IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CC34 Comment Resolution for EMLSR – Part 4 | | | | |
| Date: 2021-2-23 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Minyoung Park | Intel Corporation |  |  | Minyoung.park@intel.com |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes comment resolutions for the following CIDs related to the EMLSR Delay subfield received in CC34:

* 1773
* 2603
* 2742
* 2745
* 2916
* 2917
* 2937
* 3206
* 2143

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: 2917 resolution changed to Revised.
* Rev 2: Revised based on Young Hoon’s comment.
* Rev 3: Revised based on comments during the MAC call on March 29 (see highlighted part in cyan). Added CID 2143. Added the EML Capabilities Present subfield to the Multi-Link Control field and made related changes.
* Rev 4: Changed the length of the EML Capabilities field and the Reserved subfield in the EML Capabilities field to ‘variable’ (Yong Hoon’s comment)
* Rev 5: Changed ‘EML’ to ‘EMLSR’ to indicate only EMLSR capabilities and changed the size of the field to fixed length. (per Alfred’s comment and discussion with Young Hoon)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause Number** | **Page.**  **Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1773 | Ilya Levitsky | 35.3.14 | 145.15 | EMLSR Delay field is used in 35.3.14 (Enhanced multi-link single radio operation) but is not defined in 9.4.2.295b.2 (Basic variant Multi-Link element) | Define EMLSR Delay field in 9.4.2.295b.2 (Basic variant Multi-Link element) | Revised.  The EMLSR Delay subfield is added to the Basic variant Multi-link element in 9.4.2.295b.2. The EMLSR mode subfield is also added.  TGbe editor to make the changes with the CID tag (#1773) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |
| 2603 | Rojan Chitrakar | 35.3.14 | 145.15 | EMLSR Delay field is not reflected in 9.4.2.295b.2. | Add EMLSR Delay field in 9.4.2.295b.2. | Revised.  The EMLSR Delay subfield is added to the Basic variant Multi-link element in 9.4.2.295b.2. The EMLSR mode subfield is also added.  TGbe editor to make the changes with the CID tag (#2603) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |
| 2742 | Sanghyun Kim | 35.3.14 | 145.15 | "EMLSR Delay" has two meaning in the subclause. (1. "the delay time needed by the non-AP MLD", 2. "MAC padding duration") But, the delay time needed by the non-AP MLD is not the same with "MAC padding duration". Because there are two SIFSs and a Response frame(CTS for MU-RTS) in the sequence. | Clarify the difference between "the delay time needed by the non-AP MLD" and "MAC padding duration of the Padding field" and "link switch delay".  And, make sure that the "MAC padding duration" shall longer than or equal to "delay time needed by the non-AP MLD" - SIFS - Response frame duration - SIFS | Rejected.  The EMLSR Delay field has one meaning and indicates the delay time needed by a non-AP MLD in the MAC padding field of the MU-RTS or BSRP Trigger frame to operate in the EMLSR mode. |
| 2745 | Sanghyun Kim | 35.3.5.3 | 145.15 | Typo "initial Control field" | Change "initial Control field" to "initial Control frame" | Revised.  The EMLSR Delay subfield is added to the Basic variant Multi-link element in 9.4.2.295b.2. The typo has been fixed.  TGbe editor to make the changes with the CID tag (#2745) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |
| 2916 | SunHee Baek | 35.3.14 | 145.15 | Delete "needed by the non-AP MLD" because the subject of the sentence is already the non-AP MLD. | change "The non-AP MLD shall indicate the delay time needed by the non-AP MLD in the" to "The non-AP MLD shall indicate the delay time in the". | Revised.  The sentence is revised as follows: “The non-AP MLD shall indicate a delay time duration in the EMLSR Delay  field in the Common Info field of the Basic variant Multi-Link element.”  TGbe editor to make the changes with the CID tag (#2916) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |
| 2917 | SunHee Baek | 35.3.14 | 145.20 | Add table about the value of the EMLSR Delay field based on the description. | Add a table to simplify the description of the EMLSR Delay field. The description is "The EMLSR Delay field is 3 bits and set to 0 for 0 μs, set to 1 for 32 μs, set to 2 for 64 μs, set to 3 for 128 μs, set to 4 for 256 μs, and the values 5 to 7 are reserved." | Revised.  The definition of the EMLSR Delay field is moved to Clause 9 under the definition of the Basic variant Multi-Link element. Current description is simple enough and adding a table seems not necessary.  TGbe editor to make the changes with the CID tag (#2917) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |
| 2937 | Thomas Handte | 35.3.14 | 145.05 | Seeing that we accept a EMLSR delay of up to 256us, I would suggest to add another option for a non-AP MLD that operates in EMLSR mode which allows the AP to make shorter padding of the initial control frame by considering the duration of response frame, too. | If supported, the non-AP MLD may transmit a response to the initial control frame when sent as OFDM PPDU or non-HT duplicate PPDU format using a rate of 6, 12 or 24 Mbps. [at line 25] ... or, if supported, after the response to the initial Control frame, the non-AP MLD shall be able to transmit or receive frames on the link in which the initial Control frame was received..." | Rejected.  The comment does not clearly identify an issue of the EMLSR delay of 256 usec.  The EMLSR Delay subfield indicates the delay time needed by a non-AP MLD in the MAC padding field of the MU-RTS or BSRP Trigger frame to operate in the EMLSR mode. |
| 3206 | Young Hoon Kwon | 35.3.14 | 145.17 | The dexplanation on the EMLSR Delay field should be described in sub-clause 9.4.2.XXX. | As shown in the comment. | Revised.  The definition of the EMLSR Delay subfield is moved to subclause 9.4.2.295b.2 (Basic variant Multi-Link element).  TGbe editor to make the changes with the CID tag (#3206) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |
| 2143 | Laurent Cariou | 35.3.14 | 0.00 | EMLSR mode subfield should be changed to EMLSR mode supported subfield | as in comment | Revised.  The name is changed to ‘EMLSR Support’ subfield to be consistent with the EMLMR Support subfield.  TGbe editor to make the changes with the CID tag (#2143) in doc.: IEEE 802.11-20/319r5  [https://mentor.ieee.org/802.11/dcn/21/11-21-0319 -04-00be-cc34-cr-emlsr-part4.docx] |

**9.4.2.295bMulti-Link element**

**9.4.2.295b.1 General**

…

**TGbe Editor to make the following changes in Subclause 9.4.2.295b.1:**

The format of the Multi-Link Control field is defined in Figure 9-788eg (Multi-Link Control field).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | B0 TBD | TBD | TBD | TBD B15 |
|  | Type | MLD MAC Address Present | EMLSR Capabilties Present | Reserved |
| Bits: | TBD | 1 | 1 | TBD |

**Figure 9-788eg—Multi-Link Control field**

The EMLSR Capabilities Present subfield is set to 1 if the EMLSR Capabilities field is present in the Common Info field. Otherwise the subfield is set to 0.

**TGbe Editor to make the following changes in Subclause 9.4.2.295b.2:**

**9.4.2.295b.2 Basic variant Multi-Link element**

The Basic variant Multi-link element is used to carry information of an MLD and its affiliated STAs during multi-link discovery (see 35.3.4.3 (Multi-link element usage rules in the context of discovery)) and multilink setup (see 35.3.5.4 (Usage and rules of Basic variant Multi-link element in the context of multi-link setup)).

The format of the Common Info field of the Basic variant Multi-Link element is defined in Figure 9-788eh  
(Common Info field of the Basic variant Multi-Link element format).

**TGbe Editor to insert the following EMLSR Capabilities subfield in figure 9-788eh Common Info field of the Basic variant Multi-Link element format: (#1773, 2603).:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | MLD MAC Address | EMLSR Capabilties | TBD |
| Octets: | 0 or 6 | 0 or 1 | TBD |

**Figure 9-788eh—Common Info field of the Basic variant Multi-Link element format**

The condition for the presence of the MLD MAC Address field in the Common Info field is defined in  
35.3.5.4 (Usage and rules of Basic variant Multi-link element in the context of multi-link setup) and 35.3.4.3  
(Multi-link element usage rules in the context of discovery).

The condition for the presence of the EMLSR Capabilities field in the Common Info field is defined in 35.3.14 (Enhanced multi-link single radio operation).

|  |  |  |  |
| --- | --- | --- | --- |
|  | EMLSR Support | EMLSR Delay | Reserved |
| Bits: | 1 bit | 3 bits | 4 bits |

**Figure 9-788eh1—EMLSR Capabilities subfield format (#1773, 2603)**

The format of the EMLSR Capabilities subfield is defined in Figure 9-788eh1 (EMLSR Capabilities subfield format). The EMLSR Capabilities subfield contains the EMLSR Support subfield and the EMLSR Delay subfield. All other bits are reserved. (#1773, 2603)

The EMLSR Support subfield indicates support of the EMLSR operation for an MLD. The EMLSR Support subfield is set to 1 if the MLD supports the EMLSR operation; otherwise set to 0. (#1773, 2603)

The EMLSR Delay subfield indicates the MAC padding duration of the Padding field of the initial Control frame defined in 35.3.14 (Enhanced multi-link single radio operation). The EMLSR Delay field is 3 bits and set to 0 for 0 µs, set to 1 for 32 µs, set to 2 for 64 µs, set to 3 for 128 µs, set to 4 for 256 µs, and the values 5 to 7 are reserved.(#1773, 2603, 3206, 2745, 2917)

**35.3.14 Enhanced multi-link single radio operation**

**TGbe Editor to change the following paragraph in P213L47 of 802.11be D0.4 as follows: (#2143, 3206)**

An MLD with dot11EHTEMLSROptionImplemented equal to true shall set the EMLSR Capabilities Present subfield to 1 and shall set the EMLSR Support subfield of the Common Info field of the Basic variant Multi-Link element to 1; otherwise, the MLD shall set the EMLSR Support subfield to 0.(#2143, 3206)

**TGbe Editor to change the following paragraph in P214L3 of 802.11be D0.4 as follows: (#2916, 1773, 3206)**

— The non-AP MLD shall indicate the delay time duration in the EMLSR Delay subfield of the EMLSR Capabilities subfield in the Common Info field of the Basic variant Multi-Link element.(#2916, 1773, 2603) (#3206)