IEEE P802.11
Wireless LANs

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| CR for aMediumSyncThreshold |
| Date: September 1, 2021 |
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 Abstract

This submission proposes resolutions for following CIDs received for TGbe CC36:

4234, 4834, 6318, 8041, 8209

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Add RTS in the table of discussion and the reasoning in the note.

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.

***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).***

***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.***

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| **CID** | **Commenter** | **Page** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 4234 | Alfred Asterjadhi | 279.54 | 35.3.14.7.1 | Please specify the value of the aMediumSyncThreshold. | As in comment. | Revised-Agree in principle with the comment. Generally, the aMediumSyncThreshold is designed to cover the scenario that the transmission event on one link is a control response frame, e.g., CTS/ACK/BA frames. Hence, the aMediumSyncThreshold should be larger than or equal to the typical PPDU length of those control response frame. TGbe editor:Please implement changes as shown in this document tagged as 4234. |
| 4834 | Dibakar Das | 279.35 | 35.3.14.7.1 | The value of "aMediumSyncThreshold" is not defined | Specify its value | Revised-Agree in principle with the comment. Generally, the aMediumSyncThreshold is designed to cover the scenario that the transmission event on one link is a control response frame, e.g., CTS/ACK/BA frames. Hence, the aMediumSyncThreshold should be larger than or equal to the typical PPDU length of those control response frame. TGbe editor:Please implement changes as shown in this document tagged as 4234. |
| 6318 | Ming Gan | 279.51 | 35.3.14.7.1 | Please specify the value of aMediumSyncThreshold | as in the comment | Revised-Agree in principle with the comment. Generally, the aMediumSyncThreshold is designed to cover the scenario that the transmission event on one link is a control response frame, e.g., CTS/ACK/BA frames. Hence, the aMediumSyncThreshold should be larger than or equal to the typical PPDU length of those control response frame. TGbe editor:Please implement changes as shown in this document tagged as 4234. |
| 8041 | Yuchen Guo | 279.51 | 35.3.14.7.1 | The value of aMediumSyncThreshold needs to be specified | The commenter will bring a contribution to resolve it. | Revised-Agree in principle with the comment. Generally, the aMediumSyncThreshold is designed to cover the scenario that the transmission event on one link is a control response frame, e.g., CTS/ACK/BA frames. Hence, the aMediumSyncThreshold should be larger than or equal to the typical PPDU length of those control response frame. TGbe editor:Please implement changes as shown in this document tagged as 4234. |
| 8209 | Yunbo Li | 279.50 | 35.3.14.7.1 | aMediumSyncThreshold is not specified yet. | please specify the aMediumSyncThreshold | Revised-Agree in principle with the comment. Generally, the aMediumSyncThreshold is designed to cover the scenario that the transmission event on one link is a control response frame, e.g., CTS/ACK/BA frames. Hence, the aMediumSyncThreshold should be larger than or equal to the typical PPDU length of those control response frame. TGbe editor:Please implement changes as shown in this document tagged as 4234. |

**Discussion**: In 21/267r3, we agreed that if the transmission event on one link of a NSTR link pair is shorter than or equal to aMediumSyncThreshold, then the STA on the other link of the NSTR link pair may not start the MediumSyncDelay timer. The major use case of this exception is the short control frames, e.g., RTS/CTS/ACK/BA frames. PPDU length of typical control frames are listed in this table:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Frame** | **# of Octets** | **PPDU type** | **Preamble Length** | **Data Rate** | **Data Length** | **PPDU Length** |
| RTS | 20 | Non-HT / Non-HT Dup | 20us | 6Mbps | 32us | 52us |
| CTS/ACK | 14 | Non-HT / Non-HT Dup | 20us | 6Mbps | 24us | 44us |
| CTS/ACK | 14 | Non-HT / Non-HT Dup | 20us | 12Mbps | 12us | 32us |
| CTS/ACK | 14 | Non-HT / Non-HT Dup | 20us | 24Mbps | 8us | 28us |
| BA (bitmap length=64) | 32 | Non-HT / Non-HT Dup | 20us | 6Mbps | 48us | 68us |
| BA (bitmap length=64) | 32 | Non-HT / Non-HT Dup | 20us | 12Mbps | 24us | 44us |
| BA (bitmap length=64) | 32 | Non-HT / Non-HT Dup | 20us | 24Mbps | 12us | 32us |
| BA (bitmap length=256) | 56 | Non-HT / Non-HT Dup | 20us | 12Mbps | 40us | 60us |
| BA (bitmap length=256) | 56 | Non-HT / Non-HT Dup | 20us | 24Mbps | 20us | 40us |
| BA (bitmap length=512) | 88 | Non-HT / Non-HT Dup | 20us | 24Mbps | 32us | 52us |
| BA (bitmap length=1024) | 152 | Non-HT / Non-HT Dup | 20us | 24Mbps | 52us | 72us |

Note: 22bits of service and tail fields are accounted in the Data Length.

CTS/ACK frames are usually sent in 6Mbps as the soliciting frames (RTS, Management frame) are usually sent in 6Mbps. BA frames can be sent in higher rate since the soliciting data frames usually use higher rate. We can see that 72us is enough to cover 6Mbps RTS/CTS/ACK and most of the typical BA frames. Hence we propose that the aMediumSyncThreshold is 72us. Note that we do not intend to cover all the BA frames given that there are already several tools to end the mediumSyncDelay timer early, e.g., get resync from the AP (AAR) or from a valid NAV value, transmit one RTS within the blindness duration.

***TGbe editor: Please note baselines are REVme D0.1, 11ax-2021 and 11be D1.1***

**35.3.15.7 Medium access recovery procedure**

 **35.3.15.7.1 General**

A STA affiliated 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, which is affiliated with the same MLD and
belongs to that link pair, transmits a PPDU, except under the following condition:
— 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 if that transmission event is
longer than aMediumSyncThreshold. The STA may not start the MediumSyncDelay timer if the
transmission event is shorter than or equal to aMediumSyncThreshold. The aMediumSyncThreshold is set to 72us. (#4234)

Note – The value of 72us is chosen to cover at least the PPDU lengths of RTS/CTS/ACK frames using Non-HT or Non-HT Duplicated PPDU format with 6Mbps data rate, as well as the PPDU lengths of most typical BA frames. (#4234)

**Straw Poll: Do you support to incorporate the proposed draft text in this document 11-21/1417r1 to the next revision of TGbe Draft?**

**Result: Yes/No/Abstain**