IEEE P802.11
Wireless LANs

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| LB271 – CR for some CIDs related to 35.3.4.1 |
| Date: 2023-03-12 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Laurent Cariou |  |  |  | laurent.cariou@intel.com |

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| **CID** | **Clause** | **Page** | **Comment** | **Proposed Change** | **Resolution** |
| 15674 | 35.3.4.1 | 490.01 | The D3.0 only has requirement of max value for the TBTT offset (<=254 TUs)between differerent APs with the same AP MLD. And there is no requirement/note to illustrate the minimum value for the TBTT offset between APs with the same AP MLD.Assume that two APs in same AP MLD have very close TBTT, and there are two STAs which are in doze state while only STA one link0 listens the Beacon. While one STA0 on link0 firstly receives Beacon on link0, and the Beacon on link0 indicates there is buffererd (groupcast) frames on link1, there is possibility that the remaining time for STA MLD to wake up STA1 on link1 is not large enough, as the AP1 on link1 may already send the buffered groupcast frames due to the close TBTT offset between AP0 and AP1 | Add a requirement or at least add a note to illustrate this issue caused by close TBTT offset.For example, a note as below may be added in the same paragragh,"Note - the TBTT offset between two APs affiliated with the same AP MLD should not be two small, as the small TBTT offset may cause the associated STAs have not enough time to wake up if only one STA is listening Beacon on one link" | Reject – there is no apparent need for such requirement. The example mentioned by the commenter does not seem strong enough for the following reason. Groupcast frames are sent only at DTIM and more importantly on all the links of the AP MLD, which makes it easy for the non-AP MLD to get the groupcast frames even in the scenario described by the commenter. |
| 18190 | 35.3.4.1 | 491.16 | Change "APs" to "AP(s)". | As in comment |  Accept |
| 15639 | 35.3.4.1 | 491.17 | According to "26.17.2.3.2 AP behavior for fast passive scanning" of IEEE802.11ax-2021 spec, 6GHz-only AP intends to be efficiently discovered by STAs using scanning in the 6GHz band shall transmit FILS discovery frames or Unsolicited Probe Response frames every 20TUs or less. However, mandating this for APs affiliated with AP MLD only having 6GHz-only affiliated APs leads to management frame bloating. | Add text that APs affiliated with AP MLD shall not or should not transmit FILS discovery frames or Unsolicited Probe Response frames every 20TUs or less.Or add text that APs affiliated with AP MLD only having 6GHz-only affiliated APs shall not or should not transmit FILS discovery frames or Unsolicited Probe Response frames every 20TUs or less. | Reject – the commenter fails to identify a technical issue, as it’s hard to see a real impact of being affiliated to an AP MLD in this context. The scope of 11be so far has not been to modify the rules defined in 11ax for 6 GHz operation.  |
| 15854 | 35.3.4.1 | 491.23 | In "the AP (AP1)" or "the AP (AP2)" when they appear a second times, they can be replaced with AP1 or AP2, respectively. | As in comment. |  Reject – there were comments last round that suggested the contrary. Propose to stick with current wording to clarify that the naming AP1/2 is just to improve the understanding of the sentence |
| 18063 | 35.3.4.1 | 491.29 | Revise grammar structure of NOTE 1 | Change NOTE 1 to read: "The terms AP 1 and AP2 and AP MLD 1 and AP MLD 2 in this paragraph are used with the sole purpose to.........of the sentences." |  Accept |
| 18191 | 35.3.4.1 | 491.30 | Replace "and ease the understanding of the sentences." with "to clarify the normative text". | As in comment |  Accept |
| 15970 | 35.3.4.1 | 491.37 | The AP MLD 2 may have an AP which is operating on the same channel as the reporting AP but it is a nontransmitted BSSID. In that case also RNR should include APs of the AP MLD 2. So, do we really need the 2nd condition to be true? | Clarify the behavior when 2nd condition may not be true as explained in the comment. |  Reject – the condition illustrated in the comment is captured in the immediately preceeding paragraph. |
| 15971 | 35.3.4.1 | 491.40 | Is it correct understanding that RNR advertises collocated APs from another MLD only if these are part of the same multiple BSSID set and if so why? Add text or a Note to clarify if co-located APs of another MLD are not part of same multiple BSSID set as reporting AP then whether these are advertised in the RNR or not? | Clarify requirement as per comment. |  Reject – the conditions to report APs in RNR is clarified in the list of conditions. Outside of these conditions, there is no requirements. It is true that the conditions are elaborate and complicated, but that’s unfortunatly what the group converged on, and attempts in previous rounds to simplify this paragraph or even remove this paragraph didn’t reach sufficient consensus. |
| 17820 | 35.3.4.1 | 491.42 | the reporting AP should be excluded from "are not already reported in Beacon Frames and broadcast Probe Response frames transmitted by an AP" | changes to:are not already reported in Beacon Frames and broadcast Probe Response frames transmitted by an AP THAT IS NOT THE REPORTING AP | Revised – agree with the commenter. Modify an AP by another AP. Apply the changes marked as #17820 in this document  |
| 17288 | 35.3.4.1 | 491.44 | Change "cohosted" to 'co-hosted' | Please see comment |  Accept |
| 16373 | 35.3.4.1 | 491.47 | "AP of the other" should be "AP affiliated with the other" | At cited location, change "each AP of the other AP MLD" to "each AP affiliated with the other AP MLD" |  Accept |
| 17793 | 35.3.4.1 | 491.47 | Need to clarify whether RNR carried in the Beacon frame of a transmitted BSSID includes or does not include the nontransmitted BSSIDs in the TBTT Information fields. Description in this paragraph indicates that all affiliated APs of AP MLD 2 are reported in the RNR which will also include the nontransmitted BSSID itself if AP MLD 2 was MLD corresponding to a nontransmitted BSSID. | Clarify RNR related behavior as per the comment. |  Reject – the nontransmitted BSSID case is not covered by this paragraph but with the previous paragraph. |

1. **Introduction**
2. **Proposed spec text**

TGbe editor: Modify subclause 35.3.4.1 AP Behavior as follows:

###### Discovery of an AP MLD

 **35.3.4.1 AP behavior**

If an AP is affiliated with an AP MLD and does not correspond to a nontransmitted BSSID, then the Beacon and Probe Response frames transmitted by the AP shall include a TBTT Information field in a Reduced Neighbor Report element with the TBTT Information Length field set to 16 or higher (see 9.4.2.170.2 (Neighbor AP Information field)), for each of the other (#18190)AP(s) (if any) affiliated with the same AP MLD. A FILS Discovery frame transmitted by the AP may include a Reduced Neighbor Report element with the same information.

If an AP (AP 1) is affiliated with an AP MLD (AP MLD 1) and corresponds to a nontransmitted BSSID, then the Beacon and Probe Response frames transmitted by the AP (AP 2) corresponding to the transmitted BSSID of the same multiple BSSID set as the AP (AP 1) shall include a TBTT Information field in a Reduced Neighbor Report element with the TBTT Information Length field set to 16 or higher (see 9.4.2.170.2 (Neighbor AP Information field)), for each of the other APs (if any) affiliated with the same AP MLD (AP MLD 1). A FILS Discovery frame transmitted by the AP (AP 2) may include a Reduced Neighbor Report element with the same information.

NOTE 1—(#18063)The terms AP 1 and AP 2 and AP MLD 1 and AP MLD 2 (#18063)are used in this paragraph with the sole purpose to differentiate the APs and the AP MLDs and (#18191)clarify the normative text.

If all the following conditions are true:

* a reporting AP is affiliated with an AP MLD (AP MLD 1) and is in the same co-located AP set as APs affiliated with another AP MLD (AP MLD 2)
* the other AP MLD (AP MLD 2) has no affiliated APs operating on the same channel as the reporting AP
* an AP affiliated with the other AP MLD (AP MLD 2) is in the same multiple BSSID set as an AP affiliated with the AP MLD (AP MLD 1) of the reporting AP
* the APs affiliated with the other AP MLD (AP MLD 2) are not already reported in Beacon frames and broadcast Probe Response frames transmitted by (#17820) another AP in the same (#17288)co-hosted AP set as the reporting AP and operating on the same channel as the reporting AP.

then each AP (#16373)affiliated with the other AP MLD (AP MLD 2) shall be reported in a TBTT Information field with the TBTT Information Length field set to 16 or higher (see 9.4.2.170.2 (Neighbor AP Information field)) in the Reduced Neighbor Report element that is included in the Beacon frames and broadcast Probe Response frames transmitted by the reporting AP and may be reported in a FILS Discovery frame that includes a Reduced Neighbor Report element transmitted by the reporting AP.

If a reporting AP reports an AP affiliated with an MLD in a Reduced Neighbor Report element with the MLD Parameters subfield present in the TBTT Information field for that AP, then the reporting AP shall set the AP MLD ID, the Link ID, and the BSS Parameters Change Count subfields as described in 9.4.2.170.2 (Neighbor AP Information field). The AP MLD ID of an AP MLD shall not be set to 255 and an AP affiliated with an AP MLD shall not have a BSSID index set to 255.

NOTE 2—The AP MLD ID subfield in the Reduced Neighbor Report element is used to determine the AP MLD with which the reported AP is affiliated, especially when multiple AP MLDs are reported in the same frame.

The TBTT offset between two APs affiliated with the same AP MLD shall never be larger than 254 TUs. An AP affiliated with an AP MLD shall not have the Neighbor AP TBTT Offset subfield set to 255 for an AP affiliated with the same AP MLD, except under the rules defined in [35.3.11 (Multi-link procedures for](#bookmark65) [channel switching, extended channel switching, and channel quieting)](#bookmark65) and except if the link on which the reported AP is operating is disabled as advertised according to the procedures in [35.3.7.1.7 (Advertised TID-](#bookmark55) [to-link mapping in Beacon and Probe Response frames)](#bookmark55).