IEEE P802.11
Wireless LANs

|  |
| --- |
| LB275 Comment Resolution - EMLSR(Part 1) |
| Date: 2023-9-25 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Minyoung Park | Intel Corporation |  |  | Minyoung.park@intel.com |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes comment resolution(s) for the following 37 CID(s) received in LB275 on TGbe D4.0 related to the EMLSR Operation in subclause 35.3.17, Clause 9, and Annex AF.14:

CIDs:

19292 19028 19970 19971 19973 19974 19575 19834 19833 19029

19586 19838 19032 19595 19293 19294 19030 19577 19031 19208

19839 19207 19033 19001 19724 19658 20087 19659 19402 19580

19401 19835 19899 19836 19837 19510 19333

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: removed 3 CIDs 19521, 19522, 19523 from r0

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 19292 | John Wullert | 35.3.17 | 563.15 | The phrase "followed by frame exchanges" is not consistent with the subject of the sentence ("a non-AP MLD") | Rephrase as "The EMLSR operation defined in this subclause allows a non-AP MLD with multiple receive chains to listen on one or more EMLSR links when the corresponding non-AP STAs affiliated with the non-AP MLD are in the awake state as defined below for an initial Control frame sent by an AP affiliated with an AP MLD in a non-HT (duplicate) PPDU and then participate in frame exchanges on the link on which the initial Control frame was received. | Accepted. |
| 19028 | Xiaogang Chen | 35.3.17 | 563.40 | "An AP affiliated with the AP MLD should successfully transmit an EML Operating ModeNotification frame," successfully cannot be guarenteed | remove "successfully" | Rejected.“successfully’ was added in a previous LB to emphasize that the immediate response to the transmitted EML OMN frame by the AP needs to be received before the end of the transition timeout interval. It is also using ‘should’ and not ‘shall’ so doesn’t need to be guaranteed. |
| 19970 | Rubayet Shafin | 35.3.17 | 563.47 | TDLS or P2P operation for a non-AP MLD while the non-AP MLD is operating in EMLSR mode is currently missing and needs to be provided. | as in comment. | Rejected.TDLS or P2P operation can be supported when a non-AP MLD is in EMLSR mode by a simple power save indication. When the non-AP MLD wants to participate in P2P, it can indicate it is in PS mode to the AP MLD during the P2P operation. |
| 19971 | Rubayet Shafin | 35.3.17 | 563.47 | Assuming two non-AP MLDs have already set up peer-to-peer link(s) over one or multiple links between the two non-AP MLDs, the procedure for turning on the EMLSR mode for the P2P communication between the two non-AP MLDs is not defined. Moreover, the procedure for EMLSR operation for P2P communication between two non-AP MLDs is currently missing in the spec. | Procedures for turning on EMLSR mode and EMLSR operation between two non-AP MLDs communicating over the P2P links needs to be described in the spec. | Rejected.In the current TGbe draft 4.0, EMLSR mode is defined between an AP MLD and a non-AP MLD and not between two non-AP MLDs. Defining EMLSR mode between non-AP MLDs needs careful considerations. Based on doc.11-11/1625r2 (comment resolution guide), such a comment asking the CRC to do more work that is nontrivial is an invalid comment. |
| 19973 | Rubayet Shafin | 35.3.17 | 563.47 | For the scenario where multiple TWT agreements/schdules or restricted TWT schedules are established on multiple links between an AP MLD and a non-AP MLD, and if those links are also included in the EMLSR links and if the TWT service periods (SPs) on those links are overlapping in time or nearly overlapping in time, then, due to the nature of EMLSR operation, the r-TWT frame exchanges on either of the links may not be successful. | The spec needs to provide text to address the issue EMLSR operation with multiple overlapping r-TWT SPs on multiple links. | Rejected.When multiple overlapping (R-)TWT SPs are scheduled between an AP MLD and a non-AP MLD, an AP MLD can choose one of the overlapping (R-)TWT SPs that is idle to initiate frame exchanges. |
| 19974 | Rubayet Shafin | 35.3.17 | 563.47 | When multiple restricted TWT schedules are established on multiple links between an AP MLD and a non-AP MLD, and if the non-AP MLD is operating in EMLSR mode, and if those links are also included in the EMLSR links and if the TWT service periods (SPs) on those links are overlapping in time or nearly overlapping in time, then, due to the nature of EMLSR operation, the r-TWT frame exchanges on either of the links may not be successful. | The spec needs to provide text to address the issue EMLSR operation with multiple overlapping r-TWT SPs on multiple links. | Rejected.When multiple overlapping (R-)TWT SPs are scheduled between an AP MLD and a non-AP MLD, an AP MLD can choose one of the overlapping (R-)TWT SPs that is idle to initiate frame exchanges. |
| 19575 | Xiandong Dong | 35.3.17 | 563.63 | After link(s) was/were enabed/disabled between a non-AP MLD and it's associated AP MLD, the EMLSR/EMLMR links may be changed. It would be cumbersome to renegotiate the EMLSR/EMLMR links through the EML Operation Mode Notification frame every time a link is enabled/disabled. | As in comment | Rejected.Updating the EMLSR links just needs two EML OMN frames exchanged between an AP MLD and a non-AP MLD (each EML OMN frame followed by an immediate acknowledgement), which is a simple procedure. |
| 19834 | Vishnu Ratnam | 35.3.17 | 564.06 | Suppose a single radio non-AP MLD in EMLSR mode goes to doze state on all EMLSR links and switches a non-EMLSR link to active mode to perform frame exchanges there. Subsequently, if the non-AP MLD transitions one of the EMLSR links to awake state by sending a PS poll, is the non-EMLSR link implicitly assumed to switch to doze state without explicitly setting PM bit to 1? The text here seems to suggest that this is the case. | Please clarify. | Rejected.This is an invalid comment (see doc. 11-11/1625r2). The commenter is asking a question and is not proposing a change that can be interpreted in any sense as “specific wording.”The cited sentence is to clarify that for a single radio MLD, a STA that is not operating on one of the EMLSR link(s) cannot be in the awake state while a STA operating on one of the EMLSR link(s) is in the awake state.  |
| 19833 | Vishnu Ratnam | 35.3.17 | 564.21 | The section should have some details indicating the implications of do11EHTEMLSROptionImplemented and dot11EHTEMLSROptionActivated. The distinction is not fully clear from the text. | As in the comment. | Rejected.The descriptions are in Annex C (see page 946 line 23 and line 36 in TGbe D4.0). |
| 19029 | Xiaogang Chen | 35.3.17 | 564.58 | " The non-AP MLD shall operate in the EMLSR mode on the EMLSR links and the other non-APSTAs affiliated with the non-AP MLD operating on the corresponding EMLSR links, which did nottransmit the EML Operating Mode Notification frame, shall transition to active mode without beingrequired to transmit a frame with the Power Management subfield set to 0," not easy to understand the intension... | try this"The non-AP MLD shall operate in the EMLSR mode on the EMLSR links. The other non-APSTAs affiliated with the non-AP MLD operating on the corresponding EMLSR links, which did nottransmit the EML Operating Mode Notification frame, shall transition to active mode without beingrequired to transmit a frame with the Power Management subfield set to 0" see if this is the intension | Rejected.The EMLSR mode enablement and the power state change of the other non-AP STAs that didn’t transmit the EML OMN frame happens when either condition a) or b) that follows the sentence is met. So the proposed change is not correct.  |
| 19586 | Xiangxin Gu | 35.3.17 | 564.60 | Power state of a STA operating on an EMLSR link complies with the power management procedure (refer to note 2) with the exception here. There is no such an exception in EMLMR. However, the exception is not necessary. | Remove the exception (make the power state of an EMLSR STA right after EMLSR mode enabling align with the power state of an EMLSR STA later) | Rejected.The cited sentence below was added in the previous LB to clarify that those STA(s) don’t need to transmit an extra frame to change the power state when enabling the EMLSR mode:“…, shall transition to active mode without being required to transmit a frame with the Power Management subfield set to 0,…”Also EMLMR and EMLSR are two independent operation modes. |
| 19838 | Vishnu Ratnam | 35.3.17 | 565.25 | "The transition timeout interval is indicated in the Transition Timeout subfield in the EML Capabilities subfield of the Basic Multi-Link element". Transmitted by who? | Mention that the Basic Multi-Link element is transmitted by the AP MLD. | Rejected.In Clause 9.4.2.312.2 (Basic Multi-Link element), it is already clarified that the subfield is reserved when transmitted by a STA affiliated with a non-AP MLD and the subfield is set to a value when transmitted by an AP affiliated with an AP MLD. |
| 19032 | Xiaogang Chen | 35.3.17 | 566.09 | "An AP affiliated with the AP MLD that initiates frame exchanges that are neither group addressedData nor group addressed Management frames with the non-AP MLD on one of the EMLSR linksshall begin the frame exchanges by transmitting the initial Control frame to the non-AP MLD withthe limitations specified below" is this enabling the ICF transmission before EMLOMN frame? if so, please make it explicit | clarify if this implicitly enable the ICF before EMLOMN | Rejected.This is an invalid comment (see doc. 11-11/1625r2). The commenter is asking a question and is not proposing a change that can be interpreted in any sense as “specific wording.”The cited sentence is after the EMLSR mode is enabled. After the EMLSR mode is enabled, based on the cited sentence, when an EML OMN frame is transmitted on an EMLSR link by the corresponding AP affiliated with an AP MLD, it requires ICF. |
| 19595 | Xiangxin Gu | 35.3.17 | 566.09 | ICF is not needed during non-overlapping R-TWT SP | Suggest to add an optional operation for an AP MLD with to start EMLSR DL frame exchange with a non-AP MLD without ICF during their R-TWT SP. | Rejected.ICF may be needed when the R-TWT SP is occupied by an OBSS that doesn’t follow the R-TWT rules or any non-Wi-Fi interference and need to use the other EMLSR link for frame exchanges. |
| 19293 | John Wullert | 35.3.17 | 566.16 | The second and third bullets in the set are requirements on the non-AP MLD and thus do not fit in this list. In addition, the requirements are covered in very similar text in item e) page 567 | Delete the second and third bullet items (the ones that begin "The non-AP MLD". | Rejected.The two bullet items are requirements for the initial Control frame that are indicated by a non-AP MLD. All 5 bullet items are related to the initial Control frame requirements. |
| 19294 | John Wullert | 35.3.17 | 566.33 | The remainder of the text, after the first sentence, describes requirements on the non-AP MLD and thus does not fit in this list, which is stated to be the conditions that apply to the AP MLD when it begins frame exchanges in EMLSR mode. | Leave first sentence and move remaining text in the bullet, starting with "A non-AP STA affiliated..." to the start of item d). | Revised.Agree in principle. TGbe editor to make the changes with the CID tag (#19294) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |
| 19030 | Xiaogang Chen | 35.3.17 | 566.46 | we don't need note 4 in spec to specify receiver's behavior | remove the note 4 | Rejected.It is a note that provides additional information for clarity. |
| 19577 | Xiandong Dong | 35.3.17 | 566.57 | The non-AP STA(s) affiliated with the non-AP MLD operating on EMLSR Link(s) those didn't receive the initial control frame shall not transmit or receive frames but remain in listening mode until the end of frame exchanges on the link on which the initial control frame was received. This results in additional power consumption on the non-AP MLD side. | As in comment | Rejected.The comment is not correct. There is no such requirement for a STA to stay in the listening operation while frame exchanges are happening on the other EMLSR link. |
| 19031 | Xiaogang Chen | 35.3.17 | 566.60 | "and the minimum MAC padding duration of the Padding field of the initial Control frame," not sure how this is related to the capability of receiving a PPDU after response to ICF... | capability of receiving a PPDU should only related to the modes that non-AP STA supports. Therefore this padding duration should be removed. | Rejected.“the minimum MAC padding duration of the Padding field of the initial Control frame” contributes to the time at which the STA affiliated with the non-AP MLD can start receiving a PPDU described in the paragraph. |
| 19208 | Minyoung Park | 35.3.17 | 567.16 | Delete ')' after 'MLD'. | As in the comment. | Accepted. |
| 19839 | Vishnu Ratnam | 35.3.17 | 567.64 | Can an AP transmit to another EMLSR STA during this TXOP? | Add the following: "During the TXOP, AP(s) affiliated with the AP MLD shall not transmit frames to the other non-AP STA(s) affiliated with the non-AP MLD on the other EMLSR link(s). | Revised.Agree with the proposed change.TGbe editor to make the changes with the CID tag (#19839) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |
| 19207 | Minyoung Park | 35.3.17 | 568.06 | The indentation before NOTE 6 and NOTE 7 should be removed. Probably editing error from D3.1 to D3.2. Align them with NOTE 8. | As in the comment. | Accepted. |
| 19033 | Xiaogang Chen | 35.3.17 | 568.22 | "NOTE 10--The MU-RTS Trigger frame can be used to initiate frame exchanges with one or more STAs affiliated withnon-AP MLDs in the EMLSR mode." it's not quite clear what's this note for...is this exclusive for MU-RTS and not for BFRP? | The behavior seems straighforward. Please clarify what's the intension of this note which specifically calls out MURTS instead of BFRP. | Revised.This NOTE is supposed to go with the figure that illustrates MU-RTS initiated frame exchange sequence.TGbe editor to move NOTE 10 after Figure AF-47 in TGbe D4.0 P1026. |
| 19001 | Chaoming Luo | 35.3.17 | 569.43 | A single link MLD will never have EMLSR links. 'EMLSR link(s)' may misleading to there is a case that an MLD has only one EMLSR link. Similar issue in P569L52. | Change 'EMLSR link(s)' to 'EMLSR links'.Change 'non-AP STA(s)' to 'non-AP STAs'. | Rejected.A non-AP MLD can use a single EMLSR link for power save purpose.  |

**TGbe Editor to make the following changes in Subclause 35.3.17 (Enhanced multi-link single radio operation) in TGbe D4.0 Page566 L33 by moving the second sentence out from the last bullet item and make it as a new item d) and update the numbering of the items that follow: (#**19294)

• The initial Control frame shall be an MU-RTS Trigger frame or a BSRP Trigger frame. The number of spatial streams for the response to the BSRP Trigger frame shall be limited to one, which shall be indicated in the BSRP Trigger frame.

NOTE 3—Whether to use the MU-RTS Trigger frame or the BSRP Trigger frame as the initial Control frame to initiate the frame exchanges is implementation specific and out of scope of this standard.

NOTE 4—If an AP MLD has received an EML Operating Mode Notification frame with the In-Device Coexistence Activities subfield of the EML Control field set to 1 from a non-AP MLD, and the AP MLD does not receive a response to an initial Control frame that it transmits to the non-AP MLD, then the AP can consider the nonresponse as a result of the in-device coexistence events at the non-AP MLD on the link where the frame was transmitted. The AP is recommended to consider the in-device coexistence indication and select appropriate transmission parameters and methods for the non-AP MLD.

d)

e) After receiving the initial Control frame of frame exchanges and transmitting an immediate response

frame as a response to the initial Control frame,…

**TGbe Editor to make the following changes in Subclause 35.3.17 (Enhanced multi-link single radio operation) in TGbe D4.0 Page567 L65: (#19839)**

k) When a non-AP STA affiliated with the non-AP MLD initiates a TXOP, the following applies:

• The non-AP MLD shall be switched back to the listening operation on the EMLSR links after the EMLSR transition delay time indicated by the non-AP MLD after the end of the TXOP.

• During the TXOP, AP(s) affiliated with the AP MLD shall not transmit frames to the other non-AP STA(s) affiliated with the non-AP MLD on the other EMLSR link(s).(#19839)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 19724 | Arik Klein | 35.3.17 | 564.01 | The following sentence does not clarify which bit positions in the EMLSR Link bitmap shall be set to 1: "The EMLSR links shall be indicated in the EMLSR Link Bitmap subfield of the EML Control field of the EML Operating Mode Notification frame by setting the bit positions of the EMLSR Link Bitmap subfield to 1".Please clarify this point, as suggested. | The sentence should be revised as follows: "The EMLSR links shall be indicated in the EMLSR Link Bitmap subfield of the EML Control field of the EML Operating Mode Notification frame by setting the bit positions \*corresponding to the Link ID value of these links in\* the EMLSR Link Bitmap subfield to 1" | Revised.Agree in principle.TGbe editor to make the changes with the CID tag (#19724) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |

**TGbe Editor to make the following changes in Subclause 35.3.17 (Enhanced multi-link single radio operation) in TGbe D4.0 Page563 L63:**

A non-AP MLD may operate in the EMLSR mode on a specified set of the enabled links between the non-AP MLD and its associated AP MLD. The specified set of the enabled links on which the EMLSR mode is applied is called EMLSR links. The EMLSR links shall be indicated in the EMLSR Link Bitmap subfield of the EML Control field of the EML Operating Mode Notification frame by setting the bit positions (#19724)corresponding to the Link ID value(s) of the EMLSR link(s) in the EMLSR Link Bitmap subfield to 1. For the EMLSR mode enabled in a single radio non-AP MLD, the STA(s) affiliated with the non-AP MLD that operates on the enabled link(s) that corresponds to the bit position(s) of the EMLSR Link Bitmap subfield equal to 0 shall be in the doze state if a non-AP STA affiliated with the non-AP MLD that operates on one of the EMLSR links is in the awake state.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 19658 | Yongho Seok | 35.3.17 | 564.03 | "For the EMLSR mode enabled in a single radio non-AP MLD, the STA(s) affiliated with the non-AP MLD that operates on the enabled link(s) that corresponds to the bit position(s) of the EMLSR Link Bitmap subfield equal to 0 shall be in the doze state if a non-AP STA affiliated with the non-AP MLD that operates on one of the EMLSR links is in the awake state."Otherwise, can the correpespoding STA operate in either doze or awake state? Please specify the missing part. | Change as the following:"When the EMLSR mode is enabled in a single radio non-AP MLD, the STA(s) affiliated with the non-AP MLD that operates on the enabled link(s) that corresponds to the bit position(s) of the EMLSR Link Bitmap subfield equal to 0 shall be in the doze state if a non-AP STA affiliated with the non-AP MLD that operates on one of the EMLSR links is in the awake state.When the EMLSR mode is enabled in a multi-radio non-AP MLD, the STA(s) affiliated with the non-AP MLD that operates on the enabled link(s) that corresponds to the bit position(s) of the EMLSR Link Bitmap subfield equal to 0 shall follow the 35.3.12 (Multi-link power management)." | Rejected.This is an invalid comment (see doc. 11-11/1625r2). The commenter is asking a question.The EMLSR operation for a multi-radio non-AP MLD was heavily discussed in the group but the group couldn’t reach consensus. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 20087 | Liuming Lu | 35.3.17 Enhanced multi-link single radio operation | 566.05 | How the non-AP MLD operating in the EMLSR mode receives the group addressed frame is unclear, such as whether it is needed to be switched to an EMLSR link before receiving the group addressed frame on this link. | A procedure for the transmission and reception of the group addressed frames between an AP MLD and its associtated non-AP MLDs operating in the EMLSR mode needs to be specified. | Rejected.The current draft specifies that it follows the rules in 35.3.15 (multi-link operation group addressed frames). When a non-AP MLD intends to receive beacon/group addressed frames on a link, it needs to be prepared on that link before the transmissions of the frames. |
| 19659 | Yongho Seok | 35.3.17 | 567.61 | The STA should end the TXOP at least an EMLSR transition delay, indicated in the EMLSR Transition Delay subfield, before the TBTT of another EMLSR link if the non-AP MLD intends to receive the next DTIM Beacon frame and group addressed frame(s) in the other EMLSR link that are scheduled to be transmitted at that TBTT. | Insert the following:"The STA should end the TXOP at least an EMLSR transition delay, indicated in the EMLSR Transition Delay subfield, before the TBTT of another EMLSR link if the non-AP MLD intends to receive the next DTIM Beacon frame and group addressed frame(s) in the other EMLSR link that are scheduled to be transmitted at that TBTT." | Rejected.The current draft doesn’t prevent the suggested behavior and since the STA has full control to end the TXOP if it intends to receive beacon/group addressed frames on another link, it is unnecessary to define the proposed behaviors. |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 19402 | Geonjung Ko | 35.3.17 | 567.20 | An MU-RTS TXS Trigger frame may be used as an initial Control frame for the EMLSR mode in the current spec. When a non-AP STA on the EMLSR link is allocated a time by the triggered TXOP sharing procedure, the non-AP STA is switched back to the listening operation during the allocated time. This undesired switching back operation needs to be fixed.After the non-AP STA on the EMLSR link sends PPDU 1 to the AP during the allocated time, the AP would send PPDU 2 as a response to PPDU 1. PPDU 2 includes a frame that does not require immediate response. When the non-AP STA sends PPDU 3 after PPDU 2, PPDU 3 transmission and the timeout interval (page 567, line 20) overlap. Therefore, the non-AP STA would not receive a PHY-RXSTART.indication primitive during the timeout interval, and then the MLD that the non-AP STA is affiliated with is switched back to the listening operation during the allocated time following the spec. | The non-AP STA on the EMLSR link should not be switched back to the listening operation during the allocated time. Also the condition for switching back in p.g. 567, line 20 should be applied only outside the allocated time. | Revised.Added a rule to clarify that the switch back rule to the listening operation applies after the end of the allocated time indicated in the MU-RTS TXS Trigger frame and not during the allocated time. TGbe editor to make the changes with the CID tag (#19402) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |
| 19580 | Juseong Moon | 35.3.17 | 567.65 | This comment was submitted in LB271, but the comment was not properly discussed. When a non-AP STA affiliated with an EMLSR non-AP MLD performs a TXS operation as defined in 35.2.1.2 and transmits a CTS response to a MU-RTS frame, since it shall switch back after the end of the frame exchanges as defined in 35.3.17 due to not receiving PHY-RXSTART.indication in shared TXOP, it can not perform TXS operation. Therefore, EMLSR non-AP STA MLD's transmission to the AP or to a peer STA is not possible. The 802.11be draft shall define an EMLMR non-AP MLD's TXS operation. | Add the following text:k) When a non-AP STA affiliated with the non-AP MLD is addressed in an MU-RTS TXS Trigger frame, the following applies:\* The non-AP MLD shall be switched back to the listening operation on the EMLSR links not later than the EMLSR transition delay time most recently indicated by the non-AP MLD, as measured immediately after the end of the allocated time specified in 35.2.1.2 (Triggered TXOP sharing procedure). | Revised.Added a rule to clarify that the switch back rule to the listening operation applies after the end of the allocated time indicated in the MU-RTS TXS Trigger frame and not during the allocated time. TGbe editor to make the changes with the CID tag (#19402) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |
| 19401 | Geonjung Ko | 35.3.17 | 566.33 | Following this text, an MU-RTS TXS Trigger frame can be the initial Control frame. However, when a STA in the EMLSR link received the MU-RTS TXS Trigger frame, it is unclear which sequence the STA should follow. After the CTS frame, the transmitter is the AP and the non-AP STA in the EMLSR operation and the triggered TXOP sharing procedure, respectively. | Please clarify the operation when a STA receives the MU-RTS TXS Trigger frame on the EMLSR link. | Revised.Added a rule to clarify that the switch back rule to the listening operation applies after the end of the allocated time indicated in the MU-RTS TXS Trigger frame and not during the allocated time. TGbe editor to make the changes with the CID tag (#19402) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |

**TGbe Editor to insert the following new item right after item g) in Subclause 35.3.17 (Enhanced multi-link single radio operation) in TGbe D4.0 Page567 L52 and update the numbering of the items: (#**19402)

h) When an MU-RTS TXS Trigger frame that is addressed to a non-AP STA affiliated with the non-AP MLD is received by the non-AP STA, the rules defined in item g) shall not apply to the non-AP MLD during the allocated time indicated in the MU-RTS TXS Trigger frame and the non-AP MLD shall not switch back to the listening operation during the allocated time.(#19402)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.****Line** | **Comment** | **Proposed Change** | **Resolution** |
| 19835 | Vishnu Ratnam | 9.4.1.70 | 209.12 | Is this dot11EHTEMLSROptionImplemented or dot11EHTEMLSROptionActivated? There seems to be lack of clarity between what each of these two MIB variables signify. | Please clarify. | Revised.dot11EHTEMLSROptionActivated is correct since the EMLSR Support subfield can be set to 0 or 1 depending on the value of dot11EHTEMLSROptionActivated.TGbe editor to make the changes with the CID tag (#19835) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |
| 19899 | Liwen Chu | 9.4.1.72 | 211.21 | This field should be the subfield of EML Control field since whether it is carried in EML OMN is decided by a bit in EML Control field. | As in comment. | Rejected.The current structure is cleaner as the EMLSR Parameter Update field is separate from the EML Control field with different functions. |
| 19836 | Vishnu Ratnam | 9.4.2.312.2.3 | 248.18 | The EMLSR Support subfield of the EML Capabilities field has different meaning when transmitted by an AP MLD and by a non-AP MLD. For AP MLD, it indicates whether it can support transmission to/from an MLD operating in EMLSR mode. For a non-AP MLD it indicates whether it is capable of transitioning to EMLSR mode. This is not clear from the text. Also for generality and clarity it is better to have separate bits for such indication. | For generality and future compatibility, it is better to have separate indications for: (a)supporting transmission with an EMLSR device and (b) indicating capability of transitioning to an EMLSR mode. | Rejected.The EMLSR Support subfield indicates whether an MLD supports the EMLSR operation defined in 35.3.17. An AP MLD and a non-AP MLD have their roles in the EMLSR operation in addition to the ones described in the comment.  |
| 19837 | Vishnu Ratnam | 9.4.2.312.2.3 | 249.30 | The EMLMR Support subfield of the EML Capabilities field has different meaning when transmitted by an AP MLD and by a non-AP MLD. For AP MLD, it indicates whether it can support transmission to/from an MLD operating in EMLMR mode. For a non-AP MLD it indicates whether it is capable of transitioning to EMLMR mode. This is not clear from the text. Also for generality and clarity it is better to have separate bits for such indication. | For generality and future compatibility, it is better to have separate indications for: (a)supporting transmission with an EMLMR device and (b) indicating capability of transitioning to an EMLMR mode. | Rejected.The EMLMR Support subfield indicates whether an MLD supports the EMLMR operation defined in 35.3.18. An AP MLD and a non-AP MLD have their roles in the EMLMR operation in addition to the ones described in the comment. |
| 19510 | Michael Montemurro | 9.6.35.8 | 318.52 | [WFA-R] s/Otherwise, not present./Otherwise, it is not present./ | As in comment | Revised.Agree with the comment.TGbe editor to make the changes with the CID tag (#19510) in doc.: IEEE 802.11-23/1658r1[https://mentor.ieee.org/802.11/dcn/23/11-23-1658-01-00be-lb275-cr-emlsr-part1.docx] |
| 19333 | Yingqiao Quan | AF.14 | 1026.44 | Figure AF-47 does not provide enough information for the EMLSR operation to the readers but just showing that MU-RTS can be the ICF in EMLSR operation. Since the EMLSR operation is one of an enhanced multi-link operation, the figure should involve multiple links in. | Suggest to add one or more figures or revise this figure to show the operating states of an EMLSR enabled non-AP MLD and the affiliated non-AP STAs on multiple links. | Rejected.Figure AF-47 illustrates an example of a frame exchange sequence that starts with the MU-RTS Trigger frame as the initial Control frame. Since frame exchanges happen on one link, adding another link will just result in adding a link in the figure with no frame exchanges on that link.  |

**TGbe Editor make the following change in Subclause 9.4.1.70 (EML Control field) in TGbe D4.0 Page209 L12: (#**19835)

**9.4.1.70 EML Control field**

**…**

The EMLSR Link Bitmap subfield indicates the subset of the enabled links that is used by the non-AP MLD in the EMLSR mode. The bit position *i* of the EMLSR Link Bitmap subfield corresponds to the link with the Link ID equal to *i* and is set to 1 to indicate that the link is used by the non-AP MLD for the EMLSR mode and is a member of the EMLSR links; otherwise, the bit position is set to 0. An AP MLD with (#19835)dot11EHTEMLSROptionActivated equal to true sets the EMLSR Link Bitmap subfield to the value obtained from the EMLSR Link Bitmap subfield of the received EML Operating Mode Notification frame. The EMLSR Link Bitmap subfield is present if the EMLSR Mode subfield is equal to 1 and is not present otherwise.

**TGbe Editor make the following change in Subclause 9.6.35.8 (EML Operating Mode Notification frame details) in TGbe D4.0 Page318 L52: (#**19510)

**9.6.35.8 EML Operating Mode Notification frame details**

**…**

The EMLSR Parameter Update field is optionally present in the EML Operating Mode Notification frame. The EMLSR Parameter Update field is present if the EMLSR Parameter Update Control subfield of the EML Control field is equal to 1 and the EML Operating Mode Notification frame is sent by a non-AP STA affiliated with a non-AP MLD; otherwise, (#19510)it is not present. The EMLSR Parameter Update field is defined in 9.4.1.72 (EMLSR Parameter Update field).