IEEE P802.11
Wireless LANs

|  |
| --- |
| TBD and CR for critical update for non-AP STA |
| Date: Mar 20, 2021 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Ming Gan | Huawei |  |  | ming.gan@huawei.com |
| Jason Yuchen Guo | Huawei |  |  |  |
| Yunbo Li | Huawei |  |  |  |
| Guogang Huang | Huawei |  |  |  |
| Yiqing Li | Huawei |  |  |  |
| Mengyao Ma | Huawei |  |  |  |
| Hongjia Su | Huawei |  |  |  |
| Jianhui Li | Huawei |  |  |  |

 Abstract

This submission proposes resolutions for following 3 CIDs received for TGbe CC34:

1072

2322

3226

and fix TBD (behaviour at non-AP STA)in clause 35.3.8 BSS parameter critical update procedure

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.***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CID | Commenter | Page | Clause | Comment | Proposed Change | Resolution |
| 1072 | Abhishek Patil | 137.60 | 35.3.8 | The spec must provide guidance on how a non-AP MLD retrieves updates for a particular link that has updated it BSS parameters (i.e., the CSN info has changed). The proposed solution must maintain the non-AP MLD's power-save states on different links, prevent probe storm and beacon bloating. | The commenter will provide a contribution | Revised-Agree with the comment in general, propose resolution to account for the suggested behavior at non-AP sideTGbe editor Please implement changes as shown in doc 11-21/0622r1 tagged as 1072 |
| 2322 | Ming Gan | 137.15 | 35.3.8 | the procedure about about obtaining new BSS parameter at non-AP MLD side is missed | A corresponding contribution (DCN1871) is submitted | Revised-Agree with the comment in general, propose resolution to account for the suggested behavior at non-AP sideTGbe editor Please implement changes as shown in doc 11-21/0622r1 tagged as 2322 |
| 3226 | Young Hoon Kwon | 137.57 | 35.3.8 | Non-AP MLD's behavior when the Change Sequence field value is updated is not clear. Further clarification is needed. | As shown in the comment. | Revised-Agree with the comment in general, propose resolution to account for the suggested behavior at non-AP sideTGbe editor Please implement changes as shown in doc 11-21/0622r1 tagged as 3226 |

***Discussion：***

 ***There are two mechanisms to retrieve updated info if there is BSS parameter update***

1. ***Receive a Beacon fame***

***Beacon reception is a simple way and can avoid the below “Probe” issue. Some people may argue this has impact on the power consumption. To address this, add a condition “before transmitting a frame” for this beacon reception. Considering the following frame exchange with the AP, the power consumption of a beacon reception could be ignored***

1. ***Send a Probe Request***

***Since BSS parameter update of an AP is valid for its all associated STAs, all associated STAs will contend the channel and send this Probe Request to retrieve update info. This case makes the channel congested and even results in lots of collision. So this is not recommended. Moreover, the power consumption of transmission is larger than that of reception***

***For single radio non-AP MLD, it may need to do channel switch for the corresponding beacon reception, some people may argue it will result in “frequent switch”. However, this is not true.***

—If we consider single radio non-AP MLD stays on a channel for a long time (semis-static), then this single radio non-AP MLD does not need to care about the update of the other channel. It only needs to get the updated info before sending a frame on the other channel. If it intends to send a frame on the other channel, then why not receive a Beacon frame. It is not good to send a Probe Request frame

—Consider the single radio non-AP MLD does not need retrieve update info instantly once there is update since the parking channel is semi-static, sending a Probe Request on the link where it receives a different Change Count could be tolerated. But there is no benefit to send a Probe Request on the other link (actually this makes case worse given the “Probe” issue)

***For multi radio non-AP MLD, it does not involve “switch” issue. And consider that the multi-radio non-AP MLD will have more frequent frame exchange on the other channel than single radio non-AP MLD, it is better to exclude the case of Probe Request.***

***TGbe editor: Please note baselines are REVmd D5.0, 11ax D8.0 and 11be D0.4***

**35.3.8 BSS parameter critical update procedure**

***TGbe editor: Please insert the following paragraph at the end of this subclause*** When a non-AP STA affiliated with a multi-radio non-AP MLD receives a BSS Parameter Change Count subfield for an AP affiliated with an AP MLD with which the multi-radio non-AP MLD has multi-link setup that is different from the previously received BSS Parameter Change Count subfield for the AP, the non-AP affiliated with the multi-radio non-AP MLD that is associated with the AP shall be awake to receive a Beacon frame or a Probe Response frame from the AP before transmitting a frame.

When a non-AP STA affiliated with a single-radio non-AP MLD receives a BSS Parameter Change Count subfield for an AP affiliated with an AP MLD with which the non-AP MLD has multi-link setup that is different from the previously received BSS Parameter Change Count subfield for the AP, then the single radio non-AP MLD shall follow one of the below mechanisms:

—The non-AP STA affiliated with the single radio non-AP MLD that is associated with the AP receives a Beacon frame or a Probe Response frame from the AP before transmitting a frame

—The non-AP STA affiliated with the single radio non-AP MLD that receives the BSS Parameter Change Count subfield sends a Probe Request frame to its associated AP before the non-AP STA affiliated with the same single radio non-AP MLD that is associated with the AP intends to transmit a frame (#CID 1072 2322 3226)