management)](#bookmark33)) until any of the following conditions occurs:

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1. — The retry limit is met.
2. — The transmit MSDU timer for the MSDU or the A-MSDU (if A-MSDU is used)(#11875) exceeds dot11EDCATableMSDULifetime or dot11QAPEDCATableMSDULifetime. (#11873)

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49 — The individually addressed QoS Data frame is successfully delivered.

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1. A MLD shall not transmit other individually addressed QoS Data frames through a STA affiliated with the MLD belonging to
2. the TID without block ack negotiation to any(#12469) STA affiliated with the associated MLD while the current individually addressed QoS Data frame belonging to the TID without block ack negotiation has not yet completed to the point of success, failed due to retry limit, or other MAC discard (e.g., lifetime expiration).

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