IEEE P802.11
Wireless LANs

|  |
| --- |
| LB271 CR for Clause 35.3.7.5.3 |
| Date: 2023-06-20 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Arik Klein | Huawei | Huawei TLV Research Center |  | arik.klein@huawei.com  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Abstract

This submission proposes CR for 8 CIDs: 15285, 15824, 15867, 16024, 16025, 16026, 16114, 16514 (LB271) regarding clause 35.3.7.5.3 - Affiliated AP link enablement

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: modified due to offline comments

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** | **Pg/Ln** | **Section** | **Comment** | **Proposed Change** | **Resolution** |
| --- | --- | --- | --- | --- | --- | --- |
| 15285 | Jay Yang | 524.31 | 35.3.7.3.3 | if the link operating on DFS channel, when the affilicated AP operates the link from disable to enable state, the AP should take into account the value on EnableTimer | we should add a note to clairfy "all the timer(disabled Timer, EnableTimer, expected duration) setting shall comply with regulatry rule when the AP operates on DFS channel" | **Rejected**The comment failed to point out a valid issue, since the term “DFS channel” on which a link is operating does not exist in the 802.11 specification. The DFS is defined as “Facilities mandated to satisfy requirements in some regulatory domains for radar detection and uniform channel spreading in the 5 GHz band.”Additionally, the timers used in the advertised TID-to-link mapping are aimed for sufficient advanced notification of the upcoming affiliated AP link disablement or enablement and not for DFS procedures (see 11.8). |
| 16025 | Binita Gupta | 524.35 | 35.3.7.3.2 | When MLME-BSS-LINK-ENABLE.request primitive is received, the EableTimer value can be different than the Expected Duration field being advertised in T2L mapping. Hence the advertised T2LM should change to reflect the received EnableTimer for the link. | Modify text to capture requirement as in comment | **Revised**Agree in principle with the comment. The sentence is revised for the case where the Enable Timer parameter may be used to update different fields in the advertised TID-to-link mapping.A similar modification is applied for the Affiliated AP link disablement case for the cases where the Disable timer parameter may be used to update different fields in the advertised TID-to-link mapping.**TGbe editor please implement changes as shown in doc 11-23/1019r1 tagged as 16025** |
| 16024 | Binita Gupta | 524.34 | 35.3.7.3.2 | The link enablement operation is at the MLD level and changes to the advertised T2L mapping need to be advertised by all the affiliated APs of the MLD. | Modify text to indicate that the MLME-BSS-LINK-ENABLE.request primitive is received by the AP MLD and changes to the advertised T2L mapping is sent by all affiliated APs of the AP MLD, not just by the AP which is being enabled. | **Revised**Agree with the comment. The sentence is revised so that the changes are applied by each of the APs affiliated with the AP MLD and correspond to the enablement of the link on which the AP, that corresponds to the BSSID parameter indicated in that primitive, is operating.**TGbe editor please implement changes as shown in doc 11-23/1019r1 tagged as 16024** |
| 16514 | Arik Klein | 524.36 | 35.3.7.3.3 | The link to be enabled is indicated by the BSSID corresponding to the AP affiliated with the AP MLD and not the link on which the AP is operating. Please correct the sentence, as suggested. | Revise the sentence as follows: "...., an affiliated AP shall advertise a TID-to-link mapping in Beacon and Probe Response frames that maps at least one TID to the \*link on which the affiliated AP corresponding to the BSSID indicated in the MLME-BSS-LINK-ENABLE.request primitive is operating\* or stop advertising the TID-to-link mapping that indicated no TIDs mapped to the link \*on which the affiliated AP corresponding to the BSSID indicated in the MLME-BSS-LINK-ENABLE.request primitive is operating\*." | **Revised**Agree with the comment. The sentence is revised so that the changes are applied by each of the APs affiliated with the AP MLD and correspond to the enablement of the link on which the AP, that corresponds to the BSSID parameter indicated in that primitive, is operating.**TGbe editor please implement changes as shown in doc 11-23/1019r1 tagged as 16024** |
| 16114 | Insun Jang | 524.47 | 35.3.7.3.3 | The same time is confusing since two fields have different meaning, where the expected duration means a duration while the mapping switching time means the time at which the new mapping is established | As in the comment, the sentence should be claified | **Revised**Agree with the comment. The sentence is revised to clarify that two TID-to-link mappings are included with time value alignment between the different fields on each of these two TID-to-link mappings.**TGbe editor please implement changes as shown in doc 11-23/1019r1 tagged as 16114** |
| 15867 | Chunyu Hu | 524.57 | 35.3.7.3.3 | If any frame exahcange can happen, this is just baseline and can be simplified by referring to the baseline subclause, unless "can be initiated" actually means "cannot be initiated" which makes more sense to me. | As in comment. | **Revised**Agree with the comment. The sentence is revised to clarify that the frame exchange is initiated only if CCA is performed until a frame is detected by which it can set its NAV, or until a period equal to NAVSyncDelay has transpired, whichever is earlier.**TGbe editor please implement changes as shown in doc 11-23/1019r1 tagged as 15867** |
| 15824 | Muhammad Kumail Haider | 524.59 | 35.3.7.3.3 | "..affiliated with an MLD following CCA performance until a frame is detected...". Please incldue the CCA performance subclause (18.4.6) for proper context | as in comment | **Revised**The sentence is revised to clarify that the frame exchange is initiated only if CCA is performed until a frame is detected, or until a period equal to NAVSyncDelay has transpired, whichever is earlier.**TGbe editor please implement changes as shown in doc 11-23/1019r1 tagged as 15867** |
| 16026 | Binita Gupta | 524.63 | 35.3.7.3.2 | Change unavailable to disabled for consistent terminology. | Change to "...before the link was advertised as disabled subject to power state ..." | **Accepted** |

*TGbe editor: Please note baseline is 11be D3.2 and REVme D**2.1*

###### Affiliated AP link enablement

***TGbe editor: Please modify the following subclause as follows***

When an AP MLD receives the MLME-BSS-LINK-ENABLE.request primitive (#16025) (#16024) each AP that is affiliated with the AP MLD and is operating on an enabled link, shall stop advertising, in transmitted Beacon and Probe Response frames, the TID-to- link mapping that indicates no TIDs mapped to the link on which the AP, that corresponds to the BSSID parameter indicated in the primitive, is operating after the expiry of the time indicated by the Expected Duration field advertised in an existing TID-to-link mapping. (#16025) In this case, the duration indicated by the EnableTimer parameter of the MLME-BSS-LINK-ENABLE.request primitive may be used to update the Expected Duration field in the currently advertised TID-to-link mapping according to the rules defined in 35.3.7.2.4 (Advertised TID-to-link mapping in Beacon and Probe Response frames).

(#16114) When replacing the current advertised TID-to-link mapping that indicates one or more links are disabled by a new advertised TID-to-link mapping that indicates one or more of those links are enabled, two non-default TID-to-link mappings shall be advertised in Beacon and Probe Response frames according to the rules defined in 35.3.7.2.4 (Advertised TID-to-link mapping in Beacon and Probe Response frames) .

When an AP MLD stops advertising that a link is disabled for all associated non-AP MLDs:

the Disabled AP Link Indication subfield shall be set to 0 in the MLD Parameters subfield corresponding to the AP affiliated with the AP MLD and operating on the link that is included in the Neighbor AP Information field in the Reduced Neighbor Report element carried in the Beacon or Probe Response frames transmitted by any of the APs affiliated with the AP MLD

the AP operating on this link shall retain unchanged GTK/IGTK/BIGTK keys as before this link was advertised as disabled for all associated non-AP MLDs

the AP operating on this link shall transmit a TSF that is equivalent to the expected TSF if this link was never advertised as disabled

frame exchange operation on this link between the affiliated AP and non-AP STAs affiliated with the associated non-AP MLDs that include the enabled link in their ML setup can be initiated by any member of the BSS that is affiliated with an MLD (#15867) only if CCA is performed until a frame is detected by which it can set its NAV, or until a period equal to NAVSyncDelay has transpired, whichever is earlier. The frame exchange is initiated using all the link parameters that were defined before the link has been (#16026)advertised as a disabled link, subject to power state (see [35.3.12 (Multi-link power](#_bookmark50) [management)](#_bookmark50)) and enablement status (see [35.3.7.2 (TID-to-link mapping)](#_bookmark35)) of the affiliated non-AP EHT STA.

NOTE 1—An equivalent TSF is desirable for maintaining TWT agreements. An equivalent TSF might be implemented at the AP MLD by determining the difference between the TSF of the disabled AP minus the TSF of another affiliated AP when the link is disabled and then initializing the TSF of the AP when later enabled to the TSF of the other affiliated AP plus the difference.

NOTE 2—After the enablement of an AP link is established, if there is no new TID-to-link mapping advertised, all associated non-AP STAs operate in the default mapping.

######  Affiliated AP link disablement

***TGbe editor: Please modify the following subclause as follows***

Upon receiving an MLME-BSS-LINK-DISABLE.request primitive, (#16017)each of the APs affiliated with an AP MLD shall advertise a TID-to-link mapping, in transmitted Beacon and Probe Response frames, that does not map any TIDs to the link on which the AP, that corresponds to the BSSID parameter indicated in that primitive, is operating. (#16025) If there is no currently advertised non-default TID-to-link mapping, the Mapping Switch Time field of the advertised TID-to-link mapping shall point to the same time as indicated in the DisableTimer parameter of the MLME-BSS-LINK- DISABLE.request primitive.

(#16025) Alternatively, if there is a currently advertised non-default TID-to-link mapping, upon receiving an MLME-BSS-LINK-DISABLE.request primitive, each of the APs affiliated with an AP MLD shall advertise a TID-to-link mapping, in transmitted Beacon and Probe Response frames, that does not map any TIDs to the link on which the AP, that corresponds to the BSSID parameter indicated in that primitive, is operating and that will take effect after the expiry of the time indication in the Expected Duration field of the currently advertised TID-to-link mapping. In this case, the duration indicated in the DisableTimer parameter of the MLME-BSS-LINK- DISABLE.request primitive may be used to update the Expected Duration field of the currently advertised TID-to-link mapping according to the rules defined in 35.3.7.2.4 (Advertised TID-to-link mapping in Beacon and Probe Response frames) .

***TGbe editor: Please modify the following subclause as follows***

When an AP MLD advertises that a link is disabled for all associated non-AP MLDs, after the time indicated by the Mapping Switch Time field is reached:

the Disabled Link Indication subfield shall be set to 1 in the MLD Parameters subfield corresponding to the AP affiliated with the AP MLD and operating on the link that (#15118)is included in the Neighbor AP Information field in the Reduced Neighbor Report element carried in the Beacon or Probe Response frames transmitted byany of the APs affiliated with the AP MLD and any APs that set the Co-Located AP bit of the BSS Parameters subfield of the TBTT Information field of the Neighbor AP Information field to 1 for the disabled AP. If the Disabled (#15119)Link Indication subfield corresponding to a reported AP is set to 1, then the Neighbor AP TBTT Offset subfield included in the same TBTT Information field of the Reduced Neighbor Report element shall be set to 255.

* (#16348)a non-AP EHT STA affiliated with a non-AP MLD that is associated with the AP MLD shall not use the link to transmit individually addressed frames to the AP affiliated with the AP MLD that is operating on a link that is disabled.
* (#16348)a non-AP EHT STA affiliated with a non-AP MLD that is not associated with the AP MLD shall not transmit (#16025) multi-link probe request, Authentication, and (Re)association Request frames to the AP affiliated with the AP MLD while the link is disabled (as indicated in the Expected Duration field in the advertised TID-To-Link Mapping element that does not include Mapping Switch time field, or as indicated in the Disabled Link Indication subfield in the Reduced Neighbor Report element).
* (#16348)a non-AP EHT STA affiliated with a non-AP MLD that is not associated with the AP MLD should not use the link to transmit other individually addressed management frames to the AP affiliated with the AP MLD that is operating on a link that is disabled.

Straw Poll:

Do you support to incorporate the proposed draft text in this document 11-23/1019r1 to the next revision of TGbe Draft 3.2, for addressing the following CIDs: 15285, 15824, 15867, 16024, 16025, 16026, 16114, 16514 (LB271)?

Result: Yes/No/Abstain