IEEE P802.11
Wireless LANs

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| Comment resolution for 10.22 |
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Abstract

This submission proposes resolutions for multiple comments related to TGax D1.0 with the following CIDs (11):

* 3187, 5756, 8266, 9431, 9432, 9691, 9857, 9858, 9859, 9860, 10179

Revisions:

* Rev 0: Initial version of the document

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. This introduction is 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** | **Commenter** | **P** | **L** | **Comment** | **Proposed Change** | **Resolution** |
| 3187 | Ahmadreza Hedayat | 130 | 1 | Looks like regardless of receiving and ACK the STA resumes EDCAF backoff counter: "When an HE STA successfully receives the corresponding acknowledgement frame in response to the MPDU sent in HE trigger based PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown. When an HE STA does not receive the corresponding acknowledgement frame in response to the MPDU sent in HE trigger based PPDU, the backoff for the associated EDCAF resumes the backoff counter count-down." | Rewrite. "An HE STA resumes the backoff counter countdown for the associated EDCAF after transmission of an MPDU in HE trigger based PPDU." | Revised –Agree with the comment in principle.Two sentences are merged into one sentence. TGax editor to make the changes shown in 11-17/0xxxr0. |
| 8266 | Pascal VIGER | 130 | 1 | In 10.22.2.2, EDCA backoff procedure is resumed for contradictory reasons described in the two first paragraphs: When an HE STA successfully receives and does not receive the corresponding acknowledgement frame.A clarification (even text simplification) is needed. | as per comment | Revised –It is a duplicate one of CID 3187.TGax editor to make the changes shown in 11-17/0xxxr0. |
| 9431 | Xiaofei Wang | 130 | 1 | there is no difference in behavior regardless whether the STA has received the acknowledgement in response to MPDU sent in HE TB PPDU, is this correct? If so, there is no need to have two paragraphs. It would be more clear to have one paragraph describing the normative behavior after a STA transmits MPDU in HE TB PPDU, and states clearly that regardless of whether the STA has received acknowledgement. | Check whether the normative behavior is correct regardless whether the STA has successfully received acknowledgement. If the normative behavior is correct, then combine the two paragraphs together. | Revised –It is a duplicate one of CID 3187.TGax editor to make the changes shown in 11-17/0xxxr0. |
| 9691 | Yongho Seok | 130 | 1 | "When an HE STA successfully receives the corresponding acknowledgement frame in response to the MPDU sent in HE trigger based PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown.When an HE STA does not receive the corresponding acknowledgement frame in response to the MPDU sent in HE trigger based PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown."The above two paragraphs are independent on the reception status of the acknowledgement frame. Because the same rule is applied on the backoff procedure.Please merge two paragraphs as the following."After completing an HE trigger-based PPDU transmission sequence, the backoff for the associated EDCAF resumes the backoff counter countdown." | As in the comment. | Revised –It is a duplicate one of CID 3187.TGax editor to make the changes shown in 11-17/0xxxr0. |
| 9858 | Young Hoon Kwon | 130 | 1 | The first two paragraphs are acward and meaningless. For example, transmission of a frame using trigger based PPDU is not a case for events that a STA invokes backoff procedure. (For example it is not within the conditions a) - f) shown in 10.22.2.2 of the baseline spec.). Also, it is not a case for a slot boundary. (For example, it is not within the conditions a) - f) shown in 10.22.2.4 of the baseline spec.). Therefore, based on baseline procedure, there's nothing supposed to happen in terms of backoff counter even under current baseline spec. These two paragraphs only makes confusion without having any additional clarification. | Delete the first two paragraphs or make clarification. | Revised –It is a duplicate one of CID 3187.TGax editor to make the changes shown in 11-17/0xxxr0. |
| 5756 | Guoqing Li | 132 | 17 | What specific rules are being referred here? This subclause is "multiple frame transission". What rules are appllicable here when AP gets a respone to trigger frame? Does it intend to refer to the rules on error receovery and backoff? | Clarify | Rejected.The rules are not about error recovery nor backoff. In 802.11-2016, subclause 10.22.2.7 (Multiple frame transmission in an EDCA TXOP) describes transmission rules of multiple frame like TXOP sharing rule, TXVECTOR setting of multiple frame. |
| 9432 | Xiaofei Wang | 132 | 1 | The sentence "A Trigger frame or a frame carrying an UL MU Response Scheduling A-Control subfield followed after SIFS by the requested immediate response" is not clear and should be rephrased. | Change the sentence "A Trigger frame or a frame carrying an UL MU Response Scheduling A-Control subfield followed after SIFS by the requested immediate response" into "A Trigger frame or a frame carrying an UL MU Response Scheduling A-Control subfield followedby the requested immediate response transmitted after SIFS" | Revised –It is a duplicate one of CID 7668.Already resolved in D1.2 by CID7668. |
| 9857 | Young Hoon Kwon | 129 | 23 | There's no case that an MPDU requires more than one immediate response. In case of MU transmission, more than one MPDUs are carried in a PPDU, but even in case each MPDU may solicit up to 1 immediate response. So, clarification is needed here. | As in the comment. | Revised.Agree with the comment in principle.Whatever SU or MU transmission, an MPDU can require only one immediate response. TGax editor to make the changes shown in 11-17/0xxxr0. |
| 9859 | Young Hoon Kwon | 130 | 11 | This is not appropriate sub-clause for describing the retry counter issue. | Move the paragraph to appropriate part in sub-clause 10.22.2.11. | AcceptedTGax editor to make the changes shown in 11-17/0xxxr0. |
| 9860 | Young Hoon Kwon | 131 | 34 | As described in P131L27, this mode applies only to an AP that supports MU transmission. However, sub-clause 27.10.4 is not related with MU transmission. In this sense, this is a wrong reference. | Change the reference to an appropriate sub-clause. | Revised.Agree with the comment in principle. Change the reference subclause to 10.22.2.7 (Multiple frame transmission in an EDCA TXOP)TGax editor to make the changes shown in 11-17/0xxxr0. |
| 10179 | Yunbo Li | 132 | 22 | The bandwidth select rule in current spec only allows the TXOP holder to set CH\_BANDWIDTH same or narrower than preceding PPDU. After OFDMA is introduced, AP may communicate with multiple STAs that each STA occupies a narrow band than AP. In this case, when a STA initiate a TXOP with a narrow bandwidth, while AP could sensed a wider bandwidth at idle status, if the AP is allowed to use a wider bandwidth than the initiated STA, AP could communicate with the initial STA at a narrow bandwith wihch include primary 20MHz, and communicate with other STAs at secondary sub-channel which are busy for the initiated STA. It could be used to improve the system efficiency. | Discuss the fesiblity of the bandwidth extension during TXOP. | RejectedBandwidth extension during TXOP is quite complicate. We may need to define several things, for example, how an AP senses a wide channel during frame reception from a STA, how an AP signals to other STAs on secondary channels, and what PPDU and frame structure are suitable for this scenario. Also implementing bandwidth extension during TXOP is quite difficult.  |

**Discussion:**

**10.22 HCF**

**10.22.2 HCF contention based channel access (EDCA)**

**10.22.2.2 EDCA backoff procedure**

***TGax Editor: Please change the 1st paragraph as follows:***

For the purposes of this subclause, transmission failure of an MPDU is defined as follows:

— After transmitting an MPDU (even if it is carried in an A-MPDU or as part of a VHT MU PPDU that is sent using TXVECTOR parameter NUM\_USERS > 1) that requires an ~~one or more~~ immediate response: ***(#9857):***

— The STA shall wait for a timeout interval of duration aSIFSTime + aSlotTime + aRxPHYStart- Delay, starting when the MAC receives a PHY-TXEND.confirm primitive. If a PHY-RXSTART.indication primitive does not occur during the timeout interval, the transmission of the MPDU has failed.

— If a PHY-RXSTART.indication primitive does occur during the timeout interval, the STA shall wait for the corresponding PHY-RXEND.indication primitive to recognize a one or more valid response MPDUs (see Annex G) that either does not have a TA field or is sent by the one or more recipients of the MPDU requiring a response. If anything else, including any other valid frame, is recognized, the transmission of the MPDU has failed.

— The non-final (re)transmission of an MPDU that is delivered using the GCR unsolicited retry retransmission policy (10.22.2.11.2 (Unsolicited retry procedure))) is defined to be a failure.

— In all other cases, the transmission of the MPDU has not failed.

***TGax Editor: Please delete the last three paragraphs and insert a paragraph below of this subclause as follows (CID #3187, 8266, 9431, 9691, 9858, 9859):***

~~When an HE STA successfully receives the corresponding acknowledgement frame in response to the MPDU sent in HE TB PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown.~~

~~When an HE STA does not receive the corresponding acknowledgement frame in response to the MPDU sent in HE TB PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown.~~

~~If an HE STA does not successfully receive the corresponding acknowledgement frame in response to the MPDU sent in an HE TB PPDU, the short retry counters and long retry counters for the associated EDCAF are not changed.~~

An HE STA resumes the backoff counter countdown for the associated EDCAF after transmission of an MPDU in HE TB PPDU regardless of whether the STA has received the corresponding acknowledgement frame in response to the MPDU sent in HE TB PPDU.

**10.22.2.6 Sharing an EDCA TXOP**

***TGax Editor: Please change the 1st paragraph as follows:***

This mode applies only to an AP that supports DL-MU-MIMO or DL-OFDMA. The AC associated with the EDCAF that gains an EDCA TXOP becomes the primary AC. TXOP sharing is allowed when primary AC traffic is transmitted in a VHT MU PPDU or an HE MU PPDU and resources permit traffic from secondary ACs to be included, targeting up to four STAs if it is transmitted in the VHT MU PPDU. The inclusion of secondary AC traffic in a VHT MU PPDU shall not increase the duration of the VHT MU PPDU beyond that required to transport the primary AC traffic. The inclusion of secondary AC traffic in an HE MU PPDU is described in ~~27.10.4 (A-MPDU with multiple TIDs)~~ 10.22.2.7 (Multiple frame transmission in an EDCA TXOP) *(#9860)*. If a destination in a VHT MU PPDU is targeted by frames in the queues of both the primary AC and at least one secondary AC, the frames in the primary AC queue shall be transmitted to the destination first, among a series of downlink transmissions within a TXOP. The decision of which secondary ACs and destinations are selected for TXOP sharing, as well as the order of transmissions, are implementation specific and out of scope of this standard. For an HE MU PPDU, the inclusion of secondary AC traffic in the HE MU PPDU shall not cause the TXOP limit of the primary AC to be exceeded.

**10.22.2.11 Retransmit procedures**

**10.22.2.11.1 General**

***TGax Editor: Please insert the following paragraph at the end of the subclause: (#9859)***

If an HE STA does not successfully receive the corresponding acknowledgement frame in response to the MPDU sent in an HE TB PPDU, the short retry counters and long retry counters for the associated EDCAF are not changed.