IEEE P802.11
Wireless LANs

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| CR of BW Indication for non-HT duplicated frames |
| Date: 2021-08-06 |
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1. **Introduction**

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 TGbe Draft. The introduction and the explanation of the proposed changes are not part of the adopted material.

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| --- | --- | --- | --- | --- | --- | --- |
| **CID** | **Commenter** | **Clause**  | **P.L** | **Comment** | **Proposed Change** | **Resolution** |
| 4124 | Albert Petrick | 9.3.1.2 | 74.37 | STA 6G is referenced in Table 17-1 Table 17-2 and in subclauses 9.3.1.2 RTS frame format, 9.3.1.5 CF-END, and 9.3.17 BlockAck frame format. Provide a definition for STA 6G and move it to Clause 3. | Definition: example text: STA 6G is a STA that is capable of operating in the 6 GHz band supporting 20, 40, 80, 160 and 320 MHz bandwidths. | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 5695 | kaiying Lu | 9.3.1.2 | 74.37 | Suggest to provide a definition of ' STA 6G' that it is a STA operating on 6GHz band. | As in comment | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 7379 | Stephen McCann | 9.3.1.2 | 74.37 | What is a "STA 6G"? | Change the term "STA 6G" to "STA operating in the 6 GHz band". | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 7440 | Thomas Derham | 9.3.1.2 | 0.00 | What is a "STA 6G"? (multiple locations). If "6G" is a modifier of "STA", it should come first and preferably be renamed to something more descriptive | Needs a definition, and a change of name | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 7837 | Yonggang Fang | 9.3.1.2 | 74.36 | Should be 6GHz, not "6G" | please change to "operating in 6GHz with 320MHz ..." | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 7838 | Yonggang Fang | 9.3.1.5.1 | 74.59 | Should be 6GHz, not "6G" | please change to "operating in 6GHz with 320MHz ..." | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 7839 | Yonggang Fang | 9.3.1.6 | 75.05 | Should be 6GHz, not "6G" | please change to "operating in 6GHz with 320MHz ..." | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 7840 | Yonggang Fang | 9.3.1.7.1 | 75.27 | Should be 6GHz, not "6G" | please change to "operating in 6GHz with 320MHz ..." | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 8066 | Yuchen Guo | 9.3.1.2 | 74.38 | change "6G" to "operating on 6GHz band". Same for Line 59 | as in comment | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 8258 | Zhiqiang Han | 9.3.1.2 | 74.37 | What is a STA 6G? A STA operates in 6G band? please clarify it, add a definitions in Clause 3 | as in comment. | RejectedThe STA 6G has already been defined in IEEE 802.11ax-2021 standard.***station (STA) 6G:*** *A STA that is operating on a channel that belongs to any operating class that has a value of 5.950 for the entry in the Channel starting frequency column of Table E-4.* |
| 6004 | Liwen Chu | 9.3.1.2 | 74.59 | change "......320 MHz bandwidth support in a non-HT or non-HT duplicate......" to "......320 MHz bandwidth support in a non-HT duplicate.....". It is not possible that non-HT is used in this case. The same change should be applied to CF End, Block Ack Request, NDP Announcement. | As in comment | Rejected.Agree with the commenter, but the sentence mentioned in the comment is removed when resolving the CID 4145 and 7681 in this same document. The 320MHz BW mode is not specifically mentioned in the updated version of this paragraph. So the commenting issue doesn’t exist anymore. |
| 6003 | Liwen Chu | 9.3.1.2 | 74.38 | change "......320 MHz bandwidth support in a non-HT or non-HT duplicate......" to "......320 MHz bandwidth support in a non-HT duplicate.....". It is not possible that non-HT is used in this case. | As in comment | Rejected.Agree with the commenter, but the sentence mentioned in the comment is removed when resolving the CID 4145 and 7681 in this same document. The 320MHz BW mode is not specifically mentioned in the updated version of this paragraph. So the commenting issue doesn’t exist anymore. |
| 4145 | Alfred Asterjadhi | 9.3.1.2 | 74.40 | The scrambling sequence is carried in the Service field. So just mention Service field here, and probably add a reference to the subclause that covers this in detail. Same comment applies to all other control frames that have bandwidth signaling TA. Also in the "Otherwise" condition, should we mention for an EHT STA that is not a 6G STA and so on? Actually the otherwise appears confilicting now because the EHT STA that is a STA6G has to be an HE STA as well... | As in comment. | RevisedDiscussed with several PHY members, the feedback is that it is not accurte to say that the paramenter CH\_BANDWIDTH\_IN\_NON\_HT is carried in SERVICE field, which may misleading the reader. So scrambling sequence is still kept here.Agree with the commenter that the “otherwise” condition is not clear. The conditions are re-orgnized to makes it more clear.TGbe editor to make the changes shown in doc 21/1352r0 under CID 4145 |
| 7681 | Xiaofei Wang | 9.3.1.6 | 75.10 | The sentence "Otherwise, ifIf 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 to an HE AP, or an EHT STA to an EHT AP to an HE AP in a non-HT or non-HT duplicate format to indicate that thescrambling sequence carries the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT." is not clear and confusing, it needs rewriting. | as in comment | RevisedAgree with the commenter that the “otherwise” condition is not clear. The conditions are re-orgnized to makes it more clear.TGbe editor to make the changes shown in doc 21/1352r0 under CID 7681 |
| 5697 | kaiying Lu | 9.3.1.2 | 74.39 | The scrambling sequence is carried in the SERVICE field. Suggest to change 'the scrambling sequence and SERVICE field' to 'the scrambling sequence and B7 in the SERVICE field'. | As in comment | RejectedThe paragraph provides a high-level description on the location of CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BAND- WIDTH\_IN\_NON\_HT, and its intention is not to mention the exact bit. |
| 8259 | Zhiqiang Han | 9.3.1.2 | 74.38 | A bit need be added in EHT MAC capabilities field to indicate this feature. | as in comment. | Rejected.It is not a new feature, and it simply extends the indication to 320 MHz. There is no capability indication for the bandwidth indication of non-HT duplicated frames, so similarly, no EHT MAC capabilities are needed here. |
| 8260 | Zhiqiang Han | 9.3.1.2 | 74.38 | There is some differences between an EHT STA with 320MHz bandwidth support and an EHT STA with 320MHz bandwidth support in a non-HT or non-HT duplicateformat.I think the sentence should be changed to " In an RTS frame transmitted by an EHT STA that is a STA 6G with 320 MHz bandwidth support in a non-HT or non-HT duplicate format to another EHT STA with 320 MHz bandwidth support in a non-HT or non-HT duplicate format" | as in comment. | RejectedAn EHT STA with 320 MHz bandwith support must also support 320 MHz non-HT duplicated PPDU for some control frames, e.g. RTS, CTS, ACK. So there is no difference to say 320 MHz bandwidth support or 320 MHz bandwidth support in non-HT duplicated format. |
| 8261 | Zhiqiang Han | 9.3.1.6 | 75.07 | "320 MHz bandwidth support" and "320 MHz bandwidth support in a non-HT or non-HT duplicate format " are the same capabilities? Please clarify it | as in comment. | RejectedAn EHT STA with 320 MHz bandwith support must also support 320 MHz non-HT duplicated PPDU for some control frames, e.g. RTS, CTS, ACK. So there is no difference to say 320 MHz bandwidth support or 320 MHz bandwidth support in non-HT duplicated format. |
| 7377 | Stephen McCann | 9.3.1.6 | 75.13 | What is an "EHT AP"? | Define the following term in clause 3.2: "EHT AP: An AP with EHT capability". | RejectedThe reader can easily understand an EHT AP is an AP with EHT capability. Since there is no definition of AP in other generations (e.g., HT AP, VHT AP and HE AP), it is better to follow the same style. Otherwise, the definitions of AP also need to be added for other generations. |
| 5696 | kaiying Lu | 9.3.1.6 | 75.14 | Change 'an EHT STA to an EHT AP to an HE AP' to 'or an EHT STA to an EHT AP' | As in comment | Accepted |
| 7878 | Yongho Kim | 9.3.1.8 | 75.37 | BlockAck frame is another control frame that can be transmitted in non-HT duplicated PPDU format. Therefore, the indication of 320 MHz using SERVICE field should also be applied to the clause 9.3.1.8.1 (Overview) | Add the text to indicate the 320 MHz bandwidth when the BlockAck frame is transmitted using non-HT duplicated PPDU format. | Rejected.In subclause 9.3.1 (Control frames), only a control frame is the initial frame of a frame exchange has a description that carries the bandwidth indication in order to let the receiver STA to get to bandwidth of the initial frame (the response control frame shall have the same bandwidth as the initial control frame, except for the case of RTS/CTS with dynamic bandwidth negotiation). So it is not good to make BA different from other control response frames.  |
| 7387 | Stephen McCann | 9.3.1.8.2 | 76.48 | typo "if....is 1" or "when...is 1". There are many instances where a comparison is made using the term "is 1". This should be "is equal to 1". | Change all occurances of the phrase "if....is 1" to "if...is equal to 1" and "when...is 1" to "when....is equal to 1". Apologies that I have not listed them all out in this resolution. | RejectedThere are many similar expressions in the draft P802.11Revme standard. Suggest to leave it as it is in IEEE 802.11be, or discuss the proposed modification in TGme. |
| 7388 | Stephen McCann | 9.3.1.8.2 | 76.42 | typo "if....is 0" or "when...is 0". There are many instances where a comparison is made using the term "is 0". This should be "is equal to 0". | Change all occurances of the phrase "if....is 0" to "if...is equal to 0" and "when...is 0" to "when....is equal to 0". Apologies that I have not listed them all out in this resolution. | RejectedThere are many similar expressions in the draft P802.11Revme standard. Suggest to leave it as it is in IEEE 802.11be, or discuss the proposed modification in TGme. |
| 4893 | Dong Guk Lim | 17.2.2.7 | 236.60 | 320MHz is only allowed in the 6GHz band. | add the "6Ghz band" to description of 320MHz indication. | Revised.“in 6 GHz band” is added.TGbe editor to make the changes shown in doc 21/1352r0 under CID 4893 |
| 5548 | JINYOUNG CHUN | 17.3.5.5 | 238.15 | Define CBINHI first. Is it RXVECTOR? What is the values of other bits of the CBINHI except Bit 2? Or just use CBINH in RXVECTOR. | as a comment | Rejected.CBINHI is the abbreviation of CH\_BANDWIDTH\_IN\_NON\_HT\_INDICATOR which is explained in the bottom of Figure 17-6. The bits 0 and 1 of CBINHI are B5 and B6 of the first 7 bits of scrambling sequence, respectively (see Table 17-7).The values of CBINHI and the mapping to CBW can be found in Table 17-9a. |
| 5549 | JINYOUNG CHUN | 17.3.5.5 | 238.64 | To avoid the confusion, add the text like 'except the above case' | add the text as follow:During reception by an EHT STA except the above case, the RXVECTOR parameter DYN\_BANDWIDTH\_IN\_NON\_HT shall be set to... | Revised The interpretation of DYN\_BANDWIDTH\_IN\_NON\_HT is the same for EHT STA and pre-EHT STA. The related two paragraphs are re-organized.TGbe editor to make the changes shown in doc 21/1352r0 under CID 5549 |
| 5233 | Ilya Levitsky | 17.3.5.5 | 239.61 | Text may be to far from the previous line break. | On this page, move text upwards, before the table 17-7 | Rejected This paragraph and the paragraph above are re-organized in D1.1, and specifically, this sentence is removed. |
| 5550 | JINYOUNG CHUN | 17.3.5.5 | 239.28 | In Table 17-7, can't we use the RXVECTOR when CH\_BANDWODTH\_IN\_NON\_HT is present and DYN\_BANDWIDTH\_IN\_NON\_HT is not present? | add the case if need | Rejected.The draft specification already clarifies that this case does not exist.“A VHT STA shall include both the CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT parameters in the RXVECTOR if the PPDU format is NON\_HT” (see page 1787 in REVmd D5.0) |
| 5551 | JINYOUNG CHUN | 17.3.5.5 | 239.29 | Define CBINHI first. Is it RXVECTOR? Or just use CBINH in RXVECTOR. | as a comment | RejectedCBINHI is the abbreviation of CH\_BANDWIDTH\_IN\_NON\_HT\_INDICATOR that is defined in Figure 17-6.The use of CBINHI and CBINH here follows the baseline standard. |
| 5553 | JINYOUNG CHUN | 17.3.5.5 | 240.24 | In Table 17-9a, there's no such RXVECTOR. What is CH\_BANDWIDTH\_IN\_NON\_HT\_INDICATOR with what length? Let's define first and use Bits 0 and 1.Or just reuse CH\_BANDWIDTH\_IN\_NON\_HT in RXVECTOR as it is | as a comment | RejectedThere are both CH\_BANDWIDTH\_IN\_NON\_HT\_INDICATOR and CH\_BANDWIDTH\_IN\_NON\_HT in the baseline standard. Please find the details in Table 17-9 and Table 17-7 in IEEE802.11 REVmd D5.0. |
| 4975 | Eunsung Park | 17.3.5.5 | 239.57 | It would be better to set the value in bits 0 and 1 of CH\_BANDWIDTH\_IN\_NON\_HT to 3 not 0 when indicating 320 MHz BW. The reasons are as follows.We agreed that U-SIG has BW/puncturing information to enable OBSS/unassociated STAs as well as associated STAs to use this information for a better channel use. That means OBSS STAs can use the BW/puncturing information of other PPDUs when trying to transmit their own PPDU, and thus, to prevent interference from OBSS/unassociated STAs it would be better to set the the value to 3 which is interpreted as 160MHz for OBSS/unassociated VHT/HE STAs. Note that 160MHz is the maximum bandwidth for OBSS/unassociated VHT/HE STAs.Another reason is that in 11ax BW of the PPDU which carries a Trigger frame needs to be equal to or larger than that of TB PPDU solicited by the Trigger frame. However, for example, when 320MHz EHT TB PPDU is solicited by the Trigger frame contained in the 320MHz non-HT Dup PPDU, HE STAs interpret the BW (indicated in the service field) of PPDU carrying Trigger frame as 20MHz and the BW (indicated in the Common Info field of the Trigger frame) of TB PPDU as 160MHz. It can cause problems with HE STA's behavior. For example, since this may not be a valid frame in 11ax, I guess it could happen that (OBSS) HE STAs do not set NAV.The last reason is that OBSS HE STAs which are capable of PSR consider that the PSRR BW is 20MHz while they can receive 160MHz signal. In that case, there may be a problem with calculating transmit power when conducting PSR. Depending on the implementation, some of the HE STAs cannot handle this situation (a 160MHz PPDU with 20MHz BW indication). | See the comment. | Pending?Prefer to collect technical opinions from the group before resolving the comment. |
| 5552 | JINYOUNG CHUN | 17.3.5.5 | 239.56 | In Table 17-8, let's change 'the value in bits 0 and 1' from 0 to 3 in CBW320. That's because non-EHT STA can't recognize the BW correctly and then they think CBW20.It's better they think CBW160 than CBW20. | as a comment | Pending?Prefer to collect technical opinions from the group before resolving the comment. |
| 5554 | JINYOUNG CHUN | 17.3.5.5 | 240.38 | In Table 17-9a, let's change 'the value in bits 0 and 1' from 0 to 3 in CBW320. That's because non-EHT STA can't recognize the BW correctly and then they think CBW20.It's better they think CBW160 than CBW20. | as a comment | Pending?Prefer to collect technical opinions from the group before resolving the comment. |
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***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).***

Discussion: (CID 4975, 5552, 5554)

There are 3 CIDs that ask to change the value of B5B6 from 0 to 3 when indicating bandwidth of 320MHz, the main purpose is allow a legacy STA to treat the BW of receiving PPDU 160MHz BW instead of 20MHz. Several detailed reasons are listed in CID 4975, I list the reasons below and give my personal opinions.

We agreed that U-SIG has BW/puncturing information to enable OBSS/unassociated STAs as well as associated STAs to use this information for a better channel use. That means OBSS STAs can use the BW/puncturing information of other PPDUs when trying to transmit their own PPDU, and thus, to prevent interference from OBSS/unassociated STAs it would be better to set the the value to 3 which is interpreted as 160MHz for OBSS/unassociated VHT/HE STAs. Note that 160MHz is the maximum bandwidth for OBSS/unassociated VHT/HE STAs.

I am not very clear how an unassociated STA can use this BW information. If the transmitting non-HT duplicated PPDU covers the primary 20MHz channel of the unassociated STA, then the unassociated STA will be set to NAV, and cannot contend the channel anymore. If the transmitting non-HT duplicated PPDU doesn’t cover the primary 20MHz channel of the unassociated STA, then the unassociated STA will not decode a packet in non-primary channel. So anyway, the unassociated STA seems hard to use this BW information.

Another reason is that in 11ax BW of the PPDU which carries a Trigger frame needs to be equal to or larger than that of TB PPDU solicited by the Trigger frame. However, for example, when 320MHz EHT TB PPDU is solicited by the Trigger frame contained in the 320MHz non-HT Dup PPDU, HE STAs interpret the BW (indicated in the service field) of PPDU carrying Trigger frame as 20MHz and the BW (indicated in the Common Info field of the Trigger frame) of TB PPDU as 160MHz. It can cause problems with HE STA's behavior. For example, since this may not be a valid frame in 11ax, I guess it could happen that (OBSS) HE STAs do not set NAV.

The main purpose for BW signalling of non-HT duplicated PPDUs is to let the receiver STA to know the bandwidth of initial frame in a frame exchange, so the receiver STA can send the response frame in same BW. So normally Trigger frame doesn’t need to use the BW signalling through Service field. Because Trigger frame includes BW indication in UL BW subfield.

The last reason is that OBSS HE STAs which are capable of PSR consider that the PSRR BW is 20MHz while they can receive 160MHz signal. In that case, there may be a problem with calculating transmit power when conducting PSR. Depending on the implementation, some of the HE STAs cannot handle this situation (a 160MHz PPDU with 20MHz BW indication).

Since Trigger frame doesn’t need to carry the BW signalling through service field, so there is no issue here anymore.

Further more comments below:

1. BW signalling for non-HT duplicated PPDU only apply for part of control frames. Still many other frames transmitted in non-HT duplicated PPDU do not carry the BW information. The unassociated STA cannot get BW information from these frames. So the proposed improvement cannot solve problem in all cases.
2. Although the use of value 3 (B5B6) for 320MHz will allow the unassociated STA to treat the BW of receiving PPDU as 160MHz instead of 20MHz, based on the previous group discussion during CC34, the reserved entries are intended to indicate more BW modes in the future. So if it happens in the future, the problem still exists. Value 0, 1, and 2 will be used for a BW different from 20MHz, 40MHz and 80MHz, respectively.

I would like to hear more opinions from the group, then we can decide how to resolve these 3 CIDs.

1. **Proposed spec text**

***TGbe editor: Please change below paragraphs in subclauses 9.3.1 (Control frames) as follows:***

**9.3.1 Control frames**

**9.3.1.2 RTS frame format**

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 an EHT STA that is a STA 6G with 320 MHz bandwidth support in a non-HT or non-HT duplicate format to another EHT STA with 320 MHz bandwidth support, the scrambling sequence and SERVICE field carry the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BANDWIDTH\_IN\_NON\_HT and the TA field is a band- width signaling TA. (#4145, 7681)In an RTS frame transmittedin a non-HT or non-HT duplicate format in one of the following cases, the scram bling sequence carries the TXVECTOR parameters CH\_BANDWIDTH\_IN\_NON\_HT and DYN\_BAND- WIDTH\_IN\_NON\_HT (see 10.3.2.7 (VHT and SIG RTS procedure)) and the TA field is a bandwidth signaling TA.

* from a VHT STA , an HE STA, an EHT STA that is not a STA 6G, or an EHT STA that is a STA 6G without 320 MHz bandwidth support to another VHT STA, HE STA or an EHT STA
* from an EHT STA that is a STA 6G with 320 MHz bandwidth support to an EHT STA that is a STA 6G without 320MHz bandwidth support (#4145, 7681)
	+ - 1. **PS-Poll frame format**
				1. **General**

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 an EHT STA that is a STA 6G with 320 MHz bandwidth support in a non-HT or non-HT duplicate format and where the scrambling sequence and SERVICE field carry the TXVECTOR parameter CH\_BAND- WIDTH\_IN\_NON\_HT, the TA field value is a bandwidth signaling TA. (#4145, 7681)In a PS-Poll frame transmitted by a VHT STA, an HE STA, an EHT STA that is not a STA 6G or an EHT STA that is a STA 6G without 320MHz bandwidth support(#4145, 7681) 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.

* + - 1. **CF-End frame format**

If transmitted by an EHT STA that is a STA 6G with 320 MHz bandwidth support to an EHT AP with 320 MHz bandwidth support, 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 in a non-HT or non-HT duplicate format to indicate that the scrambling sequence and SERVICE field carry the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT. (#4145, 7681) 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 (#4145, 7681) in a non-HT or non-HT duplicate format in one of the following cases (#5696) 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.

* from a VHT STA, a HE STA, an EHT STA that is not a STA 6G, or an EHT STA that is a STA 6G without 320MHz bandwidth support to a VHT AP, an HE AP or an EHT AP
* from an EHT STA that is a STA 6G with 320 MHz bandwidth support to an EHT AP that is a STA 6G without 320MHz bandwidth support (#4145, 7681)
	+ - 1. **BlockAckReq frame format**
				1. **Overview**

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 an EHT STA that is a STA 6G with 320 MHz bandwidth support in a non-HT or non-HT duplicate format and where the scrambling sequence and SERVICE field carry the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT, the TA field value is a bandwidth signaling TA. (#4145, 7681)In a BlockAckReq frame transmitted by a VHT STA, an HE STA, an EHT STA that is not a STA 6G or an EHT STA that is a STA 6G without 320MHz bandwidth support(#4145, 7681) 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.

**9.3.1.19 VHT/HE/EHT NDP Announcement frame format**

The VHT/HE/EHT NDP Announcement frame has three variants, the VHT NDP Announcement frame, the HE NDP Announcement frame, and the EHT NDP Announcement frame. The variants are distinguished by the setting of the HE subfield and the Ranging subfield in the Sounding Dialog Token field.

The VHT/HE/EHT NDP Announcement frame contains at least one STA Info field. If the VHT/HE/EHT NDP Announcement frame contains only one STA Info field, then the RA field is set to the address of the STA that can provide feedback (see 10.37.5.2 (Rules for VHT sounding protocol sequences)). If the VHT/ HE/EHT NDP Announcement frame contains more than one STA Info field, then the RA field is set to the broadcast address.

The TA field is set to the address of the STA transmitting the VHT/HE/EHT 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 an EHT STA that is a STA 6G with 320 MHz bandwidth support in a non-HT or non-HT duplicate format and where the scrambling sequence and SER- VICE field carry the TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT, the TA field is a set to a bandwidth signaling TA. (#4145, 7681)In a VHT/HE/EHT NDP Announcement frame transmitted by a VHT STA, an HE STA, an EHT STA that is not a STA 6G or an EHT STA that is a STA 6G without 320MHz bandwidth support (#4145, 7681) 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.

***TGbe editor: Please change below paragraphs in subclauses 17.2 (OFDM PHY specific service parameter list) as follows:***

# OFDM PHY specific service parameter list

* + 1. **TXVECTOR parameters**
			1. **General**

**Table 17-1—TXVECTOR parameters**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Associated primitive** | **Value** |
| CH\_BANDWIDTH\_ IN\_NON\_HT | PHY-TXSTART.request (TXVECTOR) | Not present if neither dot11VHTOptionImplemented nor dot11HEOptionImplemented is present or equal to true.Optionally present (see 9.3.1 (Control frames)) if at least one of dot11VHTOptionImplemented and dot11HEOptionImplemented is present and equal to true.If dot11EHTOptionImplemented is not present or equal to false, then the allowed values are CBW20, CBW40, CBW80, CBW160, or CBW80+80.If dot11EHTOptionImplemented is equal to true and the STA is not a STA 6G or the STA is a STA 6G without 320 MHz bandwidth support, then the allowed values are CBW20, CBW40, CBW80, or CBW160.If dot11EHTOptionImplemented is equal to true and the STA is a STA 6G with 320 MHz bandwidth support, then the allowed values are CBW20, CBW40, CBW80, CBW160, or CBW320. |
| DYN\_BANDWIDTH\_IN\_NON\_HT | PHY-TXSTART.request (TXVECTOR) | Not present if neither dot11VHTOptionImplemented nor dot11HEOptionImplemented is present or equal to true.Optionally present (see 9.3.1 (Control frames)) if at least one of dot11VHTOptionImplemented and dot11HEOptionImplemented is present and equal to true, then the allowed values are Static or Dynamic. |

**17.2.2.7 TXVECTOR CH\_BANDWIDTH\_IN\_NON\_HT**

If present, the allowed values for CH\_BANDWIDTH\_IN\_NON\_HT are CBW20, CBW40, CBW80, CBW160, CBW80+80, and CBW320. If present, this parameter is used to modify the first 7 bits of the scrambling sequence and B7 of the SERVICE field for CBW320 in the 6 GHz band (#4893) to indicate the bandwidth of the non-HT duplicate PPDU.

* + 1. **RXVECTOR parameters**
			1. **General**

**Table 17-2—RXVECTOR parameters**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Associated primitive** | **Value** |
| CH\_BANDWIDTH\_IN\_NON\_HT | PHY-RXSTART.request (RXVECTOR) | Not present if neither dot11VHTOptionImplemented nor dot11HEOptionImplemented is present or equal to true.Present if at least one of dot11VHTOptionImplemented and dot11HEOptionImplemented is present and equal to true.If dot11EHTOptionImplemented is not present or equal to false, then the allowed values are CBW20, CBW40, CBW80, CBW160, or CBW80+80.If dot11EHTOptionImplemented is equal to true and the STA is not a STA 6G or the STA is a STA 6G without 320 MHz bandwidth support, then the allowed values are CBW20, CBW40, CBW80, or CBW160.If dot11EHTOptionImplemented is equal to true and the STA is a STA 6G with 320 MHz bandwidth support, then the allowed values are CBW20, CBW40, CBW80, CBW160, or CBW320. |
| DYN\_BANDWIDTH\_IN\_NON\_HT | PHY-RXSTART.request (RXVECTOR) | Not present if neither dot11VHTOptionImplemented nor dot11HEOptionImplemented is present or equal to true.Present if at least one of dot11VHTOptionImplemented and dot11HEOptionImplemented is present and equal to true, then the allowed values are Static or Dynamic. |

***TGbe editor: Please change below paragraphs in subclauses 17.3 (OFDM PHY) as follows:***

**17.3 OFDM PHY**

**17.3.5 DATA field**

**17.3.5.2 SERVICE field**

The SERVICE field has 16 bits, which shall be denoted as bits 0–15. The bit 0 shall be transmitted first in time. The bits from 0–6 of the SERVICE field, which are transmitted first, are set to 0s and are used to synchronize the descrambler in the receiver. If the CH\_BANDWIDTH\_IN\_NON\_HT parameter in the TXVECTOR primitive is not present or is present and is equal to CBW20, CBW40, CBW80, CBW160, or CBW80+80, then bit 7 of the SERVICE field is set to 0. If the CH\_BANDWIDTH\_IN\_NON\_HT parameter in the TXVECTOR primitive is present and is equal to CBW320, then bit 7 of the SERVICE field is set to 1. The remaining 8 bits (8–15) of the SERVICE field shall be reserved for future use. All reserved bits shall be set to 0 on transmission and ignored on reception. Refer to [Figure 17-6 (SERVICE field bit assignment).](#bookmark2)

|  |  |  |
| --- | --- | --- |
| Condition | Scrambler initialization | Remaining SERVICE bits |
| A | “0” | “0” | “0” | “0” | “0” | “0” | “0” | R | R | R | R | R | R | R | R |
| B | If TX:Bit 2 of CBINH If RX:Bit 2 of CBINHI |
|  | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 |
|  | Transmit order  |
| R: reservedCBINH: CH\_BANDWIDTH\_ IN\_NON\_HTCBINHI: CH\_BANDWIDTH\_ IN\_NON\_HT\_INDICATORA: All cases except those that match condition BB: CH\_BANDWIDTH\_ IN\_NON\_HT is present, dot11EHTOptionImplemented is equal to true and the STA is a STA 6G with 320 MHz bandwidth support |

**Figure 17-6—SERVICE field bit assignment**

**17.3.5.5 PHY DATA scrambler and descrambler**

During reception by a VHT STA, HE STA, or EHT STA that is not a STA 6G with 320 MHz bandwidth support, RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT shall be determined from selected bits in the scrambling sequence as shown in [Table 17-7 (Contents of the first 7 bits of the scrambling sequence)](#bookmark3) and [Table 17-9 (RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT values for a VHT or HE STA).](#bookmark4)

 (#5549)

During reception by a VHT STA, HE STA or EHT STA,(#5549) the RXVECTOR parameter DYN\_BANDWIDTH\_IN\_NON\_HT shall be set to selected bits in the scrambling sequence as shown in [Table 17-7 (Contents of the first 7 bits of the](#bookmark3) [scrambling sequence).](#bookmark3) The fields shall be interpreted as being sent LSB-first.

(#5549) (#5549)

**Table 17-7—Contents of the first 7 bits of the scrambling sequence**

|  |  |  |
| --- | --- | --- |
| **Parameter** | **Condition** | **First 7 bits of scrambling sequence** |
| **B0 B3** | **B4** | **B5 B6** |
| **Transmit order** |
| TXVECTOR | CH\_BANDWIDTH\_I | 5-bit pseudorandom nonzero integer if | Bits 0 and 1 of  |
| N\_NON\_HT is | CH\_BANDWIDTH\_IN\_NON\_HT equals CBW20 | CH\_BANDWIDTH\_ |
|  | present and | or CBW320 and a 5-bit pseudorandom integer | IN\_NON\_HT |
|  | DYN\_BANDWIDTH\_IN\_NOT\_HT is not | otherwise |  |
|  | present in |  |  |
|  | TXVECTOR |  |  |
| TXVECTOR | CH\_BANDWIDTH\_I | 4-bit pseudorandom | DYN\_BANDWIDTH |  |
| N\_NON\_HT is | nonzero integer if | \_IN\_NON\_HT |  |
|  | present and | CH\_BANDWIDTH\_IN\_ |  |  |
|  | DYN\_BANDWIDTH | NON\_HT equals CBW20 |  |  |
|  | \_IN\_NOT\_HT is | or CBW320 and |  |  |
|  | present in | DYN\_BANDWIDTH\_IN |  |  |
|  | TXVECTOR | \_NON\_HT equals Static, and a 4-bit pseudorandom |  |  |
|  |  | integer otherwise |  |  |
| RXVECTOR | CH\_BANDWIDTH\_I | — | DYN\_BANDWIDTH | Bits 0 and 1 of  |
|  | N\_NON\_HT and DYN\_BANDWIDTH |  | \_IN\_NON\_HT | CH\_BANDWIDTH\_ IN\_NON\_HT\_INDI |
|  | \_IN\_NOT\_HT are |  |  | CATOR (see |
|  | present in |  |  | [Table 17-9](#bookmark4) |
|  | RXVECTOR |  |  | [(RXVECTOR](#bookmark4) |
|  |  |  |  | [parameter](#bookmark4) |
|  |  |  |  | [CH\_BANDWIDTH\_](#bookmark4) |
|  |  |  |  | [IN\_NON\_HT values](#bookmark4) |
|  |  |  |  | [for a VHT or HE](#bookmark4) |
|  |  |  |  | [ST](#bookmark4)A)). |

**Table 17-8—TXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT values**

|  |  |  |  |
| --- | --- | --- | --- |
| **Enumerated value** | **Value** | **Value in bits 0 and 1 of CH\_BANDWIDT H\_IN\_NON\_HT** | **Value in bit 2 of CH\_BANDWIDT H\_IN\_NON\_HT** |
| CBW20 | 0 | 0 | 0 |
| CBW40 | 1 | 1 | 0 |
| CBW80 | 2 | 2 | 0 |
| CBW160 or CBW80+80 | 3 | 3 | 0 |
| CBW320 | 4 | 0 | 1 |

(#5549, 5233)

**Table 17-9—RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT values for a VHT or HE STA**

|  |  |  |
| --- | --- | --- |
| **CH\_BANDWIDTH\_IN\_NO****N\_HT\_INDICATOR field of first 7 bits of scrambling sequence** | **dot11CurrentChannelCenter FrequencyIndex1** | **RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT** |
| 0 | 0 | CBW20 |
| 1 | 0 | CBW40 |
| 2 | 0 | CBW80 |
| 3 | 0 | CBW160 |
| 3 | 1 to 200 | CBW80+80 |

**Table 17-9a—RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT values for an EHT STA**

|  |  |  |
| --- | --- | --- |
| **Bits 0 and 1 of** | **Bit 2 of CH\_BANDWIDTH\_IN\_NO****N\_HT\_INDICATOR field (B7 in SERVICE field)** |  |
| **CH\_BANDWIDTH\_IN\_NO****N\_HT\_INDICATOR field of first 7 bits of scrambling** | **RXVECTOR parameter CH\_BANDWIDTH\_IN\_NON\_HT** |
| **sequence** |  |
| 0 | 0 | CBW20 |
| 1 | 0 | CBW40 |
| 2 | 0 | CBW80 |
| 3 | 0 | CBW160 |
| 0 | 1 | CBW320 |

***End of change***