IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | 26.2.8 Redundnacy | | | | | | Date: 2019-06-04 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Matthew Fischer | Broadcom |  |  | [Matthew.fischer@broadcom.com](mailto:Matthew.fischer@broadcom.com) | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

Abstract

Proposed language to address some inconsistencies and redundancies between 26.2.8 and xxxx

Changes are referenced to TGax D4.1.

**REVISION NOTES:**

**R0**:

Initial

**END OF REVISION NOTES**

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.***

**CIDs**

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| --- | --- | --- | --- | --- | --- | --- |
| xxxx | xxx | xxx | xx | X | As in comment. | Revise - TGax editor to make changes as shown in 11-19/xxxxr0 that are marked with CID XXXXX which generally agree with the commenter’s suggestion. |

**Discussion:**

Regarding:

1024.2.8 Multiple frame transmission in an EDCA TXOP

26.2.8 Multiple frame transmission in an EDCA TXOP in the 6 GHz band

The difference between 5 and 6 GHz is that within 6 GHz, the TXOP value of HE SIGA is not allowed to be set to the value UNSPECIFIED, with a few very minor exceptions - see 26.11.5 TXOP\_DURATION, very last paragraph:

In the 6 GHz band, a TXOP holder shall not set the TXVECTOR parameter TXOP\_DURATION for a transmitted HE PPDU to UNSPECIFIED unless at least one of the following conditions is true:

— The BSS Color Disabled field is 1 in the HE Operation element transmitted within the BSS of which the TXOP holder is a member

— The HE PPDU carries a PS-Poll frame

The existing rules for determining a value for CH\_BANDWIDTH are found in:

10.24.2.8 Multiple frame transmission in an EDCA TXOP

But 10.24.2.8 already includes modifications for 11ax without mentioning band of operation, and is therefore applicable to both 5 and 6 GHz, and 26.2.8 tries to acknowledge this. I.e. note that the first paragraph of 26.2.8 incorrectly references 10.22.2.7 - it should reference 10.24.2.8

Note that 10.24.2.8 should include the inverse cases from 26.2.8 as NOT being covered, but it does not do this. I.e. 10.24.2.8 should mention that the case of 6 GHz with a non-non-specified value of TXOP is not covered. Because of this error, there is double coverage of those cases

And maybe 10.24.2.8 should mention what to do when operating in 5 GHz and HE SIGA TXOP field has a non-unspecified value, as operation in 5 GHz does not prohibit setting HE SIGA TXOP to a numeric value, it simply does not mandate it, like 6 GHz does

Or one could modify 26.2.8 to state that the rules here also apply to 5 GHz, i.e. 5 GHz with un-unspecified values for the HE SIGA TXOP field, but that seems a bit silly, because this is supposed to be a 6 GHz subclause.

But 10.24.2.8 still needs to mention those those cases, unless the intent was that in 5 GHz, there is no effect on CH\_BANDWIDTH when the HE SIGA TXOP field has a value that is not UNSPECIFIED.

Checking elsewhere, note that in 26.2.4 Updating two NAVs, there is no distinction between a 5 GHz STA and a 6 GHz STA with respect to using received TXOP\_DURATION information. But that of course, is NAV, not CH\_BANDWIDTH setting.

So theses subclauses either need to be merged, or more definitively separated with additional conditions specified in each case.

**Proposed Changes to TGax D4.1:**

***TGax editor: within subclause 10.24.2..8 Multiple frame transmission in an EDCA TXOP of TGax D4.1, change the following text:***

**10.24.2.8 Multiple frame transmission in an EDCA TXOP**

***Change the 1st paragraph as follows:***

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

— 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

— A frame soliciting an HE TB PPDU (such as a Trigger frame or a frame carrying a TRS Control sub-field) or an A-MPDU containing at least one such frame, followed after SIFS by an HE TB PPDU where the HE TB PPDU is optionally followed after SIFS by an acknowledgment

— 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

— an HE NDP Announcement frame followed after SIFS by an HE sounding NDP followed after SIFS by a PPDU containing one or more HE Compressed Beamforming/CQI frames, or

— a broadcast HE NDP Announcement frame followed after SIFS by an HE sounding NDP followed after SIFS by a BFRP Trigger frame followed by HE TB PPDUs, or

— a BFRP Trigger frame followed after SIFS by an HE TB PPDU containing one or more HE Compressed Beamforming/CQI frames

***Change the paragraphs 7 - 9 as follows:***

If a TXOP is protected by an RTS or CTS frame carried in a non-HT or a non-HT duplicate PPDU, the TXOP holder shall set the TXVECTOR parameter CH\_BANDWIDTH of a PPDU as follows:

— To be the same or narrower than the RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT of the last received CTS frame in the same TXOP, if the RTS frame with a bandwidth signaling TA and TXVECTOR parameter DYN\_BANDWIDTH\_IN\_NON\_HT set to Dynamic has been sent by the TXOP holder in the last RTS/CTS exchange.

— Otherwise, to be the same or narrower than the TXVECTOR parameter CH\_BANDWIDTH of the RTS frame that has been sent by the TXOP holder in the last RTS/CTS exchange in the same TXOP.

If a TXOP is protected by an MU-RTS Trigger frame or CTS frame carried in a non-HT or a non-HT dupli-cate PPDU, the TXOP holder shall set the TXVECTOR parameter CH\_BANDWIDTH of a PPDU as fol-lows:

— To be the same or narrower than the TXVECTOR parameter CH\_BANDWIDTH of the MU-RTS Trigger frame that has been sent by the TXOP holder in the last MU-RTS Trigger/CTS frame exchange in the same TXOP, if the RU Allocation subfields of the MU-RTS Trigger frame for all intended receivers are equal to a value that corresponds to the channel bandwidth that is indicated in the UL BW subfield in the Common Info field of the MU-RTS Trigger frame.

— Otherwise, to be the same or narrower than the TXVECTOR parameter CH\_BANDWIDTH of the preceding PPDU that it has transmitted in the same TXOP.

If there is no RTS/CTS or MU-RTS Trigger/CTS frame exchange in non-HT duplicate format in a TXOP, and the TXOP includes at least one non-HT duplicate frame exchange that does not include a PS-Poll, then the TXOP holder shall set the CH\_BANDWIDTH parameter in TXVECTOR of a PPDU sent after the first non-HT duplicate frame that is not a PS-Poll to be the same or narrower than the CH\_BANDWIDTH param-eter in TXVECTOR of the initial frame in the first non-HT duplicate frame exchange in the same TXOP.

If there is no non-HT duplicate frame exchange in a TXOP, the TXOP holder shall set the TXVECTOR parameter CH\_BANDWIDTH of a non-initial PPDU to be the same or narrower than the TXVECTOR parameter CH\_BANDWIDTH of the preceding PPDU that it has transmitted in the same TXOP, subject to the following constraints:

— If the preceding PPDU is a DL HE MU PPDU with preamble puncture, the TXOP holder shall set the TXVECTOR parameter CH\_BANDWIDTH of the non-initial PPDU to a value whose corre-sponding 20 MHz channels are within a set of 20 MHz channels where pre-HE modulated fields of the preceding PPDU are located.

— If the non-initial PPDU is a DL HE MU PPDU with preamble puncture, the TXOP holder shall set the TXVECTOR parameter RU\_ALLOCATION of the non-initial PPDU to a value whose corre-sponding RU is within a set of 20 MHz channels where pre-HE modulated fields of the preceding PPDU are located.

**(#XXXXX)**

***TGax editor: within subclause 26.2.8 Multiple frame transmission in an EDCA TXOP in the 6 GHz band, change the following text:***

**26.2.8 Multiple frame transmission in an EDCA TXOP in the 6 GHz band**

A STA that operates in the 6 GHz band and transmits multiple frames shall follow the rules defined in 10.24.2.8 (Multiple frame transamissions in an EDCA TXOP) with the exceptions listed below.

In a TXOP that includes no non-HT duplicate PPDUs and at least one HE PPDU whose TXOP field in HE-SIG-A is not set to UNSPECIFIED, the TXOP holder shall set the TXVECTOR parameter CH\_BAND-WIDTH of a non-initial PPDU that is sent after the first HE PPDU whose TXOP field in HE-SIG-A is not set to UNSPECIFIED as follows:

— To be the same or narrower than the CH\_BANDWIDTH parameter in TXVECTOR of the first HE PPDU whose TXOP field in HE-SIG-A is not set to UNSPECIFIED in the same TXOP.

Additionally, if the first HE PPDU whose TXOP field in HE-SIG-A is not set to UNSPECIFIED is a DL HE MU PPDU with preamble puncture, then the TXOP holder shall use the 20 MHz channels for the non-initial PPDU that are within the set of 20 MHz channels where pre-HE modulated fields of the first HE PPDU whose TXOP field in HE-SIG-A is not set to UNSPECIFIED are located.

Within an obtained TXOP that does not include HE PPDUs whose TXOP field in HE-SIG-A is not UNSPECIFIED nor non-HT duplicate PPDUs, the TXOP holder shall set the TXVECTOR parameter CH\_BANDWIDTH of a non-initial PPDU to be the equal to or less than the TXVECTOR parameter CH\_BANDWIDTH of the preceding PPDU that was transmitted in the same TXOP, subject to the following constraints:

— If the preceding PPDU is a DL HE MU PPDU with preamble puncture, the TXOP holder shall set the TXVECTOR parameter CH\_BANDWIDTH of the non-initial PPDU to a value whose corre-sponding 20 MHz channels are within a set of 20 MHz channels where pre-HE modulated fields of the preceding PPDU are located

— If the non-initial PPDU is a DL HE MU PPDU with preamble puncture, the TXOP holder shall set the TXVECTOR parameter RU\_ALLOCATION of the non-initial PPDU to a value whose corre-sponding RU is within a set of 20 MHz channels where pre-HE modulated fields of the preceding PPDU are located.

**(#XXXXX)**

**End of proposed changes.**