IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| LB271 CR 35.3.18 part 1 | | | | |
| Date: 2023-03-14 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Liwen Chu |  |  |  | Liwen.chu@nxp.com |

Abstract

This submission proposes resolutions for multiple comments related to TGbe D3.0 with the following CIDs:

16383, 16935, 15623, 16558, 15624, 16936, 17865, 15418, 15648, 16937,

15625, 16938, 15829, 16939

Revisions:

* Rev 0: Initial version of the document.

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** | **PP** | **LL** | **Comment** | **Proposed Change** | Resolution |
| 16383 | 569 | 62 | The cited sentence is a run-on sentence and is impossible to parse. | Replace the paragraph with the following: "Enhanced multi-link multi-radio (EMLMR) operation allows a non-AP MLD with multiple radios in multiple links to listen on the EMLMR links when the corresponding affiliated STAs are in the awake state. An initial PPDU sent by an AP affiliated with an AP MLD whose Nss satisfy the receiving STA's receiving capabilities are followed by frame exchanges that satisfy the MCS, Nss capabilities in EMLMR mode on the link on which the initial frame was received. | Revised.  Agree in principle. Paragraph is restructured to improve content.  TGbe editor to make change in THIS DOCUMENT with CID tag 16383 |
| 16935 | 569 | 64 | "an initial frame sent by an AP affiliated with an AP MLD in a PPDU whose Nss satisfy the receiving STA's receiving capabilities, followed by frame exchanges that satisfy the MCS, Nss capabilities in EMLMR mode on the link on which the initial frame was received." sounds as if the initial PPDU doesn't have the satisfy the STA's MCS capabilities. Also I think it's NSS or N\_SS not Nss | Change to "an initial frame sent by an AP affiliated with an AP MLD in a PPDU whose Nss satisfy the receiving STA's initial receiving capabilities, followed by frame exchanges that satisfy the full capabilities in EMLMR mode on the link on which the initial frame was received." | Revised.  Agree in principle. Paragraph is restructured to improve content.  TGbe editor to make change in THIS DOCUMENT with CID tag 16935 |
| 15623 | 570 | 1 | Change satisfy to satisfies | As the comment | Revised.  Disagree in principle. Satisfy is correct since it refers to both MCS and NSS. But taragraph is restructured to improve conten, hence revised.  TGbe editor to make change in THIS DOCUMENT with CID tag 15623 |
| 16558 | 570 | 9 | The following sentence should clarify which bit positions in the EMLMR Link bitmap shall be set to 1, as suggested: "The EMLMR links shall be indicated in the EMLMR Link Bitmap subfield of the EML Control field of the EML Operating Mode Notification frame (see 9.6.35.8 (EML Operating Mode Notification frame details)) by setting the bit positions of the EMLMR Link Bitmap subfield to 1" | The sentence should be revised as follows: "The EMLMR links shall be indicated in the EMLMR Link Bitmap subfield of the EML Control field of the EML Operating Mode Notification frame (see 9.6.35.8 (EML Operating Mode Notification frame details)) by setting the bit positions \*corresponding to the Link ID value of these links in\* the EMLMR Link Bitmap subfield to 1" | Revised.  Agree in principle. Minor editorial suggestions along with the proposed change.  TGbe editor to make change in THIS DOCUMENT with CID tag 16558 |
| 15624 | 570 | 16 | In which case to set the EML Capabilities Present subfield to 0? | Please clarify it | Rejected  The comment fails to identify a technical issue and is asking a question. Answer: the related text “An MLD with dot11EHTEMLSROptionActivated equal to false and dot11EHTEMLMROptionActivated equal to false shall set the EML Capabilities Present subfield to 0.” is in P564L12 of 11be D3.0. |
| 16936 | 570 | 20 | "A non-AP MLD with dot11EHTEMLMROptionActivated equal to true shall indicate the number of spatial streams NSS that it supports for reception and transmission on any EMLMR link during EMLMR operation " is not clear. Is this the initial NSS supported or the NSS after the first frame? | Clarify | Revised  Agree in principle. Clarified text to specify that it is the latter one.  TGbe editor to make change in THIS DOCUMENT with CID tag 16936 |
| 17865 | 570 | 27 | Can this statement not be simplified as 'An EMLMR STA shall not be a 20 MHz-only non-AP EHT STA'? | As in comment | Revised  Discussion: Generally agree with the commenter.  TGbe editor to make change in THIS DOCUMENT with CID tag 17865 |
| 15418 | 570 | 43 | The description of EMLMR does not make clear how this feature would be used. Clarifying the operation of the feature will make it easier to understand the elements that make it up. | Add a description of possible operation of EMLMR at the end of the paragaph. For example, "An EMLMR non-AP MLD might use two fully functional radios to monitor separate links. If the EMLMR non-AP MLD receives a soliciting frame from its peer MLD (e.g., AP MLD) on one link, the EMLMR non-AP MLD then switches the radio from the other link to that link to increase the number of spatial streams that it can support." | Revised  Agree in principle. Paragraph is restructured to improve content.  TGbe editor to make change in THIS DOCUMENT with CID tag 15418 |
| 15648 | 570 | 47 | remove "value" in "the Transition Timeout subfield value" | as the comment | Accepted |
| 16937 | 570 | 48 | "After transmitting Ack solicited" missing article and "frame" | Add "the" before "Ack" and add "frame" after. Also add "frame" after "Ack" at line 53 | Accepted |
| 15625 | 570 | 53 | The sentence excludes other EMLMR APs. The response EMLMR Operating Notification frame can be sent by any EMLMR AP affiliated with the AP MLD. | The response EMLMR Operating Notification frame can be sent by any EMLMR AP affiliated with the AP MLD. | Revised  TGbe editor to make change in THIS DOCUMENT with CID tag 15625 |
| 16938 | 570 | 53 | "The AP should send an EML Operating Mode Notification frame for confirming the mode switch" allows the AP to not confirm | Change to "The AP shall queue for transmission an EML Operating Mode Notification frame for confirming the mode switch" | Rejected  Discussion: the timeout mechanism in **35.3.18 (Enhanced multi-link multi-radio operation)** allows the AP MLD to not send the EML OMN frame. |
| 15829 | 570 | 59 | "The non-AP MLD shall transit to the indicated mode immediately.." transition is more appropriate here instead of transit | Replace with "The non-AP MLD shall transition to the indicated mode immediately..." | Accepted  Note: Changes are shown in the doc. |
| 16939 | 570 | 59 | "successfully receiving" -- you either receive or you don't | Change to "receiving" | Accepted  Note: Changes are shown in the doc. |

*TGbe editor: Please change 35.3.18 as follows:*

**35.3.18 Enhanced multi-link multi-radio operation**

(#16383, 16935, 15623, 15418) Enhanced multi-link multi-radio (EMLMR) operation allows a non-AP MLD with multiple radios in multiple links to listen on the EMLMR links when the corresponding STAs affiliated with the non-AP MLD are in awake state. A frame exchange in eMLMR mode is initiated by an AP affiliated with an AP MLD with a PPDU whose MCS and NSS satisfy the receiving STA’s most recently advertised receiving capabilities and is followed by one or more frame exchanges that satisfy enhanced MCS and NSS capabilities for the link on which the initial frame was received, where these enhanced MCS and NSS capabilities are advertised in the most recently received EMLMR Supported MCS And NSS Set subfield of an EML Operating Mode Notification frame sent by the non-AP MLD

(#16558) A non-AP MLD may operate in the EMLMR mode on a specified set of the enabled links as defined in 9.4.1.74 (EML Control field) between the non-AP MLD and its associated AP MLD. The specified set of the enabled links in which the EMLMR mode is applied is called EMLMR links. A non-AP STA affiliated with the non-AP MLD that is on an EMLMR link is an EMLMR STA. The EMLMR links shall be indicated in the EMLMR Link Bitmap subfield of the EML Control field of the EML Operating Mode Notification frame (see 9.6.35.8 (EML Operating Mode Notification frame details)) by setting the bit positions corresponding to the link IDs of these links in the EMLMR Link Bitmap subfield to 1.

An MLD with dot11EHTEMLMROptionActivated equal to true shall set the EML Capabilities Present subfield to 1 and shall set the EMLMR Support subfield of the Common Info field of transmitted Basic Multi-Link elements to 1; otherwise, the MLD shall set the EMLMR Support subfield to 0 if present.

(#16936) A non-AP MLD with dot11EHTEMLMROptionActivated equal to true shall indicate the number of spatial streams, NSS, that it supports for reception and transmission during frame exchanges on any EMLMR link, which followthe initial frame exchange in the EMLMR Supported MCS And NSS Set subfield of the EML Control field of the EML Operating Mode Notification frame.

(#17865) An EMLMR non-AP STA shall not be a 20 MHz-only non-AP EHT STA.

(#16935)The supported rates, HT-MCS, VHT-MCS, and HE-MCS for a bandwidth and NSS shall be the same as the supported EHT-MCS for the corresponding bandwidth and NSS unless the corresponding MCS is not defined. If the MCS is not defined in the corresponding PHY amendment, the highest MCS support is implied.

When a non-AP MLD with dot11EHTEMLMROptionActivated equal to true (re)associates with an AP MLD, the EMLMR mode is disabled by default. If a non-AP MLD with dot11EHTEMLMROptionActivated equal to true intends to enable or disable EMLMR mode after association with an AP MLD that sets its EMLMR Support subfield to 1, then a non-AP STA affiliated with the non-AP MLD shall transmit an EML Operating Mode Notification frame with EMLMR Mode subfield equal to 1 or 0, respectively.

(#15625) After successful transmission of the EML Operating Mode Notification frame from the non-AP STA affiliated with the non-AP MLD to an AP affiliated with an AP MLD, the non-AP STA initializes the transition timeout timer with the value in the Transition Timeout subfield value of the Basic Multi-Link element received from the AP MLD. After transmitting Ack solicited by the EML Operating Mode Notification frame from a non-AP STA affiliated with the non-AP MLD, the AP MLD initializes the transition timeout timer with the value in the Transition Timeout subfield of the Basic Multi-Link element announced by the AP MLD. The transition timeout timer begins counting down from the end of the PPDU containing the Ack solicited by the EML Operating Mode Notification frame. An AP affiliated with the AP MLD that receives an EML Operating Mode Notification frame from a non-AP STA affiliated with the non-AP MLD should send an EML Operating Mode Notification frame to confirm the mode switch at the AP MLD to the non-AP STA with EML Control field set to the same value as EML Control field in the received EML Operating Mode Notification frame from the non-AP STA before the transition timeout expires.

(#15829, 16939)The non-AP MLD shall transition to the indicated mode immediately after receiving the EML Operating Mode Notification frame from the AP or immediately after the transition timeout timer expires, whichever comes first.

……