IEEE P802.11  
Wireless LANs

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| MAC MLO: Blindness due to NSTR operation | | | | |
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Abstract

Spec text proposal for 11be D0.4 related to motions on channel access for a NSTR link pair following a transmission event.

Revisions

* Rev 0: Initial version.
* Rev 1: Incroporated comments from Matt and added two discussion items.

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).***

**This document proposes spec text contribution for the following motions that passed in 11be:**

In R1, if during a transmission of a STA (STA-1) of a non-STR non-AP MLD, another STA (STA-2) of the same MLD cannot detect its medium state when required (due to STA-1’s UL transmission interference), STA-2 shall start a MediumSyncDelay timer at the end of STA-1’s transmission, unless the STA-2 ended a transmission at the same time.

* The MediumSyncDelay timer expires after a duration value that is either assigned by AP or a default value in the specification or if at least either of the following events happens:
  + any received PPDU with a valid MPDU,
  + a received PPDU whose corresponding RXVECTOR parameter TXOP\_DURATION is not UNSPECIFIED,

whichever happens first.

* STA-2 shall perform CCA until the MediumSyncDelay timer expires. Additional TBD exceptions may be considered.

NOTE – It is TBD whether STA-2 is required to start the MediumSyncDelay timer if the transmission of STA-1 is shorter than TBD duration.

[Motion 150, #SP373, [92] and [273]]

**Discussion:**

1. There are couple of questions on the duration value of the timer.
2. There is a default value and a duration value that is set by associated AP. We received a comment about whether we need both and if both are present which one shall be used by the STA?
3. What is the default duration value ? We think this number should be the aPPDUMaxTime for HE PPDUs which is 5.484 ms. Note that the number is higher for HT PPDUs (~10ms) but that may be too conservative.
4. There is also a question about the expected behaviour of the STA while the timer is running. The desired behaviour is that during this time a STA does not start transmitting any frame using EDCA as this might collide with any ongoing transmission activity. However, the motion text just says “shall perform CCA until the MediumSyncDelay timer expires” to keep it inline with the text for NAVSyncDelay. Since there is some confusion, we prefer to clarify that during this time, the STA cannot typically start a TXOP by transmitting a frame except by following some TBD rules. Some potential rules to consider would be the ones we have in 613r5 and 1009r10. So, we propose the following text:

“While the MediumSyncDelay timer is running at a STA, it shall perform CCA and shall not transmit a frame that initiates a TXOP except under TBD conditions.”

Note that a STA can still transmit frames as response to any TF from AP received while the timer is running and in fact, the TF will also end the timer at the STA. Moreover, the STA can run EDCA while the timer is running, however it can transmit only after end of the timer.

**Proposed spec text:**

***TGbe editor: Insert the new subclause 35.3.13.7 Medium synchronization recovery procedure as follows:***

**35.3.13.7 Medium synchronization recovery procedure** [Motion 150, #SP373]

A STA affilitated with a non-AP MLD that belongs to a NSTR link pair, is considered to have lost medium synchronization (due to UL interference) when the other STA, that is affiliated with the same MLD and belongs to that link pair, transmits a PPDU, except under the following conditions:

* Both STAs ended a transmission at the same time.

A STA that has lost medium synchronization due to transmission by another STA affiliated with the same MLD shall start a MediumSyncDelay timer at the end of that transmission event. It is TBD whether the STA is required to start the MediumSyncDelay timer if the transmission event is shorter than TBD duration.

The MediumSyncDelay timer is a single timer, shared by all EDCAFs within a non-AP STA, that is initialized with a default TBD value ~~in the specification~~ or the value contained in the TBD field of the TBD element transmitted by its associated AP, whichever is smaller. In addition, the timer resets to zero when any of the following events occur:

* The STA receives a PPDU with a valid MPDU.
* The STA receives a PPDU whose corresponding RXVECTOR parameter TXOP\_DURATION is not UNSPECIFIED.

While the MediumSyncDelay timer is running at a STA, it shall perform CCA and shall not transmit a frame that initiates a TXOP except under TBD conditions.