IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB271 CR for ML Reconfiguration 35.3.6 part 1 | | | | |
| Date: March 11, 2023 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Binita Gupta | Meta |  |  | binitagupta@meta.com |
| Chunyu Hu |  |  |  |
| M. Kumail Haider |  |  |  |

Abstract

This submission proposes resolutions for following 31 CIDs received for TGbe LB271:

15051 15400 15401 15402 15403 15521 15862 15863 15864 15865

15986 15989 15991 15994 15995 15996 16110 16111 16241 16466

16583 16584 16585 16586 17937 17938 17939 17940 18115 18120

18127

**Revisions:**

* Rev 0: Initial version of the document.

***TGbe editor: The baseline for this document is 11be D3.0.***

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 | Clause | Page | Comment | Proposed Change | Resolution |
| 15051 | 35.3.6.2.2 | 511.08 | the corresponding the AP MLD. Please remove the second the. | as the comment | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #15051 in 11-23/0360r0. |
| 15400 | 35.3.6.2.2 | 510.56 | Sentence has "with which" toward the front and therefore does not need the "with" after affiliated | Rephrase as "When an AP MLD with which an AP corresponding to a nontransmitted BSSID in a multiple BSSID set is affiliated removes..." | Revised  Text has been revised to further clarify.  TGbe editor, please make the changes tagged by CID #15400 in 11-23/0360r0. |
| 15401 | 35.3.6.2.2 | 511.32 | BTM is used in the paragraph but it is not defined. Also, the phrasing of the sentence makes it a little hard to follow. | Rephrase as "The affiliated AP may transmit BSS Transition Management Request frame(s) to provide notification of BSS termination to associated non-AP STAs that support BTM and are not affiliated with a non-AP MLD or to provide notification of BSS termination to non-AP MLDs associated with the AP MLD of the affiliated AP." | Revised  BTM acronym has been used in REVme baseline, however apparently it is not defined in clause 3.4 in REVme. Added BTM acronym under clause 3.4.  Also, the text mentioned has been revised to make it read better.  TGbe editor, please make the changes tagged by CID #15401 in 11-23/0360r0. |
| 15402 | 35.3.6.2.3 | 511.39 | Structure of the sentence makes it a little hard to follow | Rephrase as "If the affiliated AP being removed transmits BSS Transition Management Request frame(s) to provide notification of the termination of the BSS that corresponds to the affiliated AP..." | Revised  Text has been revised to make it read better.  TGbe editor, please make the changes tagged by CID #15402 in 11-23/0360r0. |
| 15403 | 35.3.6.2.3 | 512.28 | The sentence "When the affiliated AP being removed is not transmitting BSS Transition Management Request frame(s) to notify the termination of the corresponding BSS,..." is not clear. | Rephrase as "When the affiliated AP that has been announced for removal in transmitted Reconfiguration Multi-Link elements does not transmit BSS Transition Management Request frame(s) to provide notification of the termination of the corresponding BSS,..." | Revised  Text has been revised to align with other paragraphs in the clause.  TGbe editor, please make the changes tagged by CID #15403 in 11-23/0360r0. |
| 15521 | 35.3.6.2.2 | 512.64 | "has only one non-AP STA with a setup link" is misleading, sounds like the other non-AP STA within the non-AP MLD has been removed too, which is not true. | Change to "has only one setup link corresponding to an affiliated non-AP STA" | Revised  Text has been revised to clarify the Note as per the suggestion.  TGbe editor, please make the changes tagged by CID #15521 in 11-23/0360r0. |
| 15862 | 35.3.6.2.1 | 510.54 | Wrong tense: "has been removed" -> "is removed" | As in comment. | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #15862 in 11-23/0360r0. |
| 15863 | 35.3.6.2.2 | 511.02 | In a few instances, the phrase "AP removal information" misses "the" in front. E.g. L2, L8. | Add missing "the" as in comment. | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #15863 in 11-23/0360r0. |
| 15864 | 35.3.6.2.2 | 511.32 | In a few instances, the phrase "BSS termination" misses "the" in front. | Add missing "the" as in comment. | Revised  Text has been revised to further clarify.  TGbe editor, please make the changes tagged by CID #15864 in 11-23/0360r0. |
| 15865 | 35.3.6.2.2 | 511.30 | Improve the readability. | "to notify termination of the BSS corresponding to the affiliated AP" -> "to notify of its BSS termination". | Revised  Text has been revised to make it read better.  TGbe editor, please make the changes tagged by CID #15865 in 11-23/0360r0. |
| 15986 | 35.3.6.2.1 | 510.20 | Change field name from "MLD Parameter" -> "MLD Parameters". | As in comment | Revised.  Text has been revised to further clarify the requirement.  TGbe editor, please make the changes tagged by CID #15986 in 11-23/0360r0. |
| 15989 | 35.3.6.2.2 | 511.08 | Remove extra "the" before "AP MLD" | As in comment | Revised  Same resolution as CID 15051  TGbe editor, please make the changes tagged by CID #15051 in 11-23/0360r0. |
| 15991 | 35.3.6.2.2 | 511.22 | For NSTR mobile AP MLD requirement for setting the AP Removal Timer is missing the part "before the affiliated AP is removed" | Modify to: "...or for NSTR mobile AP MLD the AP Removal Timer subfield shall be set to the number of the TBTTs of the AP operating on the primary link before the affiliated AP is removed" | Revised  Text has been revised as per the suggestion to clarify the requirement.  TGbe editor, please make the changes tagged by CID #15991 in 11-23/0360r0. |
| 15994 | 35.3.6.2.2 | 511.26 | The Reconfiguration ML element definition does not include a STA Profile field. Hence this requirement need to be removed. | Remove the requirement for the STA Profile field. | Revised  Removed the text capturing requirement for the STA Profile field.  TGbe editor, please make the changes tagged by CID #15994 in 11-23/0360r0. |
| 15995 | 35.3.6.2.2 | 511.33 | Clarify that the affiliated AP is the one being removed. | Change to "The affiliated AP being removed may transmit BSS Transition Management Request frame(s) to notify..." | Revised  Text has been revised as per the suggestion to clarify.  TGbe editor, please make the changes tagged by CID #15995 in 11-23/0360r0. |
| 15996 | 35.3.6.2.2 | 511.56 | "AP Removal Timer field" -> "AP Removal Timer subfield" | As in comment | Accepted |
| 16110 | 35.3.6.2.2 | 511.01 | There is a comma missing after 'element' in the sentence 'in the Reconfiguration Multi-Link element the MLD MAC Address Present subfield shall be set to 0.' | As in the comment | Revised  Text has been revised to add comm and further clarify.  TGbe editor, please make the changes tagged by CID #16110 in 11-23/0360r0. |
| 16111 | 35.3.6.2.2 | 511.10 | the' should be added before 'same' in the sentence '...which has the AP MLD ID subfield set to same value as the BSSID index....' | As in the comment | Revised  Text has been revised as per the suggestion to clarify.  TGbe editor, please make the changes tagged by CID #16111 in 11-23/0360r0. |
| 16241 | 35.3.6.2.2 | 512.53 | Typo "MLD association". | Change "MLD association" to "association". | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #16241 in 11-23/0360r0. |
| 16466 | 35.3.6.2.2 | 511.08 | "..., the corresponding the AP MLD ..." please chang it to "..., the corresponding AP MLD ..." | As in comment | Revised  Same resolution as CID 15051.  TGbe editor, please make the changes tagged by CID #15051 in 11-23/0360r0. |
| 16583 | 35.3.6.2.2 | 510.57 | typo: replace "with removes" --> "which removes", as suggested. Otherwise - the sentence is erroneous. | Revise the sentence as follows: "When an AP MLD with which an AP corresponding to a nontransmitted BSSID in a multiple BSSID set is affiliated \*which\* removes one or more affiliated APs, .." | Revised  Same resolution as CID 15400.  TGbe editor, please make the changes tagged by CID #15400 in 11-23/0360r0. |
| 16584 | 35.3.6.2.2 | 511.02 | Replace "for" with "corresponding to" in the following sentence " The AP MLD for which AP removal information is provided .. shall be identified by the MLD MAC Address subfield of the Basic Multi-Link element \*for\* the same AP MLD ...", as suggested for improve the wording in the cited sentence | Revise the sentence as follows: " The AP MLD for which AP removal information is provided .. shall be identified by the MLD MAC Address subfield of the Basic Multi-Link element \*corresponding to\* the same AP MLD ..." | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #16584 in 11-23/0360r0. |
| 16585 | 35.3.6.2.2 | 511.59 | Rephrase the sentence for better wording/ clarity, as suggested: "The BSS Termination Duration field ..., with the BSS Termination TSF field of the subelement set to the value of the TSF timer when the BSS \*the affiliated AP belongs to\* will be terminated." | Revise the sentence as follows: "The BSS Termination Duration field ..., with the BSS Termination TSF field of the subelement set to the value of the TSF timer when the BSS\*, to which the affiliated AP corresponds,\* will be terminated." | Revised  Text has been revised for clarity.  TGbe editor, please make the changes tagged by CID #16585 in 11-23/0360r0. |
| 16586 | 35.3.6.2.2 | 512.07 | Rephrase the sentence for clarity, as suggested: "The Disassociation Timer field in all subsequent transmitted BSS Transition Management Request frames shall be set to the value of this timer." | Revise the sentence as follows: " In all subsequent transmitted BSS Transition Management Request frames, the Disassociation Timer field shall be set to the value of this timer." | Rejected  The sentence as captured currently conveys the intended meaning clearly. No change needed. |
| 17937 | 35.3.6.2.2 | 511.23 | "sufficiently" has the same meaning as "enough", please remove one of them. | delete either "sufficiently" or "enough" | Revised  Removed enough and kept sufficient.  TGbe editor, please make the changes tagged by CID #17937 in 11-23/0360r0. |
| 17938 | 35.3.6.2.2 | 511.23 | "large enough time" should be "long enough time" | change "large" to "long" | Revised  Same resolution as CID 17937.  TGbe editor, please make the changes tagged by CID #17937 in 11-23/0360r0. |
| 17939 | 35.3.6.2.2 | 511.23 | change "the removal of affiliated AP" to "the removal of the affiliated AP" | As in the comment | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #17939 in 11-23/0360r0. |
| 17940 | 35.3.6.2.2 | 511.23 | Add "the" before "Reconfiguration Multi-Link element" | As in the comment | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #17940 in 11-23/0360r0. |
| 18115 | 35.3.6.2 | 510.12 | Delete the title 35.3.6.2 and promote 35.3.6.2.1 and 35.3.6.2.2 one level up to 35.3.6.2 and 35.3.6.3 respectively | As in comment | Revised  Reorganized clauses as per the suggestion.  TGbe editor, please make the changes tagged by CID #18115 in 11-23/0360r0. |
| 18120 | 35.3.6.2.2 | 511.06 | There is no such frame as Multi-Link Probe Response. Replace as multi-link probe response. | As in comment | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #18120 in 11-23/0360r0. |
| 18127 | 35.3.6.2.2 | 513.18 | Add 'then' after the comma. | As in comment | Revised  Text has been revised as per the suggestion.  TGbe editor, please make the changes tagged by CID #18127 in 11-23/0360r0. |

**3.4 Abbreviations and acronyms**

***TGbe editor: Please insert the following acronym definition (maintaining alphabetical order)***

(#15401)BTM BSS Transition Management

***TGbe editor: Please delete title “35.3.6.2 Adding or removing affiliated APs”. Move “35.3.6.2.1 Adding affiliated APs” one level up to “35.3.6.2 Adding affiliated APs” and Move “35.3.6.2.2 Removing affiliated APs” one level up to “35.3.6.3 Removing affiliated APs”***

**(#18115)**

**(#18115)35.3.6.2 Adding affiliated APs**

***TGbe editor: Please update the first paragraphs in this subclause as shown below:***

An AP MLD may add one or more affiliated APs to the AP MLD (see 6.3.11.2 (MLME-START.request)). (#15986)Each added affiliated AP shall be announced through the Basic Multi-Link element by incrementing the Maximum Number Of Simultaneous Links subfield of the MLD Capabilities and Operations subfield by 1, and through the Reduced Neighbor Report element by including a TBTT Information field containing the MLD Parameters subfield for the added AP, in the Beacon and Probe Response frames transmitted by other APs affiliated with the same AP MLD.

**(#18115)35.3.6.3 Removing affiliated APs**

***TGbe editor: Please update the first 5 paragraphs in this subclause as shown below:***

An AP MLD may remove one or more of its affiliated APs (see 6.3.136.2 (MLME-BSS-APREMOVAL.request)). An AP MLD that is an NSTR mobile AP MLD shall not remove the affiliated AP operating on the primary link (see 35.3.19 (NSTR mobile AP MLD operation)). The AP MLD shall announce the removal of any affiliated AP through a Reconfiguration Multi-Link element (see 9.4.2.312.4 (Reconfiguration Multi-Link element)) in all Beacon frames transmitted by its affiliated APs, (#15862)as well as in all Probe Response frames it transmits, until the affiliated AP is removed.

(#15400)When an AP MLD corresponding to the AP of a nontransmitted BSSID in a multiple BSSID set removes one or more affiliated APs, the Reconfiguration Multi-Link element carrying information of the removed AP(s) shall be included within the corresponding nontransmitted BSSID profile of the Multiple BSSID element contained in the Beacon frame and Probe Response frame transmitted by the transmitted BSSID in the same multiple BSSID set.

In the Reconfiguration Multi-Link element (#16110) transmitted in Beacon and Probe Response frames, the MLD MAC Address Present subfield shall be set to 0. The AP MLD for which (#15863)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 (#16584) corresponding to the same AP MLD carried in the same management frame.

NOTE 1—In a (#18120) multi-link probe response frame sent in response to a multi-link probe request directed to a nontransmitted BSSID of a multiple BSSID set, for a Reconfiguration Multi-Link element included in the nontransmitted BSSID profile of the Multiple BSSID element, the corresponding (#15051)AP MLD for which (#15863)the AP removal information is provided is identified by the MLD MAC Address subfield of the Basic Multi-Link element, included in the same management frame outside of the Multiple BSSID element, which has the AP MLD ID subfield set to (#16111)the same value as the BSSID Index subfield of the Multiple-BSSID Index element carried in the same nontransmitted BSSID profile as the Reconfiguration Multi-Link element.

For each affiliated AP that the AP MLD intends to remove, the Reconfiguration Multi-Link element shall include a Per-STA Profile subelement with the subfields of the STA Control field set as following: The Link ID subfield shall identify the AP being removed, the Complete Profile subfield shall be set to 0, the STA MAC Address Present subfield shall be set to 0, (#15991)and the AP Removal Timer Present subfield shall be set to 1. The AP Removal Timer subfield in the STA Info field shall be set to the number of TBTTs of the affiliated AP before it is removed or for the NSTR mobile AP MLD the AP Removal Timer subfield shall be set to the number of the TBTTs of the AP operating on the primary link before the affiliated AP operating on the non-primary link is removed. The initial value of the AP Removal Timer subfield should point to a TBTT value that provides (#17937)sufficient time to announce the removal of (#17939)the affiliated AP such that all associated non-AP MLDs including the ones in power save mode have the opportunity to receive (#17940)the Reconfiguration Multi-Link element at least once before the AP is removed. (#15994)

***TGbe editor: Please update 7th and 8th paragraph in this subclause as shown below:***

The affiliated AP (#15995)being removed may transmit BSS Transition Management Request frame(s) to notify of (#15401)(#15864)the termination of its BSS to associated non-AP STAs that support BTM and are not affiliated with a non-AP MLD or to notify of (#15864)the termination of its BSS to non-AP MLDs associated with the AP MLD of the affiliated AP. The affiliated AP shall transmit BSS Transition Management Request frame(s) if there are associated non-AP STAs that are not affiliated with a non-AP MLD and that support BTM to notify such non-AP STAs of (#15864)the termination of its BSS.

If the affiliated AP being removed transmits BSS Transition Management Request frame(s) to notify (#15402)(#15865)of the termination of its BSS, the SME of that affiliated AP shall perform the following procedure to terminate the BSS:

…

— The BSS Termination Duration field shall be present and contain a BSS Termination Duration

subelement (see 9.4.2.36 (Neighbor Report element)), with the BSS Termination TSF field of the subelement set to the value of the TSF timer when the BSS (#16585) corresponding to the affiliated AP will be terminated. The BSS Termination TSF field value shall indicate a time that is later than the TBTT the Disassociation Timer field value points to.

***TGbe editor: Please update 12th paragraph in this subclause as shown below:***

When the affiliated AP being removed (#15403)does not transmit BSS Transition Management Request frame(s) to notify of the termination of its BSS, the SME of the affiliated AP shall terminate the corresponding BSS at the TBTT indicated by the value of the AP Removal Timer subfield.

***TGbe editor: Please update 15th 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, an associated non-AP MLD shall consider the link corresponding to the removed AP nonexistent, and the SME of the affiliated non-AP STA associated with the removed affiliated AP 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 (#16241)the association information.

***TGbe editor: Please update NOTE 4 in this subclause as shown below:***

NOTE 4—An AP MLD with two affiliated APs might remove one of its affiliated APs, and in such case, the AP MLD has only one affiliated AP after the AP removal. Further, in such case, the non-AP MLD that is associated with the AP MLD with two setup links (#15521)before the AP removal has only one setup link corresponding to an affiliated non-AP STA after the AP is removed.

***TGbe editor: Please update last paragraph in this subclause as shown below:***

If an AP affiliated with an AP MLD is removed and if the link associated with the removed AP is one of the EMLSR links or the EMLMR links for one or more non-AP MLDs, (#18127)then the AP MLD shall remove the corresponding link from the EMLSR links and/or EMLMR links (as applicable) of those non-AP MLDs.