### IEEE P802.11Wireless LANs

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| 11ax D3.0 MAC Comment Resolution for Random Access |
| Date: 2018-07-08 |
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Abstract

This submission proposes resolutions for comments of TGax Draft D3.0 with the following CIDs:

16596, 16597

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: Editorial revision based on the comments from Tomo

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 TGax D3.0 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGax D3.0 Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGax Editor: Editing instructions preceded by “TGax Editor” are instructions to the TGax editor to modify existing material in the TGax draft. As a result of adopting the changes, the TGax editor will execute the instructions rather than copy them to the TGax Draft.***

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| **CID** | **Commenter** | **P.L** | **Clause** | **Comment** | **Proposed Change** | **Resolution** |
| 16597 | Po-Kai Huang | 290.13 | 27.5.3.4 | It needs to be clarified that the description starting from line 13 for STA resposne to basic Trigger frame is for the "asspcoated" STA. It needs to be clarified that for unassociated STA response to basic Trigger frame, only management frame is allowed for response. | Clarify that the description starting from line 13 is for associated STA. Add a sentence that only allows management frame to be included in response to basic Trigger frame for unassociated STA. | Revised – Agree in principle with the commenter. TGax editor to make the changes shown in 11-18/1220r1 under all headings that include CID 16597. |
| 16596 | Po-Kai Huang | 297.03 | 27.5.5.2 | In 27.5.3.2.3 Allowed settings of the Trigger frame fields and TRS Control subfield, AP may include more than one user info field for allocating RA RUs. However, for non-RA response to Trigger frame, STA only needs to deal with one one user info field in the Trigger frame, and the exception allowed by UORA increases STA implementation complexity to support response to random access. | There are two options to ease the implemtation complexity by non-AP STA. Option 1: AP shall only inlucde at most one user info for allocating RA-RU for associated STAs. AP shall only inlucde at most one user info for allocating RA-RU for unassociated STAs. Option 2: Allow STA to read any User Info fields added in Trigger frame for allocating RA-RU to do UORA backoff. | Revised – Agree in principle with the commenter. Revision is done according to the suggestion of option 2.TGax editor to make the changes shown in 11-18/1220r1 under all headings that include CID 16596. |

**Discussion:** *None.*

**Propose:** Revised for CID 16596, 16597 per discussion and editing instructions in 11-18/1220r0.

***TGax editor: Change 27.5.3.4 A-MPDU contents in an HE TB PPD: (Track change on)***(…existing texts….)

An unassociated STA that responds to a Basic Trigger frame shall only include management frame in the response.(#16597)

An associated(#16597) STA that responds to a Basic Trigger frame addressed to it shall construct the A-MPDU carried in the HE TB PPDU as defined in:

* Table 9-428 (A-MPDU contents MPDUs in the control response context(#13283)) with the exception that the A-MPDU not contain QoS Data frames, if(#Ed) the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160) is 0, the Trigger frame is contained in an A-MPDU, and the STA receives at least another MPDU that solicits an immediate acknowledgment.(#13283, #13744)
* Table 9-426 (A-MPDU contents in the data enabled no immediate response context(#13283)) if(#Ed) the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160) is 0 and the Trigger frame is either not carried(#Ed) in an A-MPDU or is carried(#Ed) in an A-MPDU but the STA receives no other MPDUs that solicit an immediate acknowledgment.
* Table 9-429 (A-MPDU contents in the S-MPDU context) if the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160) is greater than 0 and the STA intends to carry only one MPDU in the A-MPDU, where the MPDU is preceded by a nonzero length MPDU delimiter with EOF equal to 1. The MPDU is subject to the following restrictions:
* It shall be a control response frame if the STA received at least one other(#Ed) MPDU that solicits an immediate acknowledgment.
* If the MPDU is a Multi-TID BlockAckReq frame(#12854) then the number of TIDs present in the Multi-TID BlockAck frame shall not exceed the TID aggregation limit indicated by the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame.(#11160, #13283)
* Table 9-425 (A-MPDU contents in the data enabled immediate response context) when the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160) is greater than 0 and the STA intends to carry one or more MPDUs, each preceded by nonzero length MPDU delimiter with EOF equal to 0 (see 10.13 (A-MPDU operation)) and 27.10.4.2 (Non-ack enabled multi-TID A-MPDU operation)). The A-MPDU is subject to the following restrictions:
* It shall contain a control response frame if the STA received at least one other(#Ed) MPDU that solicits an immediate acknowledgment.
* The number of TIDs present in the A-MPDU shall count towards reaching the TID aggregation limit indicated by the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160).
* Table 9-425 (A-MPDU contents in the data enabled immediate response context) if(#Ed) the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160) is greater than 0 and the STA intends to carry an ack-enabled A-MPDU (see 27.10.4.1 (General) and 27.10.4.3 (Ack-enabled multi-TID A-MPDU operation). The A-MPDU is subject to the following restrictions:
* It shall contain a control response frame if the STA receives at least another MPDU that solicits an immediate acknowledgment.(#13283)
* The number of TIDs present in the A-MPDU, in either QoS Data or BlockAckReq frames, shall count towards reaching the TID aggregation limit that is obtained from the TID Aggregation Limit field of the User Info field addressed to the STA in the Trigger frame(#11160).

(…existing texts….)

***TGax editor: Change 27.5.5.2 Eligible RA-RUs: (Track change on)***

* Eligible RA-RUs

An HE STA(#14266) that is the intended receiver of a User Info field in a Trigger frame (i.e., the AID12 subfield equal to the 12 LSBs of the AID of the STA) shall not contend for an RA-RU(#11033) that is indicated by a Trigger frame contained in the same PPDU and shall not decrement its OBO counter.

An eligible RA-RU(#11033) is a RA-RU(#11033) for which the HE STA is capable of generating an HE TB PPDU (i.e., the HE STA supports all transmit parameters indicated in the Common Info field and in the User info field corresponding to the RA-RU(#11033)) and shall satisfy at least one of the following conditions:

* The HE STA is not associated with the BSS it intends to transmit frames to and the AID12 value of the RA-RU(#11033) is 2045
* The HE STA is an associated STA, the TA field of the Trigger frame is set to the BSSID of the associated BSS and the AID12 value of the RA-RU(#11033) is 0

An HE STA(#14266) shall not contend for an eligible RA-RU(#11033) or decrement its OBO counter if it does not have pending frames for the AP.

An HE AP may indicate a set of contiguous RUs allocated for random access via the Number Of RA-RU subfield in the User Info field of the Trigger frame. When an AP allocates a contiguous set of RA-RUs, the first RA-RU in the set shall represent the starting RU allocation for the set.

NOTE—When contiguous RA-RUs are assigned, the size of all contiguous RA-RUs is the same and equal to the size of the first RU. Further, all the remaining subfields of the User Info field apply to all the contiguous RA-RUs in the set and the values for starting spatial stream and the number of spatial streams of the HE TB PPDU transmitted on each RA-RU are set to 1.

A non-AP HE STA shall determine the number of eligible RA-RUs in a contiguous set by adding the value carried in the Number Of RA-RU subfields plus one for the User Info field corresponding to an eligible RA-RU.

A non-AP HE STA may only contend for eligible RA-RUs indicated in a single User Info field of the Trigger frame, and for the non-AP HE STA, the number of eligible RA-RUs in the Trigger frame is the number of eligible RA-RUs indicated in the User Info field.(#16596)

***TGax editor: Change 27.5.5.2 Eligible RA-RUs: (Track change on)***

* Transmission procedure for UORA(#13652)

(…existing texts…)

An HE STA that has a pending frame for the AP, upon the reception of a Trigger frame containing at least
one eligible RA-RU, if the OBO counter of an HE STA is not greater than the number of eligible RA-RUs in
a Trigger frame from that AP, then the HE STA shall set its OBO counter to zero and randomly select one of
the eligible RA-RUs. Otherwise, the HE STA decrements its OBO counter by the number of eligible RARUs in the Trigger frame.

NOTE - The number of eligible RA-RUs in a Trigger frame from that AP can be just the number of eligible RA-RUs indicated in one User Info field of the Trigger frame as described in 27.5.5.2 (Eligible RA-RUs).(#16596)

(…existing texts…)