IEEE P802.11
Wireless LANs

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| LB271 CR for Suubclause 35.3.15-Part 2 |
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Abstract

This submission proposes resolutions of comments received from TGbe comment collection LB266 based on TGbe D3.0.

16612 16613 16614 16381 16550 15642 16551 16552 16852 16853 16854 16855 15687 15684 (14 CIDs)

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Minor update
* Rev 2: add green tags
1. **Introduction**

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. The introduction and the explanation of the proposed changes are 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 802.11be 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.***

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| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 16612 | 35.3.15.1 | 549.29 | typo: replace "multiple BSSID" with "multiple BSSID set" in the following sentence: "...of a multiple BSSID that also includes..." | As in comment | Accepted- |
| 16613 | 35.3.15.1 | 549.33 | typo: replace "multiple BSSID" with "multiple BSSID set" in the following sentence: "...and is in a multiple BSSID that also includes..." | As in comment | Accepted- |
| 16614 | 35.3.15.1 | 549.34 | typo: replace "multiple BSSID" with "multiple BSSID set" in the following sentence: "...and is in a multiple BSSID that also includes..." | As in comment | Accepted- |
| 16381 | 35.3.15.1 | 549.36 | I believe the example is for the PVB. Figure 35-25 shows 3 AP MLDs and 3 links. Figure 35-26 shows the PVB for the affiliated APs. Description needs to be fixed. | Clearly describe what Figure 35-25 and 35-26 show in the context of this example. I believe its 35-26 that shows the PVB. Also what do the x's mean in Fig 35-26? | Revised-Agree with the comment in principle. Apply the changes marked as #16381 in this document. |
| 16550 | 35.3.15.1 | 550.05 | Need to add clear indication for the transmitted BSSID in each of the multiple BSSID sets (i.e. on each of the links) in Figure 35-25. | Possible option is to use a similar indication as that used in Figure AA-6: [T] | Revised-Agree with the comment in principle. Apply the changes marked as #16550 in this document. |
| 15642 | 35.3.15.1 | 550.39 | In figure 35-26, some arrows are not fitted to dashed lines. | as in comment | Revised-Agree. Apply the changes marked as #15642 in this document. |
| 16551 | 35.3.15.1 | 550.44 | Need to specify that the AP affiliated with the AP MLD is a transmitted BSSID in a multiple BSSID set, since the group addressed BU indication in Partial Virtual Bitmap field shows this specific case. Please revise the caption of Figure 35-26 as suggested | The caption should be revised as follows: "Example of group addressed BU indication in Partial Virtual Bitmap field sent by an AP affiliated with AP MLD and corresponding to transmitted BSSID in a multiple BSSID set" | Revised-Agree. Apply the changes marked as #16551 in this document. |
| 16552 | 35.3.15.1 | 550.46 | For the completion of the understanding of this subclause, please add a figure of the group addressed BU indication in Partial Virtual Bitmap field in case AP-23 or AP-32 is the transmitted BSSID | As in comment | Rejected-It is redudant to add another example from the perspective of AP-23 or AP-32. The current one already explains the bitmap setting. |
| 16852 | 35.3.15.2 | 550.50 | "the item (e)" should be "item (e)" | As it says in the comment | Accepted- |
| 16853 | 35.3.15.2 | 550.54 | "If an indication of buffered group addressed frames in the TIM element about an AP affiliated with an APMLD is received by any non-AP STA affiliated with a non-AP MLD, the non-AP STA affiliated with thenon-AP MLD that is associated with the AP and that stays awake to receive group addressed BUs shall electto receive all group addressed frames that are scheduled for delivery on the link that the non-AP STA isoperating on." is not clear. Is the point the "receive all" or is the point "any non-AP STA"? | Change to "If an indication of buffered group addressed frames in the TIM element is received by a non-AP STA affiliated with a non-AP MLD, the non-AP STA shall stay awake to receive group addressed BUs." | Rejected-The comment fails to identify the technical issue. To answer the question, the point is “any non-AP STA”. Morover, the proposed change is covered by the first paragraph. |
| 16854 | 35.3.15.2 | 550.62 | "A non-AP MLD shall filter out the group addressed MPDU with the SA field set to the MLD MAC addressof the non-AP MLD." -- "filter out" is not standard terminology | Change to "A non-AP MLD shall discard group addressed MPDUs with the SA field equal to the MLD MAC addressof the non-AP MLD." | Accepted- |
| 16855 | 35.3.15.2 | 551.01 | "group addressed Data frames detection" should be "group addressed Data frame detection" | As it says in the comment | Accepted- |
| 15687 | 35.3.15.1 | 599.18 | Oren Kedem | Does the reporting on affiliated-APs group addressed frame TIM bits is impacted by Affiliated-AP removal/adding ?Please clarify | Rejected-The comment fails to identify the technical issue. To answer the question, AP removal/adding doesn't impact the group addressed frames indication since it uses a fixed number of bits for each AP MLD and this number is determined by the AP itself. |
| 15684 | 35.3.15.1 | 601.25 | Oren Kedem | Figure 35-34 is inaccurate, Change Links to Channels, assign Link-ID per affilated Ap and aligne with the figure in the appendix AAthe Y axis should not be Links but Channels. | Rejected-The comment fails to identify the technical issue and point out the correct page/line and figure numbers. Figure 35-34 is about frame exchange of EMLSR operation. |

**Discussion:** None.

***TGbe Editor: please modify the following paragraphs***

###### 35.3.15 Multi-link operation group addressed frames

**35.3.15.1 AP MLD operation for group addressed frames**

[Figure 35-24 (Example of APs affiliated with an AP MLD and each affiliated AP belongs to a multiple](#bookmark80) [BSSID set)](#bookmark80) and [Figure 35-25 (Example of group addressed BU indication in a Partial](#bookmark81) [Virtual Bitmap field sent by an AP affiliated with AP MLD and corresponding to transmitted BSSID in a multiple BSSID set)](#bookmark81) show (#16381, 16551) an example of group addressed BU indication in a Partial Virtual Bitmap field sent by an AP (AP-11) affiliated with an AP MLD (AP MLD 1). In this example, the AP MLD 1 has three affiliated APs: AP-11, AP-12, and AP-13. AP-11 operates on link 1, and corresponds to the transmitted BSSID (shown with [T]) (#16550) of a multiple BSSID set (#16612) that also includes AP-21 affiliated with AP MLD 2 and AP-31 affiliated with AP MLD 3, and the maximum possible number of BSSIDs (2n) in this multiple BSSID set is equal to 4. AP-12 operates on link 2, and is in a multiple BSSID set (#16613) that also includes AP-32 affiliated with AP MLD 3. AP-13 operates on link 3, and in a multiple BSSID set (16614) that also includes AP-23 affiliated with AP MLD 2. The group addressed BU indication exponent is (#16848) the Group Addressed BU Indication Exponent subfield of the EHT Operation Parameters field sent by AP-11 and it is equal to 1, then N = 2^(Group Addressed BU Indication Exponent + 1) – 1 = 3. As shown in [Figure 35-25 (Example of group addressed BU indication in a Partial](#bookmark81) [Virtual Bitmap field sent by an AP affiliated with AP MLD and corresponding to transmitted BSSID in a multiple BSSID set (#16551))](#bookmark81), the bits 1 to 2 (with a value of 0 or 1, marked as “x”) (#16381) of the bitmap are used to indicate that one or more group addressed frames are buffered for AP-21 and AP-31, corresponding to a nontransmitted BSSID, respectively. Bits 4 and 5 (with the value of x, x=0 or 1) (#16381) of the bitmap are used to indicate that one or more group addressed frames are buffered for AP-12 and AP-13 affiliated with AP MLD 1, respectively. Bit 7 (with a value of 0 or 1, marked as “x”) (#16381) of the bitmap is used to indicate that one or more group addressed frames are buffered for AP-23 affiliated with AP MLD 2. Bit 10 of the bitmap is used to indicate that one or more group addressed frames are buffered for AP-32 affiliated with AP MLD 3. The other bits of the bitmap for the indication of group addressed BUs are set to 0 (reserved).



**Figure 35-25—Example of APs affiliated with an AP MLD and each affiliated AP belongs to a multiple BSSID setLink (#16550)**



**Figure 35-26—Example of group addressed BU indication in a Partial Virtual Bitmap field sent by an AP affiliated with AP MLD and corresponding to transmitted BSSID in a multiple BSSID set** (#15642, 16551)

**35.3.15.2 Non-AP MLD receive operation for group addressed frames**

A non-AP STA affiliated with a non-AP MLD shall follow (#16852)item (e) defined in 11.2.3.7 (Receive operation for STAs in PS mode) to receive the group addressed BUs sent by its associated AP affiliated with the associated AP MLD.

If an indication of buffered group addressed frames in the TIM element about an AP affiliated with an AP MLD is received by any non-AP STA affiliated with a non-AP MLD, the non-AP STA affiliated with the non-AP MLD that is associated with the AP and that stays awake to receive group addressed BUs shall elect to receive all group addressed frames that are scheduled for delivery on the link that the non-AP STA is operating on.

A non-AP MLD shall discard the group addressed MPDU with the SA field equal to the MLD MAC address of the non-AP MLD. (#16854)

NOTE 1—Duplicate group addressed Data frame(#16855) detection is performed by a non-AP STA affiliated with a non-AP MLD according to 10.3.2.14.3 (Receiver requirements).

NOTE 2—Additional and exceptional rules of group addressed frame reception for an NSTR mobile AP MLD are defined in 35.3.19 (NSTR mobile AP MLD operation).