IEEE P802.11
Wireless LANs

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| MLO Multi-Link Start-time Sync PPDUs |
| Date: 2020-11-11 |
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Abstract

This document contains draft text for MLO Multi-Link start-time sync PPDUs, for inclusion into TGbe draft D0.2.

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Removed the informative paragraph in compliance with the latest SA editorial guideline. Various editorials.

The texts is prepared for the following motions.

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| **Layer** | **SFD Topic** | **POC** | **TTT** | **R1/R2** | **Notes** |
| MAC | MLO-Multi-link channel access: Synch Start of PPDU | Duncan Ho | Yongho Seok, Yunbo Li, Insun Jang, Matthew Fischer, Akhmetov Dmitry, Minyoung Park, Liwen Chu, Dibakar Das, Jarkko Kneckt, Chunyu Hu, Tomo Adachi, Jeongki Kim, NEZOU Patrice, Sharan Naribole, Yonggang Fang, Zhou Lan, Akhmetov Dmitry, PEYUSH Agarwal, Liuming Lu, Ryuichi Hirata Sanghyun Kim,Xin Zuo, Sebastian Max, Laurent Cariou, Jonghun Han, Youhan Kim, John Yi, Hanseul Hong, Rana Abdelaal | R1 | Motion 135, #SP240Motion 142, #SP310 |

A non-STR MLD that intends to align the start time of the PPDUs sent on more than one link shall ensure that EDCA count down procedure is completed on all the links.

* NOTE 1 – The above restriction only applies to the case when the non-STR MLD is the TXOP initiator.
* NOTE 2 – Whether to extend this mechanism to STR MLD is TBD.
* NOTE 3 – This is an R1 feature.

[Motion 135, #SP240, [25] and [240]]

An STA that is affiliated with a non-STR MLD shall follow the channel access procedure described below.

1. The STA may initiate transmission on a link when the medium is idle and one of the following conditions is met:
2. The backoff counter of the STA reaches zero on a slot boundary of that link.
3. The backoff counter of the STA is already zero, and the backoff counter of another STA of the affiliated MLD reaches zero on a slot boundary of the link that the other STA operates.
4. When the backoff counter of the STA reaches zero, it may choose to not transmit and keep its backoff counter at zero.
5. If the backoff counter of the STA has already reached zero, it may perform a new backoff procedure. CW[AC] and QSRC[AC] is left unchanged.

[Motion 142, #SP310, [23] and [241]]

**Proposed spec text:**

The baseline for this text is 802.11 REVmd draft 3.4 and 802.11ax D6.1.

***TGbe editor: Add new a subclause 33.3.12.6 (PPDU start time alignment) under clause 33.3.12 as follows:***

**33.3.12.6 Start Time Sync PPDUs Medium Access**

A non-STR MLD contending for the WM to become a TXOP holder and that intends to align the start times of the PPDUs that are scheduled for transmission on more than one link shall ensure that the EDCA count down procedure is completed in all the links.

NOTE 1—The backoff counters for each link count down as specified in 10.23.2.4 (Obtaining an EDCA TXOP).

NOTE 2—Whether to extend this mechanism to STR MLD is TBD.

A STA that is affiliated with a non-STR MLD shall follow the channel access procedure described below:

* The STA may initiate transmission on a link when the medium is idle and one of the following conditions is met:
* The backoff counter of the STA reaches zero on a slot boundary of that link.
* The backoff counter of the STA is already zero, and the backoff counter of another STA of the affiliated MLD reaches zero on a slot boundary of the link that the other STA operates.
* When the backoff counter of the STA reaches zero, it may choose to not transmit and keep its backoff counter at zero.
* If the backoff counter of the STA has already reached zero, it may perform a new backoff procedure. CW[AC] and QSRC[AC] are left unchanged.

**Straw Poll: Do you support to incorporate the proposed draft text in this document 11-20/1910r1 to the TGbe Draft 0.2?**

**Result: Yes/No/Abstain**