IEEE P802.11
Wireless LANs

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| LB188 Comment resolutions for sub-clause 9.7.6.6 Channel Width Selection for Control Frames |
| Date: 2012-09-14 |
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Abstract

This document proposes resolutions for LB188 CID 6279, 6280, 6839, 6466, 6468, 6469 in sub-clause 9.7.6.6 of draft spec D3.1 .

**CID 6279**

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| 6279 | Brian Hart | 110/44 | 9.7.6.6. | This is a Note but the impact seems much more powerful than a note. Is it a note because there is other normative language to this effect elsewhere? Then reference that. Else, convert this note to normative languge. Ditto P111L14. | As in comment | Revised – Tgac editor to make changes of TGac draft 3.1 as shown in document 11-12-1075/r2 under the heading CID6279. |

**Discussion**

Page116L62: “Note—The BSSID(TA) field of a CF -End frame is treated as a TA field when set to a signaling TA.”

Page117L33:“Note—A CF-End Frame transmitted by an AP, SIFS duration after receiving a CF-End frame is considered a control response frame.”

There is no other normative language to this effect elsewhere. Agree to change the notes as normative texts.

**Proposed changes**

***TGac editor:***

***Please change the NOTE on page 116 line 62 of TGac Draft 3.1 as normative language as follows:***

A VHT STA that transmits a CF -End frame in a non-HT duplicate format (channel wi dth 40 MHz or wider) addressed to a VHT AP shall set the Individual/group bit in theBSSID(TA) field to 1.

**CID 6280**

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| 6280 | Brian Hart | 111/5 | 9.7.6.6. | "I/G .. set to 0 .. I/G .. set to 1" - we've upgraded the language to (non) bandwidth signaling TA | Upgrade language here. Ditto P147L1 | Revised – Tgac editor to make changes of TGac draft 3.1 as shown in document 11-12-1075/r2 under the heading CID6280. |

**Discussion**

TGac has defined bandwidth signaling TA and non-bandwidth signaling TA, which is represented by the IEEE MAC individual address of the transmitting VHT STA but with the Individual/Group bit set to 1.

The language here needs updates.

If the modification is ok, then the following text should also be updated.

Page 152 line 46: “The RA field of the VHT Compressed Beamforming frame(s) of the VHT Compressed Beamforming report shall be set to the MAC address obtained from the TA field of the VHT NDP Announcement frame or the Beamforming Report Poll frame to which this VHT Compressed Beamforming report is a response with the Individual/Group bit in the RA field set to 0.”

**Proposed changes**

***TGac editor:***

***Please change the text on page 117 line 22 of TGac Draft 3.1 as follows:***

The ~~Individual/Group fieldof the~~ RA field of a control frame that is sent in response to a control frame with a bandwidth signaling TA shall be set to ~~0.~~ a non-bandwidth signaling TA obtained from the TA field of the immediately previous control frame.For the channel width selection rules for CTS sent in response to an RTS with a bandwidth signaling TA ~~the Individual/Group bit in the TA field equal to 1~~ see 9.3.2.6 (CTS and DMG CTS procedure).

***TGac editor:***

***Please change the text on page 152 line 46 of TGac Draft 3.1 as follows:***

The RA field of the VHT Compressed Beamforming frame(s) of the VHT Compressed Beamforming report shall be set to a non-bandwidth signaling TA obtained from the TA field of the VHT NDP Announcement frame or the Beamforming Report Poll frame to which this VHT Compressed Beamforming report is a response with ~~the Individual/Group bit in~~ the RA field set to ~~0~~ ~~a non-bandwidth signaling TA obtained from the TA field of the VHT NDP Announcement frame or the Beamforming Report Poll frame~~.

**CID 6466, 6468**

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| 6466 | Mark Rison | 110/32 | 9.7.6.6 | Only RTS and CTS are allowed in clause 8 to carry a signaling TA. However, 9.7.6.6 allows any control frame which elicits a control response to carry a signaling TA | Add text in subclause 8.3.1 to allow the following to contain a signaling TA (possibly within a Control Wrapper):- Block Ack Request- Block Ack, if in the context of HT-Delayed BA- CF-End, if sent by a non-AP STA- VHT NDP Announcement- Beamforming Report Poll | Revised – Tgac editor to make changes of TGac draft 3.1 as shown in document 11-12-1075/r2 under the heading CID6466,6468. |
| 6468 | Mark Rison | 110/32 | 9.7.6.6 | Clarify exactly which control frames may elicit a control response for the purposes of signaling TAs | Change to just state, in a way similar to 9.3.2.5a (except that DYN\_BANDWIDTH is not present in the TXVECTOR -- see another comment), that only the following are allowed to carry a signaling TA, in addition to RTS (per the rules described elsewhere):- Block Ack Request- Block Ack, if in the context of HT-Delayed BA- CF-End, if sent by a non-AP STA- VHT NDP Announcement- Beamforming Report Poll[Note that this does not include PS-Poll. Also note that a CF-End sent by an AP is not responded to. I haven't worried about CF-End+CF-Ack -- should I?] | Revised – Tgac editor to make changes of TGac draft 3.1 as shown in document 11-12-1075/r2 under the heading CID6466,6468. |

**Discussion**

Bandwidth signaling TA has the following purposes:

1. Indication of signaling a CH\_BANDWIDTH\_IN\_NON\_HT value
2. Indication of the operation of the dynamic bandwidth protocol, signalled with DYN\_BANDWIDTH\_IN\_NON\_HT equal to Dynamic/Static.

RTS/CTS is the only frame exchange where sensitivity to NAV is required. All description of dynamic bandwidth operation is specific to the RTS/CTS exchange. Please see the discussion in IEEE802.11-12/1007r2.

For other control frames in a non-HT format or a non-HT duplicate format which elicit a control response or a VHT Compressed Beamforming frame to carry a bandwidth signaling TA , bandwidth signalling TA indicating of signalling a CH\_BANDWIDTH\_IN\_NON\_HT value may be carried. Subcluse 9.7.6.6 “Channel Width selection for control frames” allows any control frame in a non-HT format or a non-HT duplicate format which elicits a control response or a VHT Compressed Beamforming frame to carry a bandwidth signaling TA. However there is no clarification in this subclause about exactly which control frames may elicit a control response for the purposes of bandwidth signaling TAs. Therefore, a note may be added to clarify it.

Only RTS and CTS are explicitly described in clause 8.3.1 to allow carrying a bandwidth signaling TA. However, VHT NDP Announcement frame and Beamforming Report Poll frame are also allowed to carry a bandwidth signaling TA based on subclause 9.7.6.6. Therefore, the TA fields of VHT NDP Announcement frame, Beamforming Report Poll frame, PS-Poll frame,Block Ack Request frames, Block Ack frames in the context of HT-Delayed Block Ack, CF-End frames sent by a non-AP STA should be also defined to allow carrying a bandwidth signaling TA.

For CF-End+CF-Ack control frame, there is never a control response frame so there is no bandwidth signaling TA.

**Proposed changes**

***TGac editor:***

***Please change the text on page 42 line65 toTGac Draft3.1 as follows:***

 ***8.3.1.19 VHT NDP Announcement frame format***

***……***

The TA field is set to the address of the STA transmitting the VHT NDP Announcement frame or a bandwidth signaling TA. The TA field is set to a bandwidth signaling TA in a VHT NDP Announcement frame transmitted by a VHT STA in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT.

***TGac editor:***

***Please change the text on page 44 line22 toTGac Draft3.1 as follows:***

***8.3.1.20 Beamforming Report Poll frame format***

***……***

The TA field is set to the address of the STA transmitting the Beamforming Report Poll or a bandwidth signaling TA. The TA field is set to a bandwidth signaling TA in a Beamforming Report Poll frame transmitted by a VHT STA in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT.

***TGac editor:***

***Please add the text on page 42 line38 toTGac Draft3.1 as follows:***

***8.3.1.6 CF-End frame format***

***Change the second parapraph as follows:***

The BSSID (TA) field is set to the address of the STA contained in the AP or a bandwidth signaling TA. The TA field is set to a bandwidth signaling TA in a CF-End frame transmitted by a non-AP VHT STA in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT.

***TGac editor:***

***Please add the text on page 42 line38 toTGac Draft3.1 as follows:***

***8.3.1.8 BlockAckReq frame format***

***Change the fourth parapraph as follows:***

The TA field is set to the address of the STA transmitting the BlockAckReq frame or a bandwidth signaling TA. The TA field is set to a bandwidth signaling TA in a BlockAckReq frame transmitted by a VHT STA in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT.

***TGac editor:***

***Please add the text on page 42 line38 toTGac Draft3.1 as follows:***

***8.3.1.9 BlockAck frame format***

***Change the fourth parapraph as follows:***

The TA field is set to the address of the STA transmitting the BlockAck frame or a bandwidth signaling TA in the context of HT-Delayed Block Ack. The TA field is set to a bandwidth signaling TA in a BlockAck frame transmitted in the context of HT-Delayed Block Ack by a VHT STA in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT.

***8.3.1.5 PS-Poll frame format***

***Change the second parapraph as follows:***

The TA field is the address of the STA transmitting the frame or a bandwidth signaling TA. The TA field is set to a bandwidth signaling TA in a PS-Poll frame transmitted by a VHT STA in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT.

***TGac editor:***

***Please add a NOTE on page 116 line60 of TGac Draft 3.1 as follows:***

A VHT STA that transmits a control frame in a non-HT duplicate format (channel wi dth 40 MHz or wider) that is not an RTS frame or a CF-End frame, addressed to a VHT STA and eliciting a control response frame or a VHT Compressed Beamforming frame shall set the TA field to a bandwidth signaling TA and shall set the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and CH\_BANDWIDTH to the same value. A VHT STA that transmits a control frame that is not an RTS frame in a non-HT format (channel width 20 MHz), addressed to a VHT STA and eliciting a control response frame or a VHT Compressed Beamforming frame may set the TA field to a bandwidth signaling TA, in which case it shall set the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and CH\_BANDWIDTH to the same value. Channel width selection rules for RTS frames are described in 9.3.2.5a (VHT RTS procedure).

NOTE - Such control frames are BlockAckReq frames, BlockAck frames in the context of HT-Delayed Block Ack, PS-Poll, VHT NDP Announcement frames and Beamforming Report Poll frames.

**CID 6469**

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| 6469 | Mark Rison | 110/37 | 9.7.6.6 | "a control frame that is not an RTS frame in a non-HT format" is ambiguous: "{a control frame that is not an RTS frame} in a non-HT format" or "a control frame that is not {an RTS frame in a non-HT format}"? Is an RTS sent in an HT format covered by the statement? | Change to "that is not an RTS frame and is not in a non-HT format" | Revised – Tgac editor to make changes of TGac draft 3.1 as shown in document 11-12-1075/r2 under the heading CID6469. |

**Discussion**

Agree with the comment. This subclause is to describe the rules for the control frame that is neither an RTS frame nor a non-HT format frame.

**Proposed changes**

***TGac editor:***

***Please change the text on page 116 line 50 of TGac Draft 3.1 as follows:***

A VHT STA that transmits a control frame ~~that is not an RTS frame~~ in a non-HT duplicate PPDU (channel width 40 MHz or wider) that is not an RTS frame addressed to a VHT STA and eliciting a control response frame or a VHT Compressed Beamforming frame may set the TA field to a bandwidth signaling TA, in which case it shall set the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and CH\_BANDWIDTH to the same value. A VHT STA that transmits a control frame ~~that is not an RTS frame~~ in a non-HT format (channel width 20 MHz) that is not an RTS frame addressed to a VHT STA and eliciting a control response frame or a VHT Compressed Beamforming frame may set the TA field to a bandwidth signaling TA, in which case it shall set the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and CH\_BANDWIDTH to the same value.

**CID 6839**

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| 6839 | KaiyingLv | 110/44 | 9.7.6.6 | the "signaling TA" is repaced with "bandwidth signaling TA" | change all the "signaling TA" to "bandwidth signaling TA" in the draft. | Revised – Tgac editor to make changes of TGac draft 3.1 as shown in document 11-12-1075/r2 under the heading CID6279. |

**Discussion**

TGac has updated “signaling TA” to “bandwidth signaling TA”. Replace all the “signaling TA" by "bandwidth signaling TA" in the draft.

**Proposed changes**

***TGac editor:***

***Please replace “signaling TA”by “bandwidth signaling TA” on page 116 line 62 as follows:***

Note—The BSSID(TA) field of a CF -End frame is treated as a TA fi eld when set to a bandwidth signaling TA.

***Please replace “signaling TA”by “bandwidth signaling TA” on page 119 line 60 as follows:***

A VHT STA shall not set the TA field to a bandwidth signaling TA in a frame sent to a non-VHT STA.

***Please replace “signaling TA”by “bandwidth signaling TA” on page 134 line 65 as follows:***

The channel width obtained for a TXOP is the bandwidth of the initial frame of the TXOP, if the initial frame does not have a bandwidth signaling TA or does not require a response. The channel width obta ined for a TXOP is the bandwidth of the response to the initial frame if the in itial frame has a bandwidth signaling TA and requires a response.

**References:**