### IEEE P802.11 Wireless LANs

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| Proposed Draft Specification for WideBand BW Signaling | | | | |
| Date: 2021-01-11 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Yunbo Li | Huawei |  |  | liyunbo@huawei.com |
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Abstract

We propose draft text for solving some TBDs on wideband BW signaling.

Revisions:

* Rev 0: Initial version of the document.
* Rev 1: list two options for the group to decide. B3 for Opt 1, and B7 for Opt 2.

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 subsequent TGbe Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe Draft (i.e. they are instructions to the 802.11 editor on how to merge the text with the baseline documents).***

***TGbe Editor: Editing instructions preceded by “TGbe Editor” are instructions to the TGbe editor to modify existing material in the TGbe draft. As a result of adopting the changes, the TGbe editor will execute the instructions rather than copy them to the TGbe Draft.***

**Discussion:**

The following Motion on this item passed:

*802.11be supports indicating BW larger than 160 MHz through scrambler sequence in non-HT or non-HT duplicated frames.*

*[Motion 115, #SP102, [16] and [156]]*

The scrambler sequence is located in the first 7 bits (B0 to B6) of the Service field:



The scrambler sequence already contains (dynamic) BW signaling for 20, 40, 80, 160 MHz BW in bits B4-B6. In draft TGbe D0.2 the location for indicating BW larger than 160 MHz is currently TBD. We propose to define the location of the indication to be B3, which is inline with a previously ran SP that had very good support (~74% approval):

*Do you support to use one more bit in scrambler sequence, which is B3, to indicate bandwidth larger than 160MHz in non-HT or non-HT duplicated frames?*

There are two candidate places to carry the signaling for 320MHz.

Opt 1: B3 in scrambing sequence

Opt 2: B7 in Reserved SERVICE field

For B3 (Opt 1), the benefit is it can used for both 5GHz and 6GHz. Alough the maximum bandwidth that larger than 160MHz is not supported by the spec in 5GHz, some people still think it is import (e.g. There is no 6GHz unlinced spectrum in China, if larger than 160MHz bandwidth is not supported in 5GHz, the maximum bandwidth supported in EHT be the same as HE). B3 will leave the door open for indication in 5GHz. But, since B3 is randomly to be 0 or 1 when transmitted by pre-EHT STA, the receiver need to determine whether B3 is used for BW signaling base on the capability of transmiting STA. For EHT transmitting STA, B3 will be used for BW signaling, while for pre-EHT transmitting STA, B3 is not used for BW signaling.

For B7 (Opt 2), currently it is reserved and set to 0, so the receiver can easily know whether 320MHz is indicated. It is easier for the receiver STA to implement it when compare with Opt 1. But it can only used in 6GHz band. If we go with Opt 2, it means that if larger than 160MHz bandwidth is supported in 5GHz later, we may need a different solution for it.

Let’s try to run a straw poll to collect opinions from the group. And then move forward with the option that get more support.

**Straw Poll 1: which option do you prefer for the 320MHz BW indication in non-HT duplicated PPDU?**

* Opt 1: B3 in scrambing sequence
* Opt 2: B7 in SERVICE field
* Abstain

**Propose:**

***TGbe editor: Please change the subclauses below as follows:***

**Proposed text based on Opt 1**

* Control frames
* RTS frame format

***Change the third paragraph as follows:***

The TA field is the address of the STA transmitting the RTS frame or the bandwidth signaling TA of the STA transmitting the RTS frame. In an RTS frame transmitted by a VHT STA or an HE STA or an EHT STA in a non-HT or non-HT duplicate format to another VHT STA or HE STA or an EHT STA, the scrambling sequence carries the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT (see 10.3.2.7 (VHT and SIG RTS procedure)) and the TA field is a bandwidth signaling TA. In an RTS frame transmitted by an EHT STA in a non-HT duplicate format with bandwidth greater than 160 MHz to another EHT STA, the B3, B5 and B6 bits in the scrambling sequence carriers the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT value of CBW320 as in Table 36-1 (TXVECTOR and RXVECTOR parameters)and the TA field is a bandwidth signaling TA.

* PS-Poll frame format
* General

***Change the second paragraph as follows:***

The BSSID (RA) field is set to the address of the STA contained in the AP. The TA field value is the address of the STA transmitting the frame or a bandwidth signaling TA. In a PS-Poll frame transmitted by a VHT STA or an HE STA or an EHT STA in a non-HT or non-HT duplicate format and where the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT, the TA field value is a bandwidth signaling TA. In a PS-Poll frame transmitted by an EHT STA in a non-HT duplicate format with bandwidth greater than 160 MHz to another EHT STA, the B3, B5 and B6 bits in the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT value of CBW320 as in Table 36-1 (TXVECTOR and RXVECTOR parameters) and the TA field value is a bandwidth signaling TA.

* CF-End frame format

***Change the last paragraph as follows:***

If transmitted by a non-DMG STA, the BSSID (TA) field is the address of the STA contained in the AP except that the Individual/Group bit of the BSSID (TA) field is set to 1 in a CF-End frame transmitted by a VHT STA to a VHT AP or an HE STA or an EHT STA to an EHT AP to an HE AP in a non-HT or non-HT duplicate format to indicate that the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT. If transmitted by a DMG STA, the TA field is the MAC address of the STA transmitting the frame. In a CF-End frame transmitted by an EHT STA in a non-HT duplicate format with bandwidth greater than 160 MHz, the B3, B5 and B6 bits in the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT value of CBW320as in Table 36-1 (TXVECTOR and RXVECTOR parameters) and the TA field value is a bandwidth signaling TA.

* BlockAckReq frame format
* Overview

***Change the fourth paragraph as follows:***

The TA field value is the address of the STA transmitting the BlockAckReq frame or a bandwidth signaling TA. In a BlockAckReq frame transmitted by a VHT STA or an HE STA or an EHT STA in a non-HT or non-HT duplicate format and where the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT, the TA field value is a bandwidth signaling TA. In a BlockAckReq frame transmitted by an EHT STA in a non-HT duplicate format with bandwidth greater than 160 MHz, the B3, B5 and B6 bits in the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT value of CBW320 as in Table 36-1 (TXVECTOR and RXVECTOR parameters) and the TA field value is a bandwidth signaling TA.

***Change the title of the subclause 9.3.1.19 as follows:***

* VHT/HE/EHT NDP Announcement frame format

***Change the fourth paragraph as follows:***

The TA field is set to the address of the STA transmitting the VHT/HE NDP Announcement frame or the bandwidth signaling TA of the STA transmitting the VHT/HE/EHT NDP Announcement frame. In a VHT/HE/EHT NDP Announcement frame transmitted by a VHT or HE or EHT STA in a non-HT or non-HT duplicate format and where the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT, the TA field is set to a bandwidth signaling TA. In an EHT NDP Announcement frame transmitted by an EHT STA in a non-HT duplicate format with bandwidth greater than 160 MHz, the B3, B5 and B6 bits in the scrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT value of CBW320 as in Table 36-1 (TXVECTOR and RXVECTOR parameters) and the TA field value is a bandwidth signaling TA.

**Proposed text based on Opt 2**

* Control frames
* RTS frame format

***Change the third paragraph as follows:***

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Straw Poll:

Do you support to incorporate the proposed draft text in 11-20/0077r1 into next version of TGbe Draft?