IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Resolution for miscellaneous CIDs – part 7 | | | | |
| Date: November 10, 2023 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Gaurang Naik | Qualcomm Technologies, Inc. |  |  | gnaik@qti.qualcomm.com |
| Abhishek Patil |  |  | appatil@qti.qualcomm.com |
| Alfred Asterjadhi |  |  | aasterja@qti.qualcomm.com |
| George Cherian |  |  | gcherian@qti.qualcomm.com |
| Duncan Ho |  |  | dho@qti.qualcomm.com |

Abstract

This submission proposes resolutions for following 5 CIDs received for TGbe LB275:

19776, 19777, 20075, 19707, 19708

**Revisions:**

* Rev 0: Initial version of the document.
* Rev 1: Changes based on offline and online feedback.

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** |
| 19776 | Abhishek Patil | 35.3.7.2.5 | 526.19 | There are several conditions that need to be taken into account when T2LM is being established as part of the ML (re)setup procedure. Please cover all the cases in detail. Also see 11-23/1122r2 | As in comment | **Revised**  Agree in principle. The bullets explaining the behavior of AP MLD for TTLM negotiation during ML (re)setup are re-organized for clarity.  **TGbe editor: please implement changes shown in this document tagged as 19776** |
| 19777 | Abhishek Patil | 35.3.7.2.5 | 526.26 | Clarify that if either MLD supports mode 1, then only 1 T2LM IE is carried in the (Re)Association Req/Resp frame and the direction field is set to 2. | As in comment | **Revised**  Agree in principle. The bullets explaining the behavior of AP MLD for TTLM negotiation during ML (re)setup are re-organized for clarity.  **TGbe editor: please implement changes shown in this document tagged as 19776** |
| 20075 | Li-Hsiang Sun | 35.3.7.2.5 | 526.36 | In p526 L11 "The non-AP MLD or the AP MLD shall not initiate a negotiation for a TTLM that maps a TID to a link if the requested TID is not already mapped to the link in the advertised TTLM."  However in L38 "requests a mapping that maps TIDs to a link in a direction that is not enabled in the advertised mapping," it seems a non-AP MLD can request a T2LM contradicting to the advertised mapping in Association Request frame  The possible explanation could be that the non-AP has not received the advertised T2LM info before making Association Request. However in this case it is hard for the non-AP to determine whether the TTLM included in Association Response is for the first bullet (L36) or the 2nd bullet (L47) | The T2LM element in the (Re)association response in the 1st bullet(L36) shall have Expected Duration Present set to 1  The T2LM element in the (Re)association response in the 2nd bullet(L47) shall have Expected Duration Present set to 0  Remove the sentence in p289 L19 " The Expected Duration field is present if the TID-To-Link Mapping element is carried in a Beacon or a Probe Response frame transmitted by an AP affiliated with an AP MLD, and is not present otherwise." | **Revised**  Agree in principle. The bullets explaining the behavior of AP MLD for TTLM negotiation during ML (re)setup are re-organized for clarity.  **TGbe editor: please implement changes shown in this document tagged as 19776** |
| 19707 | Arik Klein | 35.3.7.2.5 | 526.50 | Need to emphasize that the default TTLM remains established until a TTLM is successfully negotiated (as defined in 35.3.7.2.3 (P523L17 )). Please revise the sentence as suggested. | The sentence should be revised as follows: "... , and the default TTLM remains established until a TTLM is advertised or \*successfully\* negotiated." | **Revised**  Agree in principle. The cited statement has been revised as part of resolution for CID 19776.  **TGbe editor: please implement changes shown in this document tagged as 19776** |
| 19708 | Arik Klein | 35.3.7.2.5 | 526.59 | Revise the sentence for better clarity (Subject before Object), as follows: " The AP MLD that accepts the requested TTLM shall not include the TID-To-Link Mapping element in the (Re)Association Response frame." | As in comment | **Revised**  Agree in principle. The cited statement has been revised as part of resolution for CID 19776.  **TGbe editor: please implement changes shown in this document tagged as 19776** |

***TGbe editor: please note that the baseline is 11be Draft 4.1.***

**35.3.7.2.1 General**

***Tgbe editor: please add the following paragraph as the last paragraph under this subclause [CID 19776]***

An MLD that includes two TID-To-Link Mapping elements in a frame shall set the Direction subfield in one of the TID-To-Link Mapping elements to 0 and the Direction subfield in the other TID-To-Link Mapping element to 1, except when the AP is transitioning from an established advertised TTLM to a new advertised TTLM, in which case the AP advertises a future TID-To- Link Mapping element in addition to the established one (see ﻿35.3.7.5.2 (Affiliated AP link disablement)). (#19776)

***Tgbe editor: please delete the subclause and all paragraphs under it as shown below [CID 19776]***

**35.3.7.2.3 Negotiation of TTLM**

***Tgbe editor: please updated the paragraphs as shown below [CID 19776]***

A successfully negotiated TTLM is active until it is torn down or until it is replaced by a negotiated TTLM or is modified by an advertised TTLM (see 35.3.7.2.4 (Advertised TTLM in Beacon and Probe Response frames)).

An MLD that supports TTLM negotiation has dot11TIDtoLinkMappingActivated equal to true and shall set to a nonzero value the TID-To-Link Mapping Negotiation Support subfield in the MLD Capabilities And Operations subfield of the Basic Multi-Link element that it transmits. An MLD that does not support TTLM negotiation has dot11TIDtoLinkMappingActivated equal to false and shall set the TID-To-Link Mapping Negotiation Support subfield to 0. If the TID-To-Link Mapping Negotiation Support subfield value received from a peer MLD is equal to 1, the MLD that initiates a TTLM negotiation with the peer MLD shall send only the TID-To-Link Mapping element where all TIDs are mapped to the same link set. If the TID-To-Link Mapping Negotiation Support subfield value received from a peer MLD is equal to 3, the MLD that initiates a TTLM negotiation with the peer MLD shall send the TID-To-Link Mapping element where each TID is mapped to the same or different link set.

During an ML (re)setup procedure, a non-AP MLD may initiate a TTLM negotiation by including one or two TID-To-Link Mapping elements in the (Re)Association Request frame if the AP MLD has indicated support for TTLM negotiation. Otherwise, the non-AP MLD shall not include any TID-To-Link Mapping element in the (Re)Association Request frame.

After receiving a (Re)Association Request frame from a non-AP MLD, the AP MLD shall respond with a (Re)Association Response frame by following the rules in 11.3.6 (Association, reassociation, and disassociation), and [35.3.5 (ML (re)setup)](#_bookmark27), and perform the following:

* If the AP MLD is advertising an established TTLM (see [35.3.7.2.4 (Advertised TID-to-link mapping in Beacon and Probe Response frames)](#_bookmark39)) and if the non-AP MLD does not include a TID-To-Link Mapping element in the (Re)Association Request frame or if the non-AP MLD includes a TID-To-Link Mapping element in the (Re)Association Request frame, requesting a TTLM that maps one or more TIDs to a link and direction that is not enabled in the advertised TTLM, then,
  + the AP MLD shall include in the (Re)Association Response frame, the TID-to-Link mapping element(s) that is advertised in Beacon and Probe Response frames with the Mapping Switch Time Present subfield set to 0, modified to indicate the TTLM for the links that are accepted for set up in the (Re)Association Response frame.
  + The TTLM that is included in the (Re)Association Response frame shall be considered as established and shall be used during the association.
* Otherwise, if the AP MLD is not advertising an established TTLM, then,
  + if the non-AP MLD includes TID-To-link Mapping element(s) in the (Re)Association Request frame, then:
    - If the AP MLD accepts the requested TTLM, then the AP MLD shall not include the TID-to-Link mapping element(s) in the (Re)Association Response frame. The TTLM that is included in the (Re)Association Request frame shall be considered as established and shall be used during the association
    - Otherwise, the AP MLD does not accept the requested TTLM and shall indicate rejection of the proposed TTLM by including in the (Re)Association Response frame TID-To-link Mapping element(s) that suggests a preferred TTLM. In this case, the default TTLM shall be used during the association or until another TTLM is successfully negotiated. Additionally, an AP MLD that rejects the (Re)Association Request may include a TID-to-link mapping-related status code in the (Re)Association Response frame. Status code 134 (PREFERRED\_TID\_TO\_LINK\_MAPPING\_SUGGESTED) may be used in this case.

NOTE—An ML (re)setup can be successful even if the TTLM negotiation embedded in the ML (re)setup procedure is not successful.

After the ML (re)setup is successful and 4-way handshake is complete (if RSNA is required), to negotiate a TTLM, an initiating MLD with dot11TIDtoLinkMappingActivated equal to true shall send an individually addressed TID-To-Link Mapping Request frame through an affiliated STA, on any enabled link, to a (#19688)peer MLD that has indicated support of TTLM negotiation.