### IEEE P802.11 Wireless LANs

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| 11be D2.0 CR for duplication transmission over ML for low latency traffic |
| Date: 2022-08-21 |
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|  |  |  |  |  |

Abstract

This submission proposes resolutions for the following CIDs:

10083

Revisions:

* Rev 0: Initial version of the document.

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 D2.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D2.0 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** | **Clause** | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 10083 | Xiangxin Gu | 35.3 | 404.50 | Duplication transmission of MPDUs over ML is a good supplementary tool to achieve low latency for LST. It is allowed. But abuse of it will impact the BSSs. Please define applicable rules. | As in the comment | **Revised:**Agree with the commenter in principle.Propose to leverage duplication transmission over multi-link for latency sensitive data coming a period before the Restricted TWT SP and not delivered during the preceding Restricted TWT SP. The period and the maximum number of copies of a MPDU being transmitted concurrently over the Multi-Link are specified in the Restricted TWT Parameter Set field.Tgbe editor: please implement changes as shown in this doc tagged as 10083 |

**Discussion:**

**

**End of discussion**

**Propose:**

***Change*** [***Figure 9-766 (Broadcast TWT Parameter Set field format)***](#bookmark124) ***as follows:***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Request Type | Target Wake Time | Nominal Minimum TWT Wake Duration | TWT Wake Interval Mantissa | Broadcast TWT Info | Restricted TWT Traffic Info (optional) |

Octets: 2 2 1 2 2 0 or 4

**Figure 9-766—Broadcast TWT Parameter Set field format**

***Change*** [***Figure 9-770a (Restricted TWT Traffic Info field format)***](#bookmark124) ***as follows:***

|  |  |  |  |
| --- | --- | --- | --- |
| Traffic Info Control | Restricted TWT DL TID Bitmap | Restricted TWT UL TID Bitmap | Time Offset to the Restricted TWT SP for Duplication Transmission over ML |

Octets: 1 1 1 1

**Figure 9-770a—Restricted TWT Traffic Info field format**

***Change*** [***Figure 9-770b (Traffic Info Control field format)***](#bookmark124) ***as follows:***

 B0 B1 B2 B5 B6 B7

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | DL TID Bitmap Valid | UL TID Bitmap Valid | Max Num of Duplication Transmission over ML | Reserved |
| Bits: | 1 | 1 | 4 | 2 |

**Figure 9-770b—Traffic Info Control field format**

***Add the following paragraph at the end of subclause 9.4.2.199 TWT element as follows:***

The value of the Max Num of Duplication Transmission over ML subfield indicates if duplication transmission over ML is allowed and if the Time Offset to the Restricted TWT SP for Duplication Transmission over ML subfield has valid information. When the value is greater than 0, duplication transmission over Multi-Link for latency sensitive traffic is permitted and the maximum number of copies of a MPDU being transmitted concurrently over the Multi-Link is the value + 1. An MSDU coming a period before the Restricted TWT SP and not delivered during the preceding Restricted TWT SP can be transmitted with duplication transmission over Multi-Link. The period is specified by the value of the Time Offset to the Restricted TWT SP for Duplication Transmission over ML subfield in milliseconds. When the value of the Max Num of Duplication Transmission over ML subfield is set to 0, no duplication transmission over Multi-Link is permitted, and the Time Offset to the Restricted TWT SP for Duplication Transmission over ML subfield is reserved.

***Add the following paragraph at the end of subclause 35.9.3 r-TWT service periods announcement as follows:***

An r-TWT scheduling AP, while advertising an r-TWT schedule, shall indicate if duplication transmission over ML is allowed and the maximum number of copies of a MPDU being transmitted concurrently over the Multi-Link via the Max Num of Duplication Transmission over ML subfield in the Broadcast TWT Info subfield in a Restricted TWT Parameter Set field. If duplication transmission over ML is permitted, the Time Offset to the Restricted TWT SP for Duplication Transmission over ML subfield in the Broadcast TWT Info subfield in the Restricted TWT Parameter Set field shall be set.

***Add the following paragraph at the end of subclause 35.9.5 Traffic delivery as follows:***

If the Max Num of Duplication Transmission over ML subfield in the Broadcast TWT Info subfield in the Restricted TWT Parameter Set field is greater than 0, for an MSDU coming a period before the Restricted TWT SP and not delivered during the preceding Restricted TWT SP, the r-TWT scheduled STA may transmit the MSDU with duplication transmission over Multi-Link. The period is specified by the value of the Time Offset to the Restricted TWT SP for Duplication Transmission over ML subfield in milliseconds.