IEEE P802.11  
Wireless LANs

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MLO: BSS parameter update | | | | |
| Date: 2020-08-20 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Ming Gan |  |  |  | ming.gan@huawei.com |
| Yunbo Li |  |  |  |  |
| Yuchen Guo |  |  |  |  |
| Guogang Huang |  |  |  |  |
| Yiqing Li |  |  |  |  |
| Hongjia Su |  |  |  |  |
| Mengyao Ma |  |  |  |  |

A non-AP MLD shall maintain a record of the most recently received change sequence number for each reported APs in the AP MLD with which it has multi-link setup.

[20/0503r2 (BSS parameter update for Multi-link Operation, Ming Gan, Huawei), SP#2, Y/N/A: 51/7/14]

[Motion 115, #SP101, [10] and [138]]

An AP in an AP MLD shall provide BSS specific parameters update indication for one or more other APs in the same AP MLD.

* The detail for BSS specific parameters update indication is TBD.

[Motion 115, #SP59, [10] and [139]]

802.11be supports that an AP within an AP MLD shall include in the Beacon and Probe Response frames it transmits the Change Sequence fields that indicate changes of system information for other APs within the same AP MLD, where the change sequence field value for the reported AP is initialized to 0, that increments as the critical update of the reported AP is occurred.

* The signaling of the Change Sequence field is TBD.
* The critical updates are defined in 11.2.3.15 (TIM Broadcast) and the additional update can be added if needed.

[Motion 115, #SP77, [10] and [140]]

**Straw poll #191**

Do you agree to update the text in SFD (Motion #115, #SP77) as following

* Do you support that an AP within an AP MLD shall include in the Beacon and Probe Response frames it transmits the Change Sequence fields that indicate changes of system information for the transmitting AP and other APs within the same AP MLD, where the change sequence field value for each AP is initialized to 0, and is incremented when there is a critical update to the operational parameters for that AP?
  + TBD field(s) to carry the change sequence(s) of the transmitting AP and of non-transmitted BSSIDs (if any)
  + The change sequence information for another AP of the MLD shall be carried in a field in the TBTT Information field of the Reduced Neighbor Report element corresponding to that AP.
  + A TBD subfield in the Capability Information field of the Beacon frame shall provide an early indication of an update to change sequence information in the RNR for any AP of the reporting AP’s MLD.
    - NOTE: For an AP corresponding to nontransmitted BSSID in a multiple BSSID set, the early indication is carried in the Nontransmitted BSSID Capability field (which has the same structure as the Capability Information field) and signals the update to change sequence information in RNR for APs corresponding to the MLD to which the nontransmitted BSSID is affiliated with.
  + The critical updates are defined in 11.2.3.15 (TIM Broadcast) and the additional update can be added if needed.
  + The field is at most 1 octet in length and the value carried in the field is modulo of the maximum value
  + NOTE: It is optional for non-AP MLD to decode the subfield in the Capability Information field carrying the early indication ***[#SP191]***

[20/0586r7 (MLO: Signaling of critical updates, Abhishek Patil, Qualcomm), SP#2, Approved with unanimous consent]

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 802.11 editor on how to merge the text with the baseline documents).***

1. **Proposed spec text**

***TGbe editor: Insert the new subclause 33.x.y BSS parameter critical update as follows:***

**33.x.y BSS parameter critical update**

[Motion 115, #SP101], [Motion 115, #SP77] and **Straw poll #191**

An AP within an AP MLD shall include in the Beacon and Probe Response frames it transmits a Change Sequence fields for each of all APs in the same AP MLD.

* The Change Sequence field for each of other APs of the MLD shall be carried in the TBTT Information field of the Reduced Neighbor Report element corresponding to that AP.
* The Change Sequence field for the AP shall be carried in the MLD-level/common information field of the multi-link element.

If an AP within an AP MLD is in a Multiple BSSID set, then the AP shall include in the Multiple BSSID element of the Beacon and Probe Response frames it transmits a Change Sequence fields for each of nontransmitted BSSIDs in the same multiple BSSID set .

* The Change Sequence field for each of the nontransmitted BSSIDs shall be carried in the MLD-level/common information field of the multi-link element which is carried in non-transmitted BSSID Profile of the Multiple BSSID element.

The AP within the AP MLD shall increase the value (modulo 256) of the Change Sequence field (1 octet) in the next transmitted Beacon frame(s) for an AP in the same AP MLD or a nontransmitted BSSID in the same multiple BSSID set when a critical update occurs to any of the elements inside the Beacon frame sent by that AP. The critical updates are defined in 11.2.3.15 (TIM Broadcast) and the TBD additional update can be added. It is TBD whether Change Sequence field is equal to Check Beacon field (see 9.6.14.2 (TIM frame format)) or not.

The AP within the AP MLD can classify other changes in the Beacon frame as critical updates and among these updates can be included those that are described in 11.2.3.15 (TIM Broadcast)

An AP within an AP MLD shall include in the Capability Information field of the Beacon and Probe Response frames it transmites a TBD subfield which provides an early indication of an update to the Change Sequence field value in the RNR for any AP in the same AP MLD. A non-AP STA within a non-AP MLD may decode the TBD subfield in the Capability Information field.

[Motion 115, #SP101]

A non-AP MLD shall maintain a record of the most recently received Change Sequence field value for each AP in the AP MLD with which it has multi-link setup.