IEEE P802.11
Wireless LANs

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| MLO TID-link-mapping/link management: Default mode and link enablement |
| Date: 2020-07-0 |
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R2: Comments received during the call.

R3: addition of spec text for Motion 112 SP51/52

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).***

**Discussion on the initial power state and power mode of all STAs of a non-AP MLD after association.**

The spec needs to define the initial power sate and power mode right after association (after sending an Ack to the (re)association response frame). Baseline defines that the STA shall be in awake state after association, except if the association is performed out-of-band with OCT, in which case, the STA is in power save mode and doze state. This is very logical as the STA performing OCT is still on the other link completing association.

We are in a very similar situation as OCT for MLD, as association of other STAs is performed by multi-link setup on one link. As we have single radio STAs that can only be awake on one link at a time, the situation is exactly the same as for OCT and the same rule shall apply. That’s what have been agreed in D0.1 as the default mode.

For multi-radio STAs, in D0.1, it is TBD if we want or not to have a signaling that explicitly indicates the power state of the STA on a link different than the link on which multi-link setup is done. It is true that such device can be awake on more than one link and can therefore possibly have a different state than doze on another link after association. I see however 2 arguments:

* Obviously even multi-radio STAs want to save power and during the association process, it is very likely that they’ll want to only have one STA awake and the other STAs in doze state. Now if they want to be awake as quickly as possible after association to be available as fast as possible with full capabilities, one could thin that they could explicitly indicate that in the (re)association request frame, which would imply that they would be in awake state after association (after sending the Ack to (re)association response frame on the link on which multi-link setup is made). However, there is still a lot to do after (re)association, especially 4-way handshake, during which it is clear that the STAs on the other links also want to be in doze state and nothing can be done on the other links. So that time at which the STA wants to indicate it is in the awake state would be at the end of the 4-way handshake process. That starts to be relatively complicated and imprecise, and the benefits over current default mode where the STA indicates on its own link that it’s now in the awake state, seems very minor.

***11.2.3.2 Non-AP STA power management modes (REVmd D3.4)***

***[…]***

*A non-AP STA shall be in active mode upon (re)association, except that if the (re)association is performed using the on-channel tunneling procedure defined in 11.32.5 (On-channel Tunneling (OCT) operation), then the non-AP STA shall be considered to be in power save mode and in doze state upon (re)association on the BSS identified by the BSSID, Band ID, and Channel Number fields contained in the Multi-band element transmitted in the On-channel Tunnel Request frame that carries the (Re)Association Request frame.*

1. **Proposed spec text**

TGbe editor:

**35.3.6.1.4 Power state after enablement**

When a link becomes enabled for a STA that is part of a non-AP MLD through multi-link setup sent on that link, the initial power management mode of the STA, immediately after the signaling exchange, is active mode.

When a link is enabled for a STA that is part of a non-AP MLD through signaling (multi-link setup or TID to link mapping update) send on another link, the initial power management mode of the STA, immediately after the exchange, is power save mode, and its power state is doze.

TGbe editor: This is the new spec text addition due to motion 112 SP51 and 52