IEEE P802.11
Wireless LANs

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| **CC36 Comment Resolutions****for 36.3.2.5 20 MHz operating non-AP EHT STAs** |
| **Date:** 2021-07-21 |
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Abstract

This submission proposes a resolution for the following 16 CIDs:

4537, 5525, 5526, 5566, 5873, 6791, 6792, 6793, 7158, 7159

7160, 7161, 7162, 7163, 7164, 7165

Revisions:

* Rev 0: Initial version of the document.

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 D1.01 Draft. This introduction is not part of the adopted material.

***Editing instructions formatted like this are intended to be copied into the TGbe D1.01 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.***

#### *CID 4537, 6791, 6792*

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| **CID** | **Clause** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 4537 | 36.3.2.5 | 367.44 | It's a little repetitive on the support requirements of 20MHz operation STA. The same set requiremens are repeated at least three times, for the support of channel width, RU/MRU set and preamble Tx and Rx preamble and data portion. The last one may not be needed since the support of ch width implies the support of the receiption of preamble and data. The description of supported RU/MRU set may also be simplified. | as in the comment. | RevisedAgree in principle with the commenter. Suggest to delete the paragraphs corresponding to the support of channel width and the transmission and reception of preamble and data. In order to cover those descriptions, suggest to modify the paragraph that describes the supported RU/MRU set.TGbe editor to make the changes shown in 11-21/1095r0. |
| 6791 | 36.3.2.5 | 368.02 | It is inaccurate to apply the phrase "when participating in EHT DL and UL OFDMA transmissions" to a non-AP STA, since a non-AP STA does not really transmit a DL OFDMA EHT PPDU. Suggest replacing "when participating in EHT DL and UL OFDMA transmissions with PPDU bandwidth of" with "when receving/transmitting a DL/UL OFDMA EHT PPDU of bandwidth".Note that "OFDMA EHT PPDU" is defined in section 3.2 (P43, L11 of D1.0). | As in comment | RevisedAgree in principle with the commenter. Suggest to modify the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |
| 6792 | 36.3.2.5 | 368.16 | It is inaccurate to apply the phrase "when participating in EHT DL transmission" to a non-AP STA, since a non-AP STA cannot transmit in the DL direction. Suggest replacing "when participating in EHT DL transmission with PPDU bandwidth" with "when receving a DL OFDMA EHT PPDU of bandwidth".Note that "OFDMA EHT PPDU" is defined in section 3.2 (P43, L11 of D1.0). | As in comment | RevisedAgree in principle with the commenter. Suggest to modify the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |

#### *CID 5525, 5526, 6793*

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| **CID** | **Clause** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 5525 | 36.3.2.5 | 368.82 | 40 MHz is missing in which 20 MHz operating non-AP EHT STA with any 20 MHz channel is operating when following the procedure of HE subchannel selective transmission. | Includes 40 MHz as "In this exceptional case, the 20 MHz operating non-AP EHT STA may operate in any 20 MHz channel within the BSS bandwidth of 40MHz, 80 MHz, or 160 MHz by following the procedure in 26.8.7 (HE subchannel selective transmission)." | RevisedAgree in principle with the commenter. Suggest to add 40 MHz into the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |
| 5526 | 36.3.2.5 | 369.05 | 40 MHz is missing in which an RU or MRU outside of the primary 20 MHz is not allocated by an EHT AP when the 20 MHz operating non-AP EHT STA has not set up SST operation on the nonprimary 20 MHz channel with the EHT AP. | Includes 40 MHz as "An EHT AP shall not allocate an RU or MRU outside of the primary 20 MHz in an 40 MHz, 80 MHz, 160 MHz, or 320 MHz EHT MU or EHT TB PPDU to an 20 MHz operating non-AP EHT STA if the 20 MHz operating non-AP EHT STA has not set up SST operation on the nonprimary 20 MHz channel with the EHT AP. | RevisedAgree in principle with the commenter. Suggest to add 40 MHz into the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |
| 6793 | 36.3.2.5 | 369.05 | Add missing 40 MHz PPDU BW as: "An EHT AP shall not allocate an RU or MRU outside of the primary 20 MHz in an a 40 MHz, 80 MHz, 160 MHz, or 320 MHz EHT MU or EHT TB PPDU ..." | As in comment | RevisedAgree in principle with the commenter. Suggest to add 40 MHz into the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |

#### *CID 5566*

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| **CID** | **Clause** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 5566 | 36.3.2.5 | 369.07 | There is no discription about SST operation of EHT STA. Define EHT SST by referring 26.8.7 HE SST. | Add EHT\_TB format in the first row as below and delete the second row:FORMAT is EHT\_MU, EHT\_TB, or FORMAT is NON\_HT and NON\_HT\_MODULATION is equal to NON\_HT\_DUP\_OFDM | RejectedThe corresponding text is the case where SST is not used so we don’t have to add a reference. Note that the previous paragraph deals with the case where SST is used and refers to the HE SST section.  |

#### *CID 5873, 7158, 7160*

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| **CID** | **Clause** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 5873 | 36.3.2.5 | 367.45 | Have a question for the text in line 45 page 367: "...... whose current operating mode supports up to 20 MHz channel width ......", does it mean there could be a operating mode that supports less than 20MHz channel width?Note that "OFDMA EHT PPDU" is defined in section 3.2 (P43, L11 of D1.0). | Please clarify if 11be supports operating mode with less than 20MHz channel width. If not, suggest removing "up to" in the sentence in line 45 page 367. If yes, please provide specification on how it works / signals. | RevisedThe term “up to” is not needed since there is no operating channel width less than 20 MHz. Suggest to modify the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |
| 7158 | 36.3.2.5 | 367.44 | "A 20 MHz operating non-AP EHT STA is a non-AP EHT STA whose current operating mode supports up to 20 MHz channel width". There is no BW lower than 20 MHz, so replace "up to 20 MHz" with "only 20 MHz" | See comment | RevisedAgree in principle with the commenter. Suggest to modify the corresponding sentence.TGbe editor to make the changes shown in 11-21/1095r0. |
| 7160 | 36.3.2.5 | 367.55 | Last sentence of paragraph partially repeats first sentence. Merge information into single place (e.g. at start of paragraph). | See comment | RevisedAgree in principle with the commenter. Suggest to delete the last sentence and incorporate it into the first sentence.TGbe editor to make the changes shown in 11-21/1095r0. |

#### *CID 7159, 7161, 7162, 7163, 7164, 7165*

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| **CID** | **Clause** | **PP.LL** | **Comment** | **Proposed Change** | **Resolution** |
| 7159 | 36.3.2.5 | 367.50 | run-on sentence. Start new sentence at " The operating channel width ..." | Replace "and the operating channel width may ..." with ". The operating channel width may" | Accepted |
| 7161 | 36.3.2.5 | 367.61 | Improve wording: change "excluding a 20 MHz-only ..." to "that is not a 20 MHz-only ..." | See comment. Also applies in a number of other places in this section. | RevisedSuggest to modify the corresponding texts based on the proposed change.TGbe editor to make the changes shown in 11-21/1095r0. |
| 7162 | 36.3.2.5 | 367.60 | Which is the correct language "shall be able to participate" or "shall be capable of participating"? I don't know if there is a preferred way in 802.11. If so, please use that one consistently. | See comment. Would apply in many places. | RejectedBoth are currently used in the spec. We don’t have to use only one expression. |
| 7163 | 36.3.2.5 | 368.06 | "An EHT AP shall be able to allocate an RU (...) or MRU (...) in a 20 MHz EHT MU or EHT TB PPDU to a 20 MHz operating non-AP EHT STA.". Is this a requirement on the AP, or is a requirement for the 20 MHz-operating STA that it should be able to receive these RU/MRUs? Given that this is a section on 20MHz operating non-AP STAs, it may be the latter. If so, please formulate accordingly. | See comment | RejectedThe sentence depicts an AP’s requirement regarding an assignment of 20 MHz operating non-AP STA and it is also an explanation relevant to 20 MHz operating non-AP STA so it is good to have it. Also, the spec already has a description on the 20 MHz operating non-AP STA’s requirement regarding RUs/MRUs used for reception or transmission so we don’t have to futher modify the text. |
| 7164 | 36.3.2.5 | 368.31 | "The AP's operating channel is the same as the BSS channel width.". "operating channel" should probably be "operating channel width" | See comment | Accepted |
| 7165 | 36.3.2.5 | 368.61 | "In this exceptional case ...". Not sure what makes this exceptional. | Remove "exceptional" | RevisedPrevious sentence says “except when the 20 MHz operating non-AP EHT STA sets dot11HESubchannelSelectiveTransmissionImplemented equal to true”. This “exceptional case” means the case where SST is used. Based on the proposed change, suggest to delete the term “exceptional” and modify the corresponding text for clarity.TGbe editor to make the changes shown in 11-21/1095r0. |

*TGbe Editor: Please make the following changes in Section 36.3.2.5 of D1.01:*

**36.3.2.5 20 MHz operating non-AP EHT STAs(#1244)(#1254)**

(#1285)(#2766)A 20 MHz operating non-AP EHT STA is a non-AP EHT STA(#5873)(#7158)(#7160) that is operating in 20 MHz channel width, such as a 20 MHz-only non-AP EHT STA or a non-AP EHT STA that reduces its operating channel width to 20 MHz (see 36.1.1 (Introduction to the EHT PHY)). The supported channel width of a non-AP EHT STA is indicated in the Supported Channel Width subfield in the HE PHY Capabilities Information field (see 9.4.2.248.3 (HE PHY Capabilities Information field)) and the Support For 320 MHz In 6 GHz subfield in the EHT Capabilities element (see 9.4.2.295c.3 (EHT PHY Capabilities Information field))(#7159).The operating channel width may be updated by Operating Mode Notification frame, Operating Mode Notification element with the Rx NSS Type subfield equal to 0, or Channel Width subfield in the OM Control subfield (see 9.2.4.6a.2 (OM Control)) if the EHT OM Control subfield (9.2.4.6a.8 (EHT OM Control)) is not present in the same A-Control field, or the Channel Extension subfield in the EHT OM Control subfield together and with the OM Control subfield sent by the EHT STA.(#7160)

(#4537)

A 20 MHz operating non-AP EHT STA shall support (#4537)(#6791)the transmission and reception of 26-tone RU, 52-tone RU, 106-tone RU, 242-tone RU, 52+26-tone MRU, and 106+26-tone MRU (#4537)(#6791)in a 20 MHz EHT PPDU (see Table 27-7 (Data and pilot subcarrier indices for RUs in a 20 MHz HE PPDU and in a non-OFDMA 20 MHz HE PPDU) and Table 36-8 (Indices for small size MRUs in an OFDMA 20 MHz EHT PPDU)). An EHT AP shall be able to allocate an RU (see Table 27-7 (Data and pilot subcarrier indices for RUs in a 20 MHz HE PPDU and in a non-OFDMA 20 MHz HE PPDU)) or MRU (see Table 36-8 (Indices for small size MRUs in an OFDMA 20 MHz EHT PPDU)) in a 20 MHz EHT (#4537)(#6791)PPDU to a 20 MHz operating non-AP EHT STA.

(#2359)(#3095)(#2781)A 20 MHz operating non-AP EHT STA shall support (#4537)(#6791)the transmission and reception of 26-tone RU, 52-tone RU, 106-tone RU, and 52+26-tone MRU in locations allowed in 36.3.2.6 (RU and MRU restrictions for 20 MHz operation(#3276)) (#4537)(#6791)within its operating channel for a 40 MHz, 80 MHz and 160 MHz OFDMA EHT PPDU. A 20 MHz operating non-AP EHT STA may support (#4537)(#6792)the reception of 242-tone RU (#4537)(#6792)within its operating channel for a 40 MHz, 80 MHz and 160 MHz OFDMA EHT PPDU (see 36.3.2.6 (RU and MRU restrictions for 20 MHz operation(#3276))). A 20 MHz operating non-AP EHT STA(#7161) that is not a 20 MHz-only non-AP EHT STA, shall also support (#4537)(#6791)the transmission and reception of 26-tone RU, 52-tone RU, 106-tone RU, and 52+26-tone MRU in locations allowed in 36.3.2.6 (RU and MRU restrictions for 20 MHz operation(#3276)) (#4537)(#6791)within its operating channel for a 320 MHz OFDMA EHT PPDU. A 20 MHz operating non-AP EHT STA(#7161) that is not a 20 MHz-only non-AP EHT STA, may also support (#4537)(#6792)the reception of 242-tone RU (#4537)(#6792)within its operating channel for a 320 MHz OFDMA EHT PPDU (see 36.3.2.6 (RU and MRU restrictions for 20 MHz operation(#3276))). (#3165)An EHT AP with an operating channel width greater than 20 MHz shall be able to allocate an RU (see 36.3.2.1 (Subcarriers and resource allocation for wideband)) or MRU (see 36.3.2.2 (Subcarriers and resource allocation for multiple RUs)) on a 20 MHz channel within the BSS bandwidth in a 40 MHz, 80 MHz, or 160 MHz (#4537)(#6791)OFDMA EHT PPDU to a 20 MHz operating non-AP EHT STA depending on the AP’s operating channel width. The AP’s operating channel(#7164) width is the same as the BSS channel width. An EHT AP with 320 MHz operating channel width shall be able to allocate an RU (see 36.3.2.1 (Subcarriers and resource allocation for wideband)) or MRU (see 36.3.2.2 (Subcarriers and resource allocation for multiple RUs)) on a 20 MHz channel within the BSS bandwidth in a 320 MHz (#4537)(#6791)OFDMA EHT PPDU to a 20 MHz operating non-AP EHT STA(#7161) that is not a 20 MHz-only non-AP EHT STA. When an EHT AP assigns an RU or MRU to a 20 MHz operating non-AP EHT STA, the EHT AP shall follow the restrictions for 20 MHz operation in 36.3.2.6 (RU and MRU restrictions for 20 MHz operation(#3276)).

(#4537)

(#4537)

A 20 MHz operating non-AP EHT STA shall operate in the primary 20 MHz channel except when the 20 MHz operating non-AP EHT STA sets dot11HESubchannelSelectiveTransmissionImplemented equal to true(#7165) in which case the 20 MHz operating non-AP EHT STA may operate in any 20 MHz channel within the BSS bandwidth of (#5525)40 MHz, 80 MHz or 160 MHz by following the procedure in 26.8.7 (HE subchannel selective transmission). The 20 MHz operating non-AP EHT STA may also operate in any 20 MHz channel within the primary 160 MHz when the BSS bandwidth is 320 MHz and the 20 MHz operating non-AP EHT STA is not a 20 MHz-only non-AP EHT STA by following the procedure in 26.8.7 (HE subchannel selective transmission).

An EHT AP shall not allocate an RU or MRU outside of the primary 20 MHz in (#5526)(#6793)a 40MHz, 80 MHz, 160 MHz, or 320 MHz EHT MU or EHT TB PPDU to an 20 MHz operating non-AP EHT STA if the 20 MHz operating non-AP EHT STA has not set up SST operation on the nonprimary 20 MHz channel with the EHT AP.