IEEE P802.11
Wireless LANs

|  |
| --- |
| **TGbe LB 266 CR for CIDs for Subclause 35.3.5.4** |
| Date: 2022-09-02 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Insun Jang | LG Electronics | 19, Yangjae-daero 11gil, Seocho-gu, Seoul 137-130, Korea |  | insun.jang@lge.com |
| Sunhee Baek |  | sunhee.baek@lge.com |
| Jinsoo Choi |  | js.choi@lge.com |

Abstract

This submission proposes resolutions for following 31 CIDs received for TGbe LB266:

10235, 11047, 10236, 11048, 10628, 10629, 10734, 10735, 11421, 11422, 11423, 11424, 11425, 11426, 11427, 11741, 13361, 13362, 13690, 13732, 13984, 13985, 10019, 11638, 10020, 11639, 10631, 10630, 11564, 11566, 11740

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.***

**List of CIDs**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 10235 | John Wullert | 35.3.5.4 | 424.17 | Note 1 seems out of place - it is situated between two paragraphs that adddress the Common Info field but it does not deal with that. | Move NOTE 1 to a position between the prior to paragraphs (i.e., before the paragraph that starts on line 14 and begins "The Basic Multi-Link element..." | RevisedAgree in principle with the commenter. The cited paragraph moves before the sentence “The Basic Multi-Link element carried in the (Re)Association Request frame shall include the Common Info field and may include the Link Info field”. In addition, it was revised by putting MIB variable instead “not support ML operation”.**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 10235** |
| 11047 | Po-Kai Huang | 35.3.5.4 | 424.17 | For the note "#6624)NOTE 1--When a (Re)Association Request frame is sent from a non-AP EHT STA that does not support themulti-link operation, the Basic Multi-Link element is not carried in the (Re)Association Request frame.", it is based on Table 9-62 and Table 9-64 and and 35.3.1 General. Add reference to the note. | Add "See Table 9-62, Table 9-64 and 35.3.1 General." at the end of the note. | RevisedAgree in principle with the commenter. The revised text adds the references commented**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 11047** |
| 10236 | John Wullert | 35.3.5.4 | 424.52 | Note 2 seems out of place - it is situated between two paragraphs that adddress the Common Info field but it does not deal with that. | Move NOTE 2 to a position between the prior to paragraphs (i.e., before the paragraph that starts on line 49 and begins "The Basic Multi-Link element...".Also, second note on page was not given a number. That should be NOTE 2, this should be NOTE 3, and the final note on the page should be NOTE 4. | RevisedAgree in principle with the commenter. The cited paragraph moves before the sentence “The Basic Multi-Link element carried in the (Re)Association Response frame shall include the Common Info field and may include the Link Info field”. In addition, it was revised by putting MIB variable instead “not support ML operation”.**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 10236** |
| 11048 | Po-Kai Huang | 35.3.5.4 | 424.53 | For the note "NOTE 2--When a (Re)Association Response frame is sent to a non-AP EHT STA that does not support the multi-linkoperation, the Basic Multi-Link element is not carried in the (Re)Association Response frame.", it is based on Table 9-63 and Table 9-65 and and 35.3.1 General. Add reference to the note. | Add "See Table 9-63 and Table 9-65, and 35.3.1 General" at the end of the note. | RevisedAgree in principle with the commenter. The revised text adds the references commented**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 11048** |
| 10628 | Abhishek Patil | 35.3.5.4 | 424.15 | Clarify the case when a non-AP MLD may not include Link Info field. Perhaps a NOTE that provides an example such as a non-AP MLD that is capable of operating on 2.4 GHz and 5 GHz is associating with an AP MLD that is operating on 5 GHz and 6 GHz. In such case, there is only one overlapping link between the two MLDs and that the (Re)Association Request frame is sent on 5 GHz link containing Basic Multi-Link element without the Link Info field. Same comment for paragraph on line 50 of this (424) page. | As in comment | RevisedAgree in principle with the commenter. The revised text provides an example as a NOTE for the very first cited paragraph.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10628** |
| 10629 | Abhishek Patil | 35.3.5.4 | 424.20 | Description in clause 9.4.2.312.2 explains which subfields are present in the Common Info field and includes the conditions or references to normative text in clause 35.3.x. This paragraph doesn't need to duplicate Description in clause 9.4.2.312.2 explains which subfields are present in the Common Info field and includes the conditions or references to normative text in clause 35.3.x. Duplicating information runs the risk of making different part of the spec out of sync. This paragraph doesn't need to duplicate clause 9. Same comment applies to paragraph starting line 56 on this (424) page. | Delete the cited paragraphs from the two locations | RevisedAgree in principle with the commenter. There are several places (e.g., clauses 9, 35) describing the presence conditions of subfields in Common Info field carried in (Re)Association frames. We can list up in this subclause again, but which makes it too complicated to be consistent with other places. In terms of spec, 802.11 discourage to repeat the same rules/behaviors across multiple subclauses. Therefore, the two cited paragraph and their relevant NOTEs are removed.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 10734 | Insun Jang | 35.3.5.4 | 424.20 | Requirements for several fields in the Common info field of the Basic ML IE carried in the (Re)Association Request frame are missing | As in the comment, desciptions for missing parts needs to be added | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 10735 | Insun Jang | 35.3.5.4 | 424.20 | Requirements for several fields in the Common info field of the Basic ML IE carried in the (Re)Association Response frame are missing | As in the comment, desciptions for missing parts needs to be added | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11421 | Gaurang Naik | 35.3.5.4 | 424.21 | Typo: 'Common info field' --> 'Common Info field'. Same change on P424L56. | As in comment | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11422 | Gaurang Naik | 35.3.5.4 | 424.22 | There is no need to specify the presence of mandatory fields (such as MLD MAC address). Same comment for P424L56. | Either remove 'MLD MAC address' from the list or add 'Common Info lenth' subfield to the list. Also, 'A' should be capitalized in 'MLD MAC address'. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11423 | Gaurang Naik | 35.3.5.4 | 424.24 | A non-AP MLD also does not include the MLD ID subfield in the Basic ML element it transmits. | Add 'MLD ID' in the list of subfields not carried in the Common Info field in the Basic ML element carried in (Re)Assoc Request frames. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11424 | Gaurang Naik | 35.3.5.4 | 424.56 | (Re)Assoc Response frames carry Medium Synchronization Delay Information subfield in the Basic ML element. | add 'and may include the Medium Synchronization Delay Information subfield' at the end of the paragraph. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11425 | Gaurang Naik | 35.3.5.4 | 424.24 | EML Capabilities subfield is not always present. Per 35.3.17, if dpt11EHTEMLSROptionImplemented is false and dot11EHTEMLMROptionImplemented is false, then EML Capabilities is absent. Same comment for (Re)Assoc Response frame, P424L58 | Change the condition for EML Capabilities from shall to may and refer to 35.3.17. Do the same on P424 L58 for (Re)Association Response frame. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11426 | Gaurang Naik | 35.3.5.4 | 424.58 | An AP MLD does not include MLD ID subfield in the Common Info field of (Re)Assoc Response frames it transmits. | Add 'MLD ID' in the list of subfields not carried in the Common Info field in the Basic ML element carried in (Re)Assoc Response frames. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11427 | Gaurang Naik | 35.3.5.4 | 424.61 | NOTE 3 is a duplicate of NOTE2. | Delete Note 3. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 11741 | Gaurav Patwardhan | 35.3.5.4 | 424.20 | Capitalize 'i' in "Common info" | as in comment | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 13361 | Liwen Chu | 35.3.5.4 | 424.22 | The inclusion of EML Capabilities subfield transmitted by non-AP MLD is not mandatory requirement. | As in comment | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 13362 | Liwen Chu | 35.3.5.4 | 424.57 | The inclusion of the EML Capabilities subfield shouldbe optional. | As in comment | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 13690 | Yunbo Li | 35.3.5.4 | 424.60 | same contents in NOTE and NOTE 3, can remove one of them. | Remove NOTE or NOTE 3. | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 13732 | Yunbo Li | 35.3.5.4 | 425.30 | The bullet "the STA shall include the MLD MAC address of the MLD with which the STA is affiliated in the Common Info field of the element" is redudant. Because MLD MAC Address field is mandatory to carry. | remove that bullet | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 13984 | Geonjung Ko | 35.3.5.4 | 424.20 | Change "Common info" to "Common Info". | As in comment | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 13985 | Geonjung Ko | 35.3.5.4 | 424.55 | Change "Common info" to "Common Info". | As in comment | RevisedThe cited text was removed by CID 10631.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10629** |
| 10019 | Morteza Mehrnoush | 35.3.5.4 | 424.29 | It's not clear what the "each requested link" is referring to; suggesting to istead use "each requesting ML (re)setup link". | as in comment | RevisedAgree in principle with the commenter. The cited paragraph needs more information to clarify when and how it works. The revised text provides more clarifications by adding a proper condition.**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 10019** |
| 11638 | Morteza Mehrnoush | 35.3.5.4 | 424.29 | It's not clear what the "each requested link" is referring to; suggesting to instead use "each requesting ML (re)setup link". | as in comment | RevisedAgree in principle with the commenter. The cited paragraph needs more information to clarify when and how it works. The revised text provides more clarifications by adding a proper condition.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10019** |
| 10020 | Morteza Mehrnoush | 35.3.5.4 | 425.01 | It's not clear what the "each requrested link" is referring to; suggesting to istead use "each requesting ML (re)setup link". | as in comment | RevisedAgree in principle with the commenter. The cited paragraph needs more information to clarify when and how it works. The revised text provides more clarifications by adding a proper condition.**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 10020** |
| 11639 | Morteza Mehrnoush | 35.3.5.4 | 425.01 | It's not clear what the "each requested link" is referring to; suggesting to instead use "each requesting ML (re)setup link". | as in comment | RevisedAgree in principle with the commenter. The cited paragraph needs more information to clarify when and how it works. The revised text provides more clarifications by adding a proper condition.**TGbe editor, please incorporate the changes as shown in 22/1399r1 under CID 10020** |
| 10631 | Abhishek Patil | 35.3.5.4 | 425.24 | The sentence comes out of the blue without any reference to which frame carries the STA Control field. Clause 35.3.2.1 provides such details. | Delete the sentence. | RevisedAgree in principle with the commenter. Subclauses 35.3.2.1 and 9.4.2.312.2 were already mentioned the usage of Link ID clearly. Two paragraphs regarding Link ID are removed**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 10631** |
| 10630 | Abhishek Patil | 35.3.5.4 | 425.16 | What does "if the Status Code is not set to REFUSED\_REASON\_UNSPECIFIED " mean? | Delete: "if the Status Code is not set to REFUSED\_REASON\_UNSPECIFIED" | RevisedWe’ve discussed this issue in the last round (CC36). Some members pointed out it always doesn’t have to set to “DENIED\_LINK\_ON\_WHICH\_THE\_(Re)ASSOCIATION\_FRAME\_IS\_ TRANSMITTED\_NOT\_ACCEPTED” while allowing the commented status code “REFUSED\_REASON\_UNSPECIFIED”.Instead, NOTE related to that commented status code, it would be better to change it to normative text. It is clearly correct.**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 10630** |
| 11564 | Xiaofei Wang | 35.3.5.4 | 425.28 | The description of authentication seems to be out of place and should be moved to other sections. | as in comment | RevisedAgree in principle with the commenter. Instead of moving the cited paragraph, the title of subclause is changed to “Usage and rules of Basic Multi-Link element in the context of multi-link (re)setup and security”**TGbe editor, please make changes as shown in doc 11-22/1399r1 tagged as CID 11564** |
| 11566 | Xiaofei Wang | 35.3.5.4 | 424.32 | If just one link is being requested during MLD association, it is easier to just conduct regular AP/STA assocation, in order to avoid transmitting ML element to save overhead. | as in comment | RejectedBy referring the following text in D2.1, “*A non-AP EHT STA with dot11MultiLinkActivated set to true shall be affiliated with a non-AP MLD. The non-AP EHT STA and its affiliated non-AP MLD follow the rules defined in 35.3 (Multi-link operation)*” and “*The Basic Multi-Link element is present if dot11MultiLinkActi-vated is true and the Association Request frame is sent to an AP affiliated with an AP MLD; otherwise it is not present. "* in Table 9-62, it means that the AP MLD and non-AP MLD always include Basic ML IE during (Re)Association Request/Response frame exchange for multi-link setup |
| 11740 | Gaurav Patwardhan | 35.3.5.4 | 424.05 | The sentence "When a non-AP MLD initiates a multi-link (re)setup with an AP MLD, a STA that is affiliated with the non-AP MLD shall transmit an (Re)Association Request frame on the link that it desires to use as part of the multi-link (re)setup." does not exclude the case where a non-AP MLD can add a link by sending a (Re)Association Request frame on the new link which it desires to be a part of the existing multi-link setup. Please clarify | as in comment | RejectedWe don’t have any method to add one link while maintaining the current multi-link setup and associate state. Based on current spec, we need to do multi-link teardown and then would try to do an association request, including additional link the non-AP MLD wants to operate |

**Proposed spec text:**

*TGbe editor: The baseline for this document is 11be D2.1.1*

*TGbe editor: Please modify the subclause 35.3.5.4 (Usage and rules of Basic Multi-Link element)in the context of multi-link (re)setup as follows:*

*TGbe editor: Please modify the title of subclause 35.3.5.4 “Usage and rules of Basic Multi-Link element in the context of multi-link (re)setup and authentication between two MLDs” (by CID 11564)*

35.3.5.4 Usage and rules of Basic Multi-Link element in the context of multi-link (re)setup (#11564) and authentication between two MLDs

A non-AP MLD may initiate a multi-link setup with an AP MLD to (re)set up one or more links with AP(s) affiliated with the AP MLD. When a non-AP MLD initiates a multi-link (re)setup with an AP MLD, a STA that is affiliated with the non-AP MLD shall transmit an (Re)Association Request frame on the link that it desires to use as part of the multi-link (re)setup. An AP that is affiliated with the AP MLD shall transmit an (Re)Association Response frame on the link on which it received the (Re)Association Request frame.

A STA affiliated with a non-AP MLD that initiates a multi-link (re)setup with an AP MLD shall include a Basic Multi-Link element in an (Re)Association Request frame it transmits.

(#10235, #11047)with dot11MultiLinkActivated set to false (see Table 9-62, Table 9-64, and 35.3.1 (General))

The Basic Multi-Link element carried in the (Re)Association Request frame shall include the Common Info field and may include the Link Info field.

(#10628)NOTE 2—For example, when a non-AP MLD has two non-AP STAs which are capable of operating on 2.4 GHz and 5 GHz bands, respectively, and an AP MLD is capable of operating on 5 GHz and 6 GHz bands, there exists only one link on 5 GHz band for the non-AP MLD to request a multi-link (re)setup. In this case, the non-AP STA capable of operating on 5 GHz band can transmit (Re)Association Request frame carrying the Basic Multi-Link element which does not include Link Info field.

(#10629)(#10629)

(#10019)If there is other requested link(s) in addition to the link on which the (Re)Association Request frame is transmitted, the Basic Multi-Link element carried in the (Re)Association Request frame shall include the Link Info field, and for each requested link, the Link Info field shall contain the corresponding Per-STA Profile subelement(s).

If there is no other requested link in addition to the link on which the (Re)Association Request frame is transmitted, the Basic Multi-Link element carried in the (Re)Association Request frame shall not include the Link Info field.

(#10631)The AP that is affiliated with the AP MLD and that responds to an (Re)Association Request frame that carries a Basic Multi-Link element shall include a Basic Multi-Link element in the (Re)Association Response frame that it transmits.

(#10236, #11048)3with dot11MultiLinkActivated set to false (see Table 9-63, Table 9-65, and 35.3.1 (General)).

The Basic Multi-Link element carried in the (Re)Association Response frame shall include the Common Info field and may include the Link Info field.

 (#10020)If there is other requested link(s) in addition to the link on which the (Re)Association Request frame was transmitted, the Basic Multi-Link element carried in the (Re)Association Response frame shall contain the Link Info field, and for each requested link, the Link Info field shall contain the corresponding Per-STA Profile subelement(s).

(#10630)shall be

If there is no other requested link in addition to the link on which the (Re)Association Response frame is transmitted, the Basic Multi-Link element carried in the (Re)Association Response frame shall not include the Link Info field.

(#10631)

A STA affiliated with an MLD shall include a Basic Multi-Link element in an Authentication frame that it transmits with the following rules:

—the STA shall include the MLD MAC address of the MLD with which the STA is affiliated in the Common Info field of the element

—the STA shall set all subfields in the Presence Bitmap subfield of the Multi-Link Control field of the element to 0

—the STA shall not include the Link Info field of the element.