IEEE P802.11  
Wireless LANs

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| LB266 CR for remaining CIDs | | | | |
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Abstract

This submission proposes resolutions of comments received from TGbe comment collection LB266 based on TGbe D2.3.

12713 13387 13666 13390 12817 10325 (6 CIDs)

Revisions:

* Rev 0: Initial version of the document.

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** |
| 12713 | 35.3.10.4 | 267.08 | The element 9.4.2.315 relates to indication of traffic at AP for non-AP MLD, and is adapted to support multiple links. There is also a need for a STA to report pending UL traffic and the expected link as preference (typically STA is content producer). | Similar to '10.30.4 Unscheduled PSMP' for U-APSD STAs, STAs can signal the queue size or TXOP duration along with a LinkID required to transmit its queued data to the AP in the QoS Control field of the U-APSD trigger frame. This information might be used by the AP to estimate the triggered PPDU's duration and the appropriate link to use so that the STA can transmit the queued data. | Rejected-  The element (Multi-Link Traffic Indication element) defined in 9.4.2.315 is only for DL buffered BUs. Since the traffic is at MLD level, it is not reasonable to report the buffer size along with a Link ID. |
| 13387 | 35.3.15.1 | 450.29 | This text contradicts with r-TWT operation when the DTIM TBTT is within r-TWT SP where the low latency traffic needs to transmitted first. | update the text to fix the issue. | Rejected-  As per the latest 802.11be Draft 2.2, it doesn't mention any normative behavior when the DTIM TBTT is within r-TWT SP in subcluase 35.8 Restricted TWT (R-TWT). Once the contents of this subclause are complete, the identified contradiction could be addressed. Encourage the commenter submit this comment to the next WG letter ballot. |
| 13666 | 35.3.10 | 433.40 | When a STA affiliated with a non-AP MLD activates TIM Broadcast (e.g. to save power), it may unnecessarily attempt to retrieve critical information in response to a TIM frame although there may not be any relevant outstanding critical information for that particular non-AP MLD. The spec needs to provide mechanism to handle this issue. | As in comment | Rejected-  The comment failed to identify why there may not exist any relevant outstanding critical information for that particular non-AP MLD when the critical update counter is changed. |
| 13390 | 35.3.15.1 | 450.50 | It is not clear about when the additional bits for buffered broadcast frame indication of the reported APs are carried in TIM or not. When the reporting AP doesn't support multiple BSSID, it is easy to figure out whether the additional bits for buffered broadcast frame indication of the reported APs are carried in TIM. However it is not clear whetehr such bits are not carried in Beacon. If the answer is yes in non DTIM beacon, the question is whether an AP MLD can decide no inclusion such indication under multiple BSSID support. The observation is that if such indication is always included the Method B of TIM element can't be used, and the TIM element will become longer. If such indication can be optional included, without explicit indication, the non-AP MLD can't figure it out. | Fix the issues mentioned in the comment | Rejected-  According to the baseline in 802.11REVme D2.0 and the new added text for group addressed BUs in 35.3.15 (Multi-link group addressed frame delivery and reception) in 802.11be Draft 2.2, the indication for buffered group addressed frames is only carried in DTIM Beacon. So there is no such issue the commenter raised. |
| 12817 | 35.3.15.1 | 451.10 | The reading of this part is difficult and a figure would really help clarify the parsing of the different parts of the TIM. | Add a figure to better illustrate the spec. | Revised-  Agree with the comment. Apply the the changes marked as #12817 in this document. |
| 10325 | 35.3.15.2 | 451.45 | f the STA affiliated with the non-AP MLD is operating in awake state on a link, it shall receive group addressed frames transmitted on that link, otherwise it shall follow item (e) ..." | Commenter is willing to collaborate on a submission with a set of changes. | Revised-  Fix a bug by using by this CID. Apply the the changes marked as #10325 in this document. |

**Discussion:** None.

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

***TGbe editor: Please insert the following example at the end of this subclause (#12817)***

Figure 35-x (Example of group addressed BU indication in Partial Virtual Bitmap field sent by an AP affiliated with AP MLD) shows an example of group addressed BU indication in 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 transmitted BSSID of a multiple BSSID that also includes AP-21 affiliated AP MLD2 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 that also includes AP-32 affiliated AP MLD 3. AP-13 operates on link 3, and in a multiple BSSID that also includes AP-23 affiliated AP MLD 2. The group addressed BU indication exponent is carried in 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-x (Example of group addressed BU indication in Partial Virtual Bitmap field sent by an AP affiliated with AP MLD), The bits 1 to 2 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 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 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-xExample of group addressed BU indication in Partial Virtual Bitmap field sent by an AP affiliated with AP MLD



Figure 35-yExample of APs affiliated with an AP MLD and each affiliated AP belongs to a multiple BSSID set

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

Each AP affiliated with an AP MLD shall schedule for transmission, all buffered group addressed frames that arrive via the DS (#10325), immediately following the next DTIM beacon except when the AP is a TWT scheduling AP that schedules buffered group addressed frames during specific broadcast TWT SPs as defined in 26.8.3.2 (Rules for TWT scheduling AP)