IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB275 CR for ML Reconfiguration part 2 | | | | |
| Date: September 1, 2023 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Binita Gupta | Cisco Systems |  |  | binitag@cisco.com |
| Brian Hart | Cisco Systems |  |  | brianh@cisco.com |

Abstract

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

19055, 19664, 19673, 19674, 19679, 19681, 19934, 20015, 20021, 20023

20024, 20025

**Revisions:**

* Rev 0: Initial version of the document.

***TGbe editor: The baseline for this document is 11be D4.0.***

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** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 19055 | Po-Kai Huang | 3.2 | 60.01 | Setup link maybe added or removed due to ML reconfiguration. Need to update the defintion to reflect the add/remove operation. | Change the definiotn to the following. "setup link: Between the access point (AP) multi-link device (MLD) and the associated non-AP MLD, a link that is requested by the non-AP MLD in the (Re)Association Request frame, is accepted by the AP MLD in the (Re)Association Response frame (see 35.3.5 (ML (re)setup)), and is not removed (see 35.3.6.3 (Removing affiliated APs)) or deleted (see 35.3.6.4 (ML reconfiguration to the ML setup)) at a later time or a link that is added through multi-link reconfiguration (see 35.3.6.4 ML (reconfiguration to the ML setup)) and is not removed (see 35.3.6.3 (Removing affiliated APs)) or deleted (see 35.3.6.4 (ML reconfiguration to the ML setup)) at a later time." | Revised  Agree with the commenter.  TGbe editor, please make the changes tagged by CID #19055 in 11-23/1466r0. |
| 19664 | Laurent Cariou | 35.3.6.3 | 513.14 | "Reconfiguration Operation type subfield shall be set to 1". Seems it shall be set to 0. | as in comment | Revised  Agree with the commenter.  TGbe editor, please replace “﻿Reconfiguration Operation Type subfield shall be set to 1” with “﻿Reconfiguration Operation Type  subfield shall be set to 0” on P513L14-15. |
| 19673 | Arik Klein | 35.3.6.3 | 512.57 | Please add a sentence (similar to that in P512L52, before NOTE1) for the case that the Reconfiguration Multi-Link element is included in a nontransmitted BSSID profile of a Multiple BSSID element, as suggested | Please add the following sentence: "In the Reconfiguration Multi-Link element included in a nontransmitted BSSID profile of a Multiple BSSID set and carried in Beacon and Probe Response frames transmitted by the transmitted BSSID of that multiple BSSID set, the MLD MAC Address Present subfield shall be set to 0. The AP MLD for which the AP removal information is provided in the Reconfiguration Multi-Link element shall be identified by the MLD MAC Address subfield of the Basic Multi-Link element corresponding to the same AP MLD and is included in the same nontransmitted BSSID profile." | Revised  Agree with the commenter. Revised the text as per suggestion.  TGbe editor, please make the changes tagged by CID #19673 in 11-23/1466r0. |
| 19674 | Arik Klein | 35.3.6.3 | 513.01 | Need to correct the reference to Annex AF.3.2 and AF.3.3 | Replace "Annex AF.2.3" with "Annex AF.3.2 and AF.3.3" | Rejected  Annex AF.2.3 shows illustration for contents of Management frames during ML Reconfiguration operation and is the correct Annex clause to be referenced. AF.3.2 and AF.3.3 does not capture any management frame contents for ML reconfiguration. |
| 19679 | Arik Klein | 35.3.6.3 | 513.47 | The SME is not connected and does not initiate the operation of the BTM Request frame. Please remove this part from the sentence. | Please replace the text "the SME of that affiliated AP" with "it" | Revised  Agree with the commenter. Revised to remove mention of SME in few places.  TGbe editor, please make following changes:  1)replace "the SME of that affiliated AP" with "the affiliated AP" on P513L47  2)replace “﻿the SME of the affiliated AP” with “the affiliated AP” on P514L40.  3)replace “﻿the SME of the non-AP MLD” with “the non-AP MLD” on P515L1. |
| 19681 | Arik Klein | 35.3.6.3 | 514.55 | Need to clarify that the Basic MLE is carried in the subsequent Beacon and Probe Response frames that are transmitted after the removal of the affiliated AP. Please revise as suggested. | Please revise the sentence as follows: "After the affiliated AP is removed, the AP MLD shall remove the Per-STA Profile subelement for that affiliated AP (if any) from the Basic Multi-Link element \*that is carried in the subsequent Beacon and Probe Response frames\* " | Revised  Agree with the commenter. Revised text as per suggestion.  TGbe editor, please make the changes tagged by CID #19681 in 11-23/1466r0 |
| 19934 | Rubayet Shafin | 35.3.6.3 | 514.52 | It needs to be clarified that after removal of one AP, if there are still other APs that are pending to be removed, then the AP MLD would still continue including the Reconfiguration ML IE in the Beacon and Probe Response frame. | as in comment. | Revised  Agree with the commenter. Revised text as per suggestion.  TGbe editor, please make the changes tagged by CID #19934 in 11-23/1466r0 |
| 20015 | Binita Gupta | 35.3.6.1 | 511.48 | Add reference to specific subclauses in 35.3.6 for different ML reconfiguration operations under the general subclause. | Revise as per comment | Revised  Revised text to add references to subclauses.  TGbe editor, please make the changes tagged by CID #20015 in 11-23/1466r0 |
| 20021 | Binita Gupta | 35.3.6.3 | 513.61 | The Disassociation frame(s) are transmitted to the non-MLD non-AP STAs. See existing text "ï»¿Once the disassociation timer reaches a value of 0, and before the TSF indicated by the BSS Termination TSF field, it shall follow the procedure in 11.3.6.8 (AP, AP MLD, or PCP disassociation initiation procedure) to transmit Disassociation frame(s) to all non-AP STAs associated with the AP being removed that are not affiliated with a non-AP MLD" | Change 'STA(s)' to 'non-MLD non-AP STA(s)' | Accepted |
| 20023 | Binita Gupta | 35.3.6.3 | 514.63 | It is good to clarify that the non-AP MLD identifies set of affiliated APs being removed from the received Reconfiguration ML element. | Add following at the start of the paragraph: "A non-AP MLD identifies one or more affiliated APs being removed from its associated AP MLD from the Reconfiguration Multi-Link element received from the AP MLD." | Revised  Agree with the commentor. Added text per suggestion. |
| 20024 | Binita Gupta | 35.3.6.3 | 514.48 | There is a single Reconfiguration ML element transmitted in Beacon/Probe Response etc. Change plural to singular | Change "ï»¿Reconfiguration Multi-Link elements" to "ï»¿Reconfiguration Multi-Link element". Same change for line 59 and 65. | Revised  TGbe editor, please replace “Reconfiguration Multi-Link elements” with “Reconfiguration Multi-Link element” on P514 L47-48, L59-60 and L64-65. |
| 20025 | Binita Gupta | 35.3.6.3 | 514.63 | This requirement is for the non-AP MLD, hence it should refer to received ï»¿Reconfiguration Multi-Link element instead of transmitted ï»¿Reconfiguration Multi-Link element. | Change to "ï»¿At the TBTT indicated by the value of the AP Removal Timer subfield in a \*received\* Reconfiguration Multi-Link element, an associated non-AP MLD shall consider..." | Revised  TGbe editor, please make the changes tagged by CID #20025 in 11-23/1466r0 |

**﻿3.2 Definitions specific to IEEE 802.11**

***TGbe editor: Please modify definition in this subclause as shown below.***

***﻿*setup link:** Between the access point (AP) multi-link device (MLD) and the associated non-AP MLD, a link that is requested by the non-AP MLD in the (Re)Association Request frame and is accepted by the AP MLD in the (Re)Association Response frame (see 35.3.5 (ML (re)setup))(#19055), or a link that is added after association through multi-link reconfiguration (see 35.3.6.4 ML (reconfiguration to the ML setup)), and is not removed at a later time because of the removal of an affiliated AP (see 35.3.6.3 (Removing affiliated APs)) or deletion of a link (see 35.3.6.4 (ML reconfiguration to the ML setup)).

**﻿﻿35.3.6.1 General**

***TGbe editor: Please modify this subclause as shown below.***

ML reconfiguration refers to a set of procedures through which an AP MLD can add one or more affiliated

APs to the AP MLD (#20015)as described in subclause ﻿35.3.6.2 (Adding affiliated APs), or remove one or more affiliated APs from the AP MLD as described in subclause 35.3.6.3 (Removing affiliated APs). The ML reconfiguration also

defines procedure for adding and deleting links dynamically to the ML setup of a non-AP MLD without

requiring (re)association between the peer MLDs as described in subclause ﻿35.3.6.4 (ML reconfiguration to the ML setup) and for AP MLD to recommend ML reconfiguration to the ML setup of its associated non-AP MLD(s) as described in subclause ﻿35.3.6.5 (AP MLD recommendation for ML reconfiguration).

﻿**35.3.6.3 Removing affiliated APs**

***TGbe editor: Please add following paragraph after the 3rd paragraph in this subclause.***

(#19673)In the Reconfiguration Multi-Link element included in a nontransmitted BSSID profile of a Multiple BSSID element that is carried in the Beacon and Probe Response frames transmitted by the transmitted BSSID of that multiple BSSID set, the MLD MAC Address Present subfield shall be set to 0. The AP MLD for which the AP removal information is provided in the Reconfiguration Multi-Link element shall be identified by the MLD MAC Address subfield of the Basic Multi-Link element corresponding to the same AP MLD and included in the same nontransmitted BSSID profile.

***TGbe editor: Please modify the 16th paragraph in this subclause as shown below.***

﻿At the TBTT indicated by the value of the AP Removal Timer subfield in transmitted Reconfiguration

Multi-Link elements, the AP MLD shall remove the affiliated AP indicated by the Link ID subfield in the

STA Control field of the Per-STA Profile subelement that includes the AP Removal Timer subfield. After

removing the affiliated AP, the AP MLD shall remove the Per-STA Profile subelement from the

Reconfiguration Multi-Link element corresponding to the removed AP, (#19934)and if there is still at least one Per-STA Profile

subelement remaining in the Reconfiguration Multi-Link element, the AP MLD shall continue to transmit the Reconfiguration Multi-Link element in the subsequent Beacon and Probe Response frames of the remaining affiliated APs, otherwise , the AP MLD shall stop transmitting the

Reconfiguration Multi-Link element in the subsequent Beacon and Probe Response frames of the remaining affiliated APs. After the affiliated AP is removed, the AP MLD shall remove (#19681)any Per-STA Profile subelement for that affiliated AP (if present) from the Basic Multi-Link element that is carried in the subsequent Beacon and Probe Response frames of the remaining affiliated APs.

***TGbe editor: Please modify the 18th paragraph in this subclause as shown below.***

﻿(#20023)A non-AP MLD identifies one or more affiliated APs being removed from its associated AP MLD from the Reconfiguration Multi-Link element received from the AP MLD. At the TBTT indicated by the value of the AP Removal Timer subfield in (#20025)the received Reconfiguration Multi-Link elements, an associated non-AP MLD shall consider the link corresponding to the removed AP ﻿nonexistent, and the SME of the non-AP MLD shall delete any information maintained for that link. After a non-AP MLD deletes any information maintained for the link corresponding to the removed AP, if there are no other setup links with the AP MLD, then the non-AP MLD shall consider that it has been disassociated from the AP MLD and shall delete the corresponding association information.