IEEE P802.11
Wireless LANs

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| Resolution to CID 1195 |
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Abstract

This document introduces normative text based on discussions during a TGmd teleconference reviewing 11-18/810. This submission also intends resolving CID 1195.

*Modify [1] as shown in the following:*

10.24.2.7 Sharing an EDCA TXOP

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 and resources permit traffic from secondary ACs to be included.. If a TXOP holder has frames in its primary AC and at least one secondary AC queue, frames in secondary AC queues may be transmitted if the secondary AC has higher priority than the primary AC and after all queues associated with the primary AC are empty. If the inclusion of secondary AC traffic in a VHT (11ah) or S1G MU PPDU does not increase the duration of the VHT (11ah) or S1G MU-PPDU beyond that required for the transport of the primary AC traffic, for a VHT (11ah) or S1G MU PPDU, traffic from secondary ACs having lower priority than that of the primary AC may also be included traffic may be included. TXOP sharing is not allowed for secondary ACs for which the AP requires admission control and for which the used\_time value reaches or exceeds the admitted\_time value. The decision of which higher priority 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.

When sharing, the TXOP limit that applies is the TXOP limit of the primary AC. Furthermore, for secondary ACs for which the AP requires admission control the constraints of 10.24.4 (Admission control at the HC) apply.

NOTE—An AP can protect an immediate response by preceding the VHT (11ah)or S1G MU PPDU (which might have TXVECTOR parameter NUM\_USERS > 1) with an RTS/CTS exchange or a CTS-to-self transmission.

10.24.2.8 Multiple frame transmission in an EDCA TXOP

A frame exchange, in the context of multiple frame transmission in an EDCA TXOP, may be one of the following:

— A frame not requiring immediate acknowledgment (such as a group addressed frame or a frame transmitted with an acknowledgment policy that does not require immediate acknowledgment) or an A-MPDU containing only such frames
— A frame requiring acknowledgment (such as an individually addressed frame transmitted with an acknowledgment policy that requires immediate acknowledgment) or an A-MPDU containing at least one such frame, followed after SIFS by a corresponding acknowledgment frame
— Either

— a VHT NDP Announcement frame followed after SIFS by a VHT NDP followed after SIFS by a PPDU containing one or more VHT Compressed Beamforming frames, or

— a Beamforming Report Poll frame followed after SIFS by a PPDU containing one or more VHT Compressed Beamforming frames

Multiple frames may be transmitted in an EDCA TXOP that was acquired following the rules in 10.24.2.4 (Obtaining an EDCA TXOP) if there is at least one frame pending in the primary AC for which the channel has been acquired. Frames that are pending in other ACs shall not be transmitted in this EDCA TXOP except when sent in a VHT or (11ah)S1G MU PPDU with TXVECTOR parameter NUM\_USERS > 1 and if allowed by following the rules in 10.24.2.7 (Sharing an EDCA TXOP).

If a TXOP holder has in its transmit queue an additional frame of the primary AC and the duration of transmission of that frame plus any expected acknowledgment for that frame is less than the remaining TXNAV timer value and, if dot11MCCAActivated is true, the remaining RAV timer value, then the TXOP holder may commence transmission of that frame a SIFS (or RIFS, if the conditions defined in 10.3.2.3.2 (RIFS) are met) after the completion of the immediately preceding frame exchange sequence, subject to the TXOP limit restriction as described in 10.24.2.9 (TXOP limits). A STA shall not commence the transmission of an RTS with a bandwidth signaling TA until at least a PIFS after the immediately preceding frame exchange sequence. (11aj)A CMMG STA shall not commence the transmission of an RTS frame until at least PIFS time after the immediately preceding frame exchange sequence. An HT STA that is a TXOP holder may transmit multiple MPDUs of the same AC within an A-MPDU as long as the duration of transmission of the A-MPDU plus any expected BlockAck frame response is less than the remaining TXNAV timer value and, if dot11MCCAActivated is true, the remaining RAV timer value. (11ah)An S1G STA that is a TXOP holder may transmit multiple MPDUs of the same AC within an A-MPDU as long as the duration of transmission of the A-MPDU plus any expected (NDP) BlockAck frame response is less than the remaining TXNAV timer value.

# References

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| [1]  | IEEE 802.11 TGmd, “IEEE P802.11-REVmd/D1.2,” 2018. |