IEEE P802.11
Wireless LANs

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| Comment Resolution on TDLS |
| Date: Nov 8th, 2023 |
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 Abstract

This submission proposes resolutions for the following 1 comment received for TGbe LB271:

* 8 CID: 19962 19954 19959 19960 19955 19957 19958 19964

SP: Do you agree to the resolutions provided in doc 11-23/1781r0 for the following CIDs for inclusion in the latest 11be draft?

19962 19954 19959 19960 19955 19957 19958 19964

Revisions:

* Rev 0: Initial version.

***TGbe editor: Please note Baseline is 11be D4.1***

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.

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| **CID** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 19962 | 580.22 | Broadcast TWT operation procedure for MLD is currently missing and needs to be added. | as in comment. | **Revised**Agree in principle. Currently, the broadcast TWT operation for MLDs is missing in the spec and needs to be added.**TGbe editor, please make change as shown in this doc 11-22/1781r0 tagged by #19962.** |
| 19954 | 611.35 | 11be includes multi-link operation and restricted TWT operation. However, how restricted TWT will operate on multi-link devices (MLDs) is not clear. In general, mechanism for Broadcast TWT, which is a basis for restricted TTWT, for MLDs need to be defined. | Please provide text for R-TWT/B-TWT negotiation for MLD. | **Revised**Agree in principle. Currently, the broadcast TWT operation for MLDs is missing in the spec and needs to be added.**TGbe editor, please make change as shown in this doc 11-22/1781r0 tagged by #19962.** |
| 19959 | 580.22 | aligned schedule is defined for broadcast TWT. However, the broadcast TWT for MLD subclause is currently incomplete. Provide additional details to make the clause complete. | as in comment. | **Revised**Agree in principle. Currently, the broadcast TWT operation for MLDs is missing in the spec and needs to be added.**TGbe editor, please make change as shown in this doc 11-22/1781r0 tagged by #19962.** |
| 19960 | 580.22 | procedures for Aligned schedule and Broadcast TWT negotiation over one link for multiple links are currently missing and needs to be provided. | as in comment. | **Revised**Agree in principle. Currently, the broadcast TWT operation for MLDs is missing in the spec and needs to be added.**TGbe editor, please make change as shown in this doc 11-22/1781r0 tagged by #19962.** |
| 19955 | 611.35 | A procedure for a STA affiliated with a non-AP MLD requesting for aligned R-TWT schedule to be established over multiple links between the AP MLD and the non-AP MLD is currently missing? Such procedure would be quite helpful in power saving and traffic management for the client devices and need to be provided. | as in comment. | **Rejected**The aligned broadcast TWT operation is currently an advertisement-only procedure, and the group has not reach a consensus to introduce a request-response based approach for aligned broadcast TWT. |
| 19957 | 580.22 | A STA affiliated with an MLD should be able to actively request for an aligned schedule over multiple links to the AP MLD. Such procedure is missing and needs to be provided. | as in comment. | **Rejected**The aligned broadcast TWT operation is currently an advertisement-only procedure, and the group has not reach a consensus to introduce a request-response based approach for aligned broadcast TWT. |
| 19958 | 580.22 | aligned TWT requesting and negotiation procedure defined for individual TWT should be extended and generalize for broadcast TWT as well. | as in comment. | **Rejected**The aligned broadcast TWT operation is currently an advertisement-only procedure, and the group has not reach a consensus to introduce a request-response based approach for aligned broadcast TWT. |
| 19964 | 611.37 | How a STA affiliated with a non-AP MLD can request aligned R-TWT schedule over multiple of its enabled links is not clear. Such a procedure would be very helpful for the latency-sensitive traffic handling for the non-AP MLD and needs to provided. | as in comment. | **Rejected**The aligned broadcast TWT operation is currently an advertisement-only procedure, and the group has not reach a consensus to introduce a request-response based approach for aligned broadcast TWT. |

***TGbe editor: Please Change Figure 9-761 (Broadcast TWT Parameter Set field format) as follows:***

 

**Figure 9-761: Broadcast TWT Parameter Set field format (#19962)**

***TGbe editor: Please* change the paragraph (The Link ID Bitmap subfield indicates the links…) in Clause 9.4.2.198 (TWT element) as follows:**

The Link ID Bitmap subfield indicates the links to which an individual or broadcast TWT parameter set contained in the TWT element sent by a STA affiliated with an MLD applies (see 35.3.24.2 (Individual TWT agreements), 35.3.24.3 (Broadcast TWT operation)). A value of 1 in bit position i of the Link ID Bitmap subfield indicates that the TWT parameter set in the TWT element sent by a STA affiliated with an MLD applies to the link identified by link ID i. A value of 0 in bit position i of the Link ID Bitmap subfield indicates that the TWT parameter set in the TWT element sent by a STA affiliated with an MLD does not apply to the link identified by link ID i.

***TGbe editor: Please* add the following paragraph in clause 9.4.2.198 (TWT element) after the 9th paragraph (The Link ID Bitmap field..)**

In a broadcast TWT element, if the Link ID Bitmap Present field is set to 1, then the Link ID Bitmap field is present in all the broadcast TWT parameter sets in the broadcast TWT element; otherwise, the Link ID Bitmap field is not present in any of the broadcast TWT parameter set.

***TGbe editor: Please insert the following paragraphs in clause 35.3.24.3 (Broadcast TWT operation) as the beginning paragraphs in this clause***

**35.8.3 Broadcast TWT operation (#19962)**

The TWT scheduled STA affiliated with the non-AP MLD or the TWT scheduling AP affiliated with the AP MLD, while negotiating for a broadcast TWT schedule, may indicate the link between the AP MLD and the non-AP MLD for which the negotiation is being conducted. The TWT scheduled STA or the TWT scheduling AP transmitting the TWT element may make the link indication in the Link ID Bitmap subfield in the Broadcast TWT Parameter Set field corresponding to the broadcast TWT schedule.

* If a link is indicated in a Link ID Bitmap subfield in the Broadcast TWT Parameter Set field transmitted by a TWT scheduled STA affiliated with the non-AP MLD or a TWT scheduling AP affiliated with the AP MLD, the corresponding broadcast TWT schedule is negotiated on behalf of the STA affiliated with the same MLD and operating on the indicated link between the AP MLD and the non-AP MLD. The Target Wake Time field in the Broadcast TWT Parameter Set field shall be in reference to the TSF time of the link indicated in the Link ID Bitmap subfield in the Broadcast TWT Parameter Set field.

A TWT scheduling AP affiliated with the AP MLD or a TWT scheduled STA affiliated with the non-AP MLD that receives a broadcast TWT parameter set containing a Link ID Bitmap subfield may indicate the link in the Link ID Bitmap subfield of the corresponding Broadcast TWT Parameter Set field in the TWT element in the response frame it transmits. The Link ID Bitmap subfield, if present in the Broadcast TWT Parameter Set field in the response frame, shall indicate the same link as that indicated in the corresponding Broadcast TWT Parameter Set field in the TWT element it received.

* If the Link ID Bitmap Present subfield in the Control field in a broadcast TWT element is set to 1, then all the Broadcast TWT Parameter Set fields included in the broadcast TWT element shall contain a Link ID Bitmap subfield; otherwise, none of the Broadcast TWT Parameter Set field included in the broadcast TWT element shall contain any Link ID Bitmap subfield.
	+ If a TWT scheduling AP affiliated with an AP MLD or a TWT scheduled STA affiliated with a non-AP MLD receives a broadcast TWT element that sets the Link ID Bitmap Present subfield to 0, it would indicate that all the broadcast TWT parameter set(s) included in the received broadcast TWT element apply to the link on which the broadcast TWT element is received.
* If a TWT scheduled STA affiliated with a non-AP MLD sends a TWT element to its associated AP affiliated with the AP MLD that includes a Link ID Bitmap subfield in a Broadcast TWT Parameter Set field, where the link indicated in the Link ID Bitmap subfield of the Broadcast TWT Parameter Set field indicates a different link than the link on which the TWT element is sent, then the TWT Setup Command subfield in the Request Type field of the Broadcast TWT Parameter Set field shall be set to 0 (Request TWT).
* The AP MLD or the non-AP MLD shall not transmit a TWT element over a link set up between them that includes a TWT parameter set field containing a Link ID Bitmap subfield with $k$-th bit in the bitmap set to 1 if the corresponding $k$-th link is disabled for the non-AP MLD through TID-to-Link mapping.

An R-TWT scheduling AP or an R-TWT scheduled STA, in the context of multi-link operation, for negotiating membership of a restricted TWT schedule, shall follow the rules defined in 35.8.3 (Broadcast TWT operation) with additional rules described in this subclause.

For R-TWT operation between an AP MLD and a non-AP MLD, the AP MLD or the non-AP MLD shall not transmit a TWT element over any of the set up links between them that includes an R-TWT parameter set with the $k$-th bit in the Restricted TWT DL TID Bitmap subfield or Restricted TWT UL TID Bitmap subfield, if present, set to 1 if the TID $k$ for the respective direction is not mapped on the intended link for which the restricted TWT schedule is being negotiated. The AP MLD or the non-AP MLD