IEEE P802.11
Wireless LANs

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| Comment Resolution on retransmission of OFDMA random access |
| Date: 2017-05-07 |
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Abstract

This submission proposes resolutions of comments received from TGax comment collection (The proposed changes on this document is based on TGax D1.2).

* CIDs: 3239 , 5724, 7152 , 8281, 8305, 9714, 6006, 6007, 7427, 9572 (10 CIDs)

Revisions:

* Rev 0: Initial version of the document.
1. **Introduction**

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 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 TGax 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 | Page Number | Line Number | Comment | Proposed Change | Resolution |
| 3239 | 174 | 1 | The STA may seek to retransmit the frame via other access methods (and not to seek RA again); "If a STA transmits an HE trigger-based PPDU that solicits an immediate response in a random access RU and the expected response is not received, the transmission is considered unsuccessful and the STA invokes the UL OFDMA-based random access retransmission procedure as defined in 27.5.2.6.3 (Retransmission procedure for random access)." | "... the STA invokes the UL OFDMA-based random access retransmission procedure as defined in 27.5.2.6.3 (Retransmission procedure for random access), if the STA decides to retransmit during an upcoming random access opportunity." | Revised-Clarify the retransmission could also use EDCA or scheduled by a Trigger frame.Delete the “for every retransmission”, because the STA may not using UORA for every retransmission.Makes the changes as proposed in doc 11-17-0751r2 |
| 5724 | 174 | 4 | If the transmissiong using OFDMA-RA fails, can the MPDU be transmitted using regular UL OFDMA if it gets a regular trigger or can it use EDCA to transmit this failed MPDU? The text reads like that this is not allowed, however I think this should be allowed. | Clarify | Revised-Clarify the retransmission could also use EDCA or scheduled by a Trigger frame.Delete the “for every retransmission”, because the STA may not using UORA for every retransmission.Makes the changes as proposed in doc 11-17-0751r2 |
| 7152 | 174 | 8 | If a STA transmits an HE trigger-based PPDU sent by using random access RU and fails to receive the immediate acknowledgement, the STA may contend to retransmit the PPDU without using random access RU. How to update the OCW in this case? | Please clarify it. | Revised-Clarify the retransmission could also use EDCA or scheduled by a Trigger frame.Delete the “for every retransmission”, because the STA may not using UORA for every retransmission.Makes the changes as proposed in doc 11-17-0751r2 |
| 8281 | 174 | 20 | For retransmission procedure for random access, what is the effect if pending data was sent through EDCA during the while. Does OBO is erased or is let as-is to continue OBO procedure for any other remaining data ? What are the effects onto OCW ? | please clarify any effect in the case.when HE PPDU, which was initially trigger-based, was sent in EDCA. | Revised-Clarify the retransmission could also use EDCA or scheduled by a Trigger frame.Delete the “for every retransmission”, because the STA may not using UORA for every retransmission.Makes the changes as proposed in doc 11-17-0751r2 |
| 8305 | 174 | 15 | "If the HE trigger-based PPDU is not successfully transmitted in the randomly selected RU, the STA shallupdate its OCW to 2xOCW + 1 for every retransmission, until the OCW reaches the value of OCWmax."What does it happen if the data to be retransmitted is finally sent through EDCA mode ? What is the behavior related to OCW and OBO values ? | Proposal: A retransmission procedure has to be initiated in the STA and the data to be retransmitted must be flagged. If the flagged data packet is transmitted before the end of the retransmisison procedure, the current OBO and OCW are resetted and reinitialized. | Revised-Clarify the retransmission could also use EDCA or scheduled by a Trigger frame.Delete the “for every retransmission”, because the STA may not using UORA for every retransmission.Makes the changes as proposed in doc 11-17-0751r2 |
| 9714 | 174 | 10 | "If an HE trigger-based PPDU soliciting an immediate response that is sent by a STA in its randomly selected RU (see 27.5.2.6.2 (Random access procedure)) fails, then the STA may attempt to retransmit the HE trigger-based PPDU using random access."If the STA does not attempt to retransmit it after a failure of an HE trigger-based PPDU in a randomly selected RU, what is a value of OCW? Probably, in such case, the STA shallset its OCW to OCWmin. Please clarify it. | As per comment. | Revised-Clarify the retransmission could also use EDCA or scheduled by a Trigger frame.Delete the “for every retransmission”, because the STA may not using UORA for every retransmission.Makes the changes as proposed in doc 11-17-0751r2 |
| 6006 | 174 | 9 | The PPDU itself cannot fail. The reception of the PPDU or the reception of the immediate response may fail. | Clarify what is failed. Does the reception of the HE Trigger-based PPDU fail or does the immediate response fail? | Revised-The realted paragraph is deleted, so no more issue exists.Makes the changes as proposed in doc 11-17-0751r2 |
| 6007 | 174 | 15 | The OCW value should be updated for each failed transmission, not only if a frame is retransmitted. Currently it is not clear how OCW is handled if the STA transmits a new frame. | Change the text:" If a response to a HE Trigger-based PPDU transmitted in random RU requiring immediate response is not received, the STA shall update its OCW to 2 X OCW +1, until the the OCW reaches value of OCWmax. | Rejected-When the STA transmits a new frame, the old frame will be transmitted successfully or discarded, either will cause the OCW reset to OCWmin. The proposed text already be covered by current spec. |
| 7427 | 174 | 1 | The condition of transmitting an HE trigger-based PPDU successfully in the randomly selected RU is not clearly defined. | 1. Change L1-L5 of P174 as follows:"If a STA transmits an HE trigger-based PPDU that solicits an immediate response in a random access RU and the expected response is not received, the transmission is considered unsuccessful and the STA invokes the UL OFDMA-based random access retransmission procedure as defined in 27.5.2.6.3 (Retransmission procedure for random access). Otherwise the transmission is considered successful.2. delete the note in L58-L60 of P173 since it has been covered by the above bulletin. | Accepted-Makes the changes as proposed in doc 11-17-0751r2 |
| 9572 | 174 | 15 | A HE STA may use OFDMA RA for UL transmission. However, if the OFDMA RA transmission fails, it has to double its CW for backoff. Comparing to the legacy access, the STA may allow to repeat the transmission for a couple of time in PIFS if it does not receive ACK. Therefore the OFDMA based RA may cause extra latency of UL transmission. | define a mechanism to allow HE STAs to distinguish reasons of OFDMA RA failure. | Rejected-The using of UORA not forbid the using of EDCA, so the UORA will not cause the STA latency of UL transmission. Actually, the STAs using UORA may get more chances than the STAs not using UORA.  |
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1. **Proposed changes**

***TGax editor: Modify the last 4 paragraphs of section 27.5.2.6.2 by replacing the text by the one below:***

**27.5.2.6.2 UORA procedure**

If the HE TB PPDU is successfully transmitted in the random access RU, then the STA shall set its OCW to OCWmin.

[#7427]

The MU acknowledgment procedure for UORA follows the procedure as defined in 10.3.2.10.3 (Acknowledgement procedure for an UL MU transmission).

If a STA transmits an HE TB PPDU that solicits an immediate response in a random access RU and the expected response is not received, the transmission is considered unsuccessful . Otherwise the transmission is considered successful [#7427]. The retransmission procedure for UORA follows the procedure as defined in 27.5.2.6.3 (Retransmission procedure for UORA).

***TGax editor: Modify section 27.5.2.6.3 by replacing the text by the one below:***

**27.5.2.6.3 Retransmission procedure for UORA**

An HE STA whose HE TB PPDU transmission sent in a random access RU of a Trigger frame is unsuccessful, may attempt to retransmit the failed PPDU using EDCA or as a response to a Trigger frame. [#3239, 5724, 7152, 8281, 8305, 9714]

If the HE TB PPDU is not successfully transmitted in the random access RU, the STA shall update its OCW to 2×OCW + 1 when the OCW is less than the value of OCWmax , and shall randomly select its OBO counter in the range of 0 and OCW [#3239, 5724, 7152, 8281, 8305, 9714]. Once the OCW reaches OCWmax for successive retransmission attempts, the OCW shall remain at the value of OCWmax until the OCW is reset.