IEEE P802.11
Wireless LANs

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| LB 266 Resolution for 9.4.1.74 EML Control field |
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Abstract

This submission proposes resolutions for the following CIDs for TGbe LB266:

10936 10986 11383 11506 11507 11681 11898 11899 11900 12344 12871 12872 13459 13460 13554

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.***

***TGbe editor: The baseline for this document is 11be D2.0.***

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| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 10936 | Thomas Handte | 9.4.1.74 | 192.03 | In order to avoid misuse of EMLMR, it should be stated that the entries in MCS map in EMLMR operation should be larger than the corresponding entries in non-EMLMR operation (i.e. Figure 9-1002ah--Supported EHT-MCS And NSS Set field), becaue otherwise there is no use EMLMR | as in comment. For example "At least one entry in the MCS Map subfields shall be larger than corresponding entry in non-EMLMR as defined in "Supported EHT-MCS And NSS Set field" | Rejected.The non-AP MLD will decide which values are good to use in the MCS maps. There is no benefit for the non-AP MLD to enable EMLMR mode if it sets the entries in MCS Map for EMLMR operation smaller than the corresponding entries in EHT-MCS Map, since EMLMR operation is more energy consuming. So the non-AP MLD would not misuse EMLMR mode as mentioned in the comment. |
| 10986 | Yanjun Sun | 9.4.1.74 | 192.11 | The reference to Figure 9-144j looks incorrect in the Encoding column. The correct looks to be "Figure 9-1002aj" based on text below. The same comment also applies to the next two rows in the table. | As in comment | RevisedAgree with the commenter.**Instruction to the editor**, ***please make the following changes with the CID tag 10986(doc.: IEEE 802.11-22/1742r0).*** |
| 11383 | Gaurang Naik | 9.4.1.74 | 191.23 | Need to specify the value carried in the EMLMR Link Bitmap subfield when the EML Control field is transmitted by an AP. | Add the following - 'An AP MLD with dot11EHTEMLMROptionImplemented equal to true that receives an EML Operating Mode Notification frame a STA affiliated with a non-AP MLD sets the EMLMR Link Bitmap subfield of the EML Operating Mode Notification frame that is sent in response to the value obtained from the received EML Operating Mode Notification frame.' after the paragraph ending on P191L28. | RejectedSubclause 35.3.18 already has the text that addresses the commenter’s concern: *“The AP should send an EML Operating Mode Notification frame for confirming the mode switch at the AP MLD side 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.”*Moreover, text in subclause 9.4.1.74 only provides the definition of EMLSR Link Bitmap, it does not specify who the carrier is, so it can be both non-AP MLD and AP MLD. |
| 11506 | Xiaofei Wang | 9.4.1.74 | 192.10 | The MCS map formats are not clear; it is not specified how bits are used for each MCS, and what is the max. number of bits used to the indicate the MCS or NSS. Since it is defined earlier than 9.4.2.313.4, the format should be defined here and have Supported EHT-MCS and NSS Set field refer to this section. | please provide formats for MCS map for each bandwidth | RevisedAgree with the commenter. The formats for MCS map for each bandwidth are provided by referring to Figure 9-144j.**Instruction to the editor**, ***please make the following changes with the CID tag 11506(doc.: IEEE 802.11-22/1742r0).*** |
| 11507 | Xiaofei Wang | 9.4.1.74 | 192.10 | The sentence starts with "except for a 20 Mhz-only non-AP STA", there is no specification for 20 MHz-only STA | add the description for 20 MHz-only STAs or if 20 MHz-only STA cannot participate in EMLMR, then remove the first phrase to avoid confusion. | RevisedIn the current specification, 20 MHz-Only STA is not allowed in EMLMR operation, according to the text in subclause 35.3.18:“*A (#12242)non-AP STA affiliated with the non-AP MLD operating on any of EMLMR links shall not be a 20 MHz-only non-AP EHT STA.*”Removed the first phrase to avoid confusion.**Instruction to the editor**, ***please make the following changes with the CID tag 11507(doc.: IEEE 802.11-22/1742r0).*** |
| 11681 | Zinan Lin | 9.4.1.74 | 191.38 | The name of MCS Map Count subfield is misleading. It indicates the maximum of the supported channeld widths for STAs afflicated with the non-AP ML operating on EMLMR. | Change the name of "MCS Map Count" subfield to "Max Supported BW" | RevisedIn the current text, the MCS Map Count subfield also indicates the number of MCS Map subfields that are present. This interpretation is different from the "Max Supported BW" suggested by the commenter. But each value in the MCS Map Count subfield indeed corresponds to a specific max supported BW, for example, when the max supported BW is 320 MHz, MCS Map Count is set to 2, all 3 MCS Maps are present. It seems that "Max Supported BW" is more straightforward to understand than "MCS Map Count".**Instruction to the editor**, ***please make the following changes with the CID tag 11681(doc.: IEEE 802.11-22/1742r0).*** |
| 11898 | Alfred Asterjadhi | 9.4.1.74 | 191.40 | This otherwise condition is missing the if condition. Also value 0 is used by 80 MHz case. Please fix the inconsistency. | As in comment. | RevisedAgree with the commenter. Deleted "Otherwise, the MCS Map Count subfield is set to 0."**Instruction to the editor**, ***please make the following changes with the CID tag 11898(doc.: IEEE 802.11-22/1742r0).*** |
| 11899 | Alfred Asterjadhi | 9.4.1.74 | 191.49 | These fields also indicate the NSS so please add the NSS in the field names as well. Also what does a 20 MHz only STA set the 80MHz MCS and NSS field to? And what would it indicate int hat case? | As in comment. | RevisedThe MCS Map provides the supported NSS for each MCS value, so it is more natural to think it as an MCS map by checking the MCS index of which the corresponding NSS can be found. “EHT Map” is also used in “EHT-MCS Map” in the Supported EHT-MCS And NSS Set field.In the current specification, 20 MHz-Only STA is not allowed in EMLMR operation. Modify the text to clarify.**Instruction to the editor**, ***please make the following changes with the CID tag 11899(doc.: IEEE 802.11-22/1742r0).*** |
| 11900 | Alfred Asterjadhi | 9.4.1.74 | 192.20 | Rules need to be clearer for these two optionally present fields rather than having if conditions. I.e,., when the maximum BW is greater than or equal to 160 then this field indicates ... If the BW is less than 160 then this and next fields are not present. Also please clarify what EMLMR operation mean here, is it after entering eMLMR operation (i.e., after EML notification frame exchange) or is it after reception of a trigger frame (i.e., eMLMR mode)? Also do these MCS and NSS values apply to BWs in between? E.g., between 160 and 320 (think of RU and MRU)? | As in comment. | RevisedModify the text to better describe the relationship between the maximum supported BW and the presence of the MCS Maps. Also clarify that the EMLMR operation here means after the intitial frame exchange on an EMLMR link.Even considering the RU and MRU between 160 and 320 MHz, the maximum supported channel width is still 320 MHz, so values in MCS Map (BW=320 MHz) also apply in this case.**Instruction to the editor**, ***please make the following changes with the CID tag 11900(doc.: IEEE 802.11-22/1742r0).*** |
| 12344 | Atsushi Shirakawa | 9.4.1.74 | 192.14 | "STAs of the non-AP MLD" should be "affiliated STAs of the non-AP MLD" if we follow terminology definition ? We should use the word "affiliated" for indicating MLD clearly ? | We should use the word "affiliated" for indicating MLD clearly | RevisedAgree with the commenter.**Instruction to the editor**, ***please make the following changes with the CID tag 12344(doc.: IEEE 802.11-22/1742r0).*** |
| 12871 | Zinan Lin | 9.4.1.74 | 192.22 | The expression of "the maximum operating channel width of the non-AP MLD for the EMLMR operation is greater than or equal to 160 MHz" is not consistent with MCS Map (BW = 160 MHz) shown in P191L39 | Change "the maximum operating channel width of the non-AP MLD for the EMLMR operation is greater than or equal to 160 MHz" to "the maximum operating channel width of the non-AP MLD for the EMLMR operation is equal to 160 MHz" | RevisedP191L39 provides the rules for setting the MCS Map Count subfield that is different from MCS Map subfields. If the maximum operating channel width is 160 MHz, then MCS Map Count is set to 1, both MCS Map (BW≤80 MHz) and MCS Map (BW=160 MHz) are present. If the maximum operating channel width is 320 MHz, then MCS Map Count is set to 2, MCS Map (BW≤80 MHz), MCS Map (BW=160 MHz) and MCS Map (BW=320 MHz) are all present. So MCS Map (BW=160 MHz) is present when maximum operating channel width is 160 MHz or 320 MHz. There is no inconsistency in the text.Modify the text to better describe the relationship between MCS Map Count and MCS Map.**Instruction to the editor**, ***please make the following changes with the CID tag 12871(doc.: IEEE 802.11-22/1742r0).*** |
| 12872 | Zinan Lin | 9.4.1.74 | 191.35 | "per-link spatial stream capabilities and operating mode defined by the exchanged Operating Mode Notification frame, (EHT) OM control on one of the EMLMR links" is not consistent with the definition of EMLMR Supported MCS And NSS Set subfield defined in 9.4.1.74, which indicates that "The EMLMR Supported MCS And NSS Set subfield indicates the combinations of MCS and number of spatial streams N\_ss that a non-AP MLD supports for reception and transmission during the EMLMR operation.". In the definition in 9.4.1.74, this subfields show the capabilities that a non-AP MLD can support but not link. | Please clarify if this capability is per link or per MLD. | RevisedEMLMR Supported MCS And NSS Set subfield contains 1-3 MCS maps and each corresponds to one maximum operating channel width, so a non-AP MLD can determine its capabilities on each EMLMR link or its “per-link spatial stream capabilities” by checking the MCS maps given the link’s BW. The values in these MCS maps are for all links.Modify the text to clarify.**Instruction to the editor**, ***please make the following changes with the CID tag 12872(doc.: IEEE 802.11-22/1742r0).*** |
| 13459 | Liwen Chu | 9.4.1.74 | 191.39 | It is not good to disallow eMLMR for 20MHz only device. | allow the eMLMR mode for 20MHz only devcie | RejectedThe commenter failed to specify the reason to allow EMLMR mode for 20MHz only device.Previous discussions in 11-21/0774r5 give the reason to disallow 20 MHz-Only STA in EMLMR operation, which is copied below.“*Also, in the baseline Supported EHT MCS and Nss Set field, separate set of subfields are defined for 20 MHz-Only STA and its format is different from other channel width cases. If we follow the same logic, in case a STA affiliated with a non-AP MLD is a 20 MHz-Only STA, the indication of the supported Nss can be quite complicated while the purpose of 20 MHz-Only STA is limited for low cost implementation, which is not the case for EMLMR operation. In this sense, it is desirable not to include 20 MHz-Only STA in EMLMR operation.*” |
| 13460 | Liwen Chu | 9.4.1.74 | 191.40 | Delete "Otherwise, the MCS Map Count subfield is set to 0." from the draft since it is used for 80MHz. | As in comment | Accepted |
| 13554 | Jian Yu | 9.4.1.74 | 191.39 | equal to 80MHz should be changed to smaller or equal to 80MHz, to be consistent with the figure | As in comment | RevisedAgree with the commenter**Instruction to the editor**, ***please make the following changes with the CID tag 13554(doc.: IEEE 802.11-22/1742r0).*** |

**Proposed Text Change:**

**TGbe editor**: ***at P190-192 of IEEE P802.11be™/D2.0,*** ***please make the following changes in 9.4.1.74 EML Control field.***

The EML Control field is defined in Figure 9-144i (EML Control field format).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | EMLSR Mode | EMLMR Mode | EMLSR Link Bitmap | Reserved | EMLMR Link Bitmap | (#11681)Max Supported BW | EMLMR Supported MCS And NSS Set |
| Bits: | 1 | 1 | 16 | 6 | 0 or 16 | 0 or 2 | variable |

**Figure 9-144i—EML Control field format**

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The EMLMR Supported MCS And NSS Set subfield indicates the combinations of MCS and number of spatial streams NSS that a non-AP MLD supports for reception and transmission (#12872)on each EMLMR link during the EMLMR operation. The (#11681)Max Supported BW subfield is set to 0(#13554) if the maximum of the supported channel widths for STAs affiliated with the non-AP MLD operating on EMLMR links is smaller than or equal to 80 MHz. The Max Supported BW subfield is set to1 or 2 if the maximum of the supported channel widths for STAs affiliated with the non-AP MLD operating on EMLMR links is equal to (#13554)160 MHz and 320 MHz, respectively, and the value 3 is reserved. (#11898)The (#11681)Max Supported BWsubfield is present if the EMLMR Mode subfield is equal to 1 and is not present otherwise.

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**Table 9-127e—Subfields of the EMLMR Supported MCS And NSS Set subfield**

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| --- | --- | --- |
| **Subfield** | **Definition** | **Encoding** |
| MCS Map(BW$\leq $ 80 MHz) | (#11507)(#11899) (#11900)If present, indicates the maximum number of spatial streams supported for reception and the maximum number of spatial streams that STAs (#12344)affiliated with the non-AP MLD (#12872)that is operating in EMLMR mode can transmit (#12872)after initial frame exchange on the corresponding EMLMR links, for each MCS value, in a PPDU with a bandwidth of 20, 40 or 80 MHz.  | The format and encoding of this subfield are defined in Figure (#10986)(#11506)9-1002aj (EMLMR Supported MCS and NSS Set subfield format) and the associated description.(#11900)If the (#11681)Max Supported BW subfield is set to 0 or 1 or 2, then this subfield is present; otherwise, it is not present. |
| MCS Map(BW = 160 MHz) | (#11900)(#12871)If present, indicates the maximum number of spatial streams supported for reception and the maximum number of spatial streams that STAs (#12344)affiliated with the non-AP MLD (#12872)that is operating in EMLMR mode can transmit (#12872)after initial frame exchange on the corresponding EMLMR links, for each MCS value, in a PPDU with a bandwidth of 160 MHz.  | The format and encoding of this subfield are defined in Figure (#10986)(#11506)9-1002aj (EMLMR Supported MCS and NSS Set subfield format) and the associated description.(#11900)(#12871) If the (#11681)Max Supported BW subfield is set to 1 or 2, meaning that the maximum operating channel width of the non-AP MLD for the EMLMR operation is equal to or greater than 160 MHz, then this subfield is present; otherwise, it is not present. |
| MCS Map(BW = 320 MHz) | (#11900)(#12871)If present, indicates the maximum number of spatial streams supported for reception and the maximum number of spatial streams that STAs (#12344)affiliated with the non-AP MLD (#12872)that is operating in EMLMR mode can transmit (#12872)after initial frame exchange on the corresponding EMLMR links, for each MCS value, in a PPDU with a bandwidth of 320 MHz. | The format and encoding of this subfield are defined in Figure (#10986)(#11506)9-1002aj (EMLMR Supported MCS and NSS Set subfield format) and the associated description.(#11900)(#12871) If the (#11681)Max Supported BW subfield is set to 2, meaning that the maximum operating channel width of the non-AP MLD for the EMLMR operation is equal to 320 MHz, then this subfield is present; otherwise, it is not present. |