IEEE P802.11
Wireless LANs

|  |
| --- |
| MLO: CSA, eCSA and quiet element operation |
| Date: 2021-01-11 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Laurent Cariou |  |  |  | laurent.cariou@intel.com |
|  |  |  |  |  |
|  |  |  |  |  |

R2: Changes made during the call or based on feedback received during the call (marked in revision mark)

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).***

**This document proposes spec text contribution for the following motions that passed in 11be:**

In R1, if an AP (AP 1) of an AP MLD includes a (extended) Channel Switch Announcement element and a Max Channel Switch Time element (if present) or includes a Quiet element and a Quiet Channel element (if present) in a Beacon frame or Probe Response frame it transmits, then another AP (AP 2) of the AP MLD shall include in the Beacon and Probe Response frames it transmits (or if another AP (AP 2) of the AP MLD corresponds to a nontransmitted BSSID, then the transmitted BSSID in the same multiple BSSID set as AP 2 shall include in the Beacon and Probe Responses frame it transmits) the (extended) Channel Switch Announcement element and Max Channel Switch Time element or the Quiet element and Quiet Channel element in the per-STA profile corresponding to AP 1 in a Multi-link element.

* The timing fields in the Quiet element, Quiet Channel element, (extended) Channel Switch Announcement element shall be applied in reference to the most recent TBTT and BI indicated in the corresponding element(s) of AP 1 and not to the TBTT and BI of the other AP (AP 2) of the AP MLD.
* NOTE – The CSA/eCSA/Max Channel Switch Time elements will be included in every beacon and probe response frames on all links of the AP MLD from right after the time AP 1 includes the elements in its beacons until the intended channel switch time.

[Motion 146, #SP347, [30] and [244]]

In R1, if any STA (STA 2) of a non-AP MLD receives a management frame with a field corresponding to an AP (AP 1) of the AP MLD with which the non-AP MLD is associated, and if the non-AP MLD has an affiliated STA (STA 1) that is associated with that AP (AP 1), then that affiliated STA (STA 1) shall follow the procedure (if any) corresponding to receiving such field from its associated AP (AP 1), as if that element was received by the affiliated STA (STA 1) from its associated AP (AP 1).

* NOTE 1 – Management frames from AP 2 that would carry such information include Beacon, Probe Response, (Re)Association Response frames.
* NOTE 2 – The timing fields (when present) in such an element are applied with reference to AP 1.

[Motion 146, #SP348, [30] and [244]]

1. **Proposed spec text**

***TGbe editor: Add the following new subclause 35.3.9 General procedures in 802.11be D0.2 between 35.3.8 BSS parameter critical update procedure and currently defined 35.3.9 Multi-link power management:***

35.3.9 General procedures

[Motion 146, #SP348, [30] and [244]]

If a STA of a non-AP MLD receives a management frame with a field corresponding to a reported AP of the AP MLD, then an affiliated STA (if any) of the non-AP MLD that operates on the link of the reported AP shall follow the procedure (if any) corresponding to receiving such field from the reported AP, as if that element was received by the affiliated STA from the reported AP.

NOTE – Management frames that would carry such information include Beacon, Probe Response, (Re)Association Response frames.

[Motion 146, #SP347, [30] and [244]]

35.3.9.1 Channel switching, enhanced channel switching and channel quieting

If the Beacon frame or Probe Response frame transmitted by a first AP affiliated to an AP MLD, or transmitted by the transmitted BSSID in the same multiple BSSID set as the first AP if the first AP corresponds to a nontransmitted BSSID, includes any of the following elements for the first AP:

* Channel Switch Announcement element
* enhanced Channel Switch Annoucement element
* Max Channel Switch Time element
* Quiet element
* Quiet Channel element

Then, if another AP is affiliated to the same AP MLD:

* the Beacon frames and Probe Response frames transmitted by the other AP, or transmitted by the transmitted BSSID in the same multiple BSSID set as the other AP if the other AP corresponds to a nontransmitted BSSID, shall include the same element(s) in the per-STA profile corresponding to the first AP in the Basic variant Multi-Link element corresponding to the AP MLD
* the timing fields in the Channel Switch Announcement element, the Enhanced Channel Switch Announcement element, the Quiet element and the Quiet Channel element shall be applied in reference to the most recent TBTT and BI indicated in the corresponding element(s) of the first AP and not to the TBTT and BI of the other AP of the AP MLD.

NOTE 1 – If the other AP corresponds to a nontransmitted BSSID, the same element(s) for the first AP is included in the per-STA profile corresponding to the first AP in the Basic variant Multi-Link element corresponding to the AP MLD in the nontransmitted BSSID profile corresponding to the other AP in the Multiple BSSID element in the Beacon and Probe Response frame transmitted by the transmitted BSSID.

NOTE 2 – If an AP affiliated to an AP MLD is switching channel, the Channel Switch Announcement element, the Enhanced Channel Switch Announcement element, the Max Channel Switch Time elements will be included in every Beacon and Probe Response frame on all links of the AP MLD from right after the time the AP includes the elements in the Beacon frame it transmits until the intended channel switch time.

When a first AP of an AP MLD is switching from an initial operating class/channel to a target operating class/channel at a target switch time using channel switch announcement procedure or extended channel switch announcement procedure, then:

* another affiliated AP of the AP MLD shall set the fields corresponding to the first AP that is reported in the RNR in Beacon and Probe Response frames it transmits (or that the transmitted BSSID in the same Multiple BSSID set as the other AP transmits if the other AP corresponds to a nontransmitted BSSID) before the target switch time to the initial operating class/channel,
* another affiliated AP of the AP MLD shall set the fields corresponding to the first AP that is reported in the RNR in Beacon and Probe Response frames it transmits (or that the transmitted BSSID in the same Multiple BSSID set as the other AP transmits if the other AP corresponds to a nontransmitted BSSID) after the target switch time to the target operating class/channel.

Do you support to incorporate the proposed draft text in 11-21/73r2 into the latest version of TGbe draft?