IEEE P802.11
Wireless LANs

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| MLO Critical Updates Indication (address gaps in D0.1) |
| Date: 2020-08-20 |
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Abstract

This document provides draft spec text to address gaps in TGbe draft D0.1.

Revisions:

* Rev 0: Initial version of the document.

**Proposed spec text:**

The baseline for this text is 802.11be D0.1

**Discussion:**

Gap 1: The current spec is missing details from SP#191 for providing change sequence indication for APs belonging to an MLD to which a nonTxBSSID belongs to.[11-20/0586r8 SP#7]

Gap 2: The current spec is missing details from SP#191 for providing early indication for a nonTxBSSID in a multiple BSSID set. In addition the spec is missing details on how long (or how many Beacon frames) must carry the early indication when a change sequence field of an AP reported in the RNR is updated. In order to aid dozing STAs, such indication much be carried over several beacon until (and including) the DTIM beacon.[11-20/0586r8 SP#8]

* BSS parameter critical update procedure

*TGbe editor: Please make changes as shown below:*

An AP within an AP MLD shall include in the Beacon and Probe Response frames it transmits a Change Sequence field 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 MLD Parameters subfield 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 TBD field.

If an AP within an AP MLD is transmitted BSSID in a multiple BSSID set, then the AP shall include in the Beacon and Probe Response frames it transmits a Change Sequence field 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 TBD field.

If an AP corresponding to a nontransmitted BSSID in a multiple BSSID set is affiliated with an AP MLD, then the AP corresponding to the transmitted BSSID in the same Multiple BSSID set shall include in the Beacon and Probe Response frames it transmits the Change Sequence fields that indicate changes of system information for that AP corresponding to a nontransmitted BSSID and other APs within the AP MLD to which that AP corresponding to the nontransmitted BSSID is affiliated with, 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.

* The Change Sequence field for each of other APs of the MLD to which that AP corresponding to the nontransmitted BSSID is affiliated with shall be carried in the MLD Parameters subfield in the TBTT Information field of the Reduced Neighbor Report element corresponding to that AP.

An AP within an AP MLD shall increase the value (modulo TBD maximum value) of the Change Sequence field for the AP when a critical update occurs to any of the elements for the AP. An AP within an AP MLD shall increase the value (modulo TBD maximum value) of the Change Sequence field for another AP in the same AP MLD when a critical update occurs to any of the elements for that AP. An AP within an AP MLD that is transmitted BSSID shall increase the value (modulo TBD maximum value) of the Change Sequence field for a nontransmitted BSSID in the same multiple BSSID set when a critical update occurs to any of the elements for the nontrasnmitted BSSID.The critical updates are defined in 11.2.3.15 (TIM Broadcast) and the TBD additional update can be added. The name and format of the Change Sequence field are TBD.

NOTE—The Change Sequence field is at most 1 octet in length.

An AP within an AP MLD shall provide in the Capability Information field of the Beacon and Probe Response frames it transmits an early indication (TBD subfield) of an update to the Change Sequence field value in the RNR for any AP in the same AP MLD. An AP of an MLD shall provide early indication (in the Capability Information field) in Beacon frame(s) until (and including) the next DTIM Beacon frame when there is a change to the change sequence value for any other AP of that MLD reported in the RNR. For the AP corresponding to nontransmitted BSSID in a multiple BSSID set, that is part of an MLD, the early indication shall be provided in the Nontransmitted BSSID Capability field (for that nontransmitted BSSID) in the Beacon frame(s) transmitted by the transmitted BSSID until (and including) the next DTIM Beacon frame of that nontransmitted BSSID when there is a change to the change sequence value for any other AP of that MLD reported in the RNR.

A non-AP STA within a non-AP MLD may decode the TBD subfield in the Capability Information field.

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.