IEEE P802.11  
Wireless LANs

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| Comment Resolutions for 11be D1.0 TXVECTOR/RXVECTOR Parameters | | | | |
| Date: 2021-10-01 | | | | |
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Abstract

This submission provisions with resolutions to the following 66 CIDs for clause 36.2.1, 36.2.2 and 36.3.21 regarding TXVECTOR and RXVECTOR parameters in IEEE P802.11be D1.0 in WG CC 36, including suggested spec text modification to IEEE P802.11be D1.0 to TGbe editor:

* CIDs: 4125, 4525, 4528, 4529, 4530, 4531, 4532, 4533, 4572, 4573, 4581, 4643, 4656, 5455, 5565, 5805, 5806, 5807, 5808, 6090, 6465, 6824, 6913, 6914, 6918, 6919, 6920, 6921, 6922, 6924, 7118, 7119, 7120, 7121, 7122, 7123, 7126, 7127, 7128, 7307, 7396, 7397, 7647, 7649, 7650, 7651, 7654, 7655, 7656, 7741, 7980, 7981, 7982, 7983, 7984, 7985, 7986, 7987, 7988, 7991, 8014, 8086, 8087, 8088, 8089, and 8146

Revisions:

* R0, comment resolutions initial draft except CID 7649, 8089

Interpretation of a Motion to Adopt

A motion or majority supported straw poll to approve this submission means that the editing instructions and any changed or added material are actioned in the TGbe Draft. When the baseline spec draft is an unapproved version, a majority supported straw poll to approve this submission means that the editing instructions and any changed or added material are actioned in the unapproved 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.***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 4525 | 317.53 | 36.2.1 | Remove duplicated "The" | as in the comment. | **Accepted**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  Note, CID 4525/4572/6913/7396 address the same editorial error. |
| 4572 | 317.53 | 36.2.1 | There are two 'the' in the sentence of 'The The PHY provides an interface...'. | Delete one 'the' in the sentence. | **Accepted**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  Note, CID 4525/4572/6913/7396 address the same editorial error. |
| 6913 | 317.53 | 36.2.1 | Remove one of "The"s | As in commen | **Accepted**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  Note, CID 4525/4572/6913/7396 address the same editorial error. |
| 7396 | 317.53 | 36.2.1 | typo "the the" | Change all occurances of "the the" to "the" throughout the draft. | **Accepted**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  Note, CID 4525/4572/6913/7396 address the same editorial error. |
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***Comments for sub-clause 36.2.1: 4 comments***

***Comments for sub-clause 36.2.2 (pg318): 7 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 4573 | 318.7 | 36.2.2 | There is a typo about 'snd' . | Change snd to and. | **Accepted**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  Note, CID 4573/7397 address the same editorial error. |
| 7397 | 318.07 | 36.2.2 | typo "snd" | Change "snd" to "and" | **Accepted**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  Note, CID 4573/7397 address the same editorial error. |
| 7118 | 318.08 | 36.2.2 | Change "is defined" to "are defined" | See comment | **Accepted**  **Discussion:**  The comment points out an editorial error and offers a proper change proposal. |
| 4581 | 318.13 | 36.2.2 | Table 36-1 describes parameters used in transmitting or receiving an EHT PPDU, but for some parameters, the definition for EHT MU PPDU or EHT TB PPDU is missing, e.g. EHT MU PPDU for LDPC\_EXTRA\_SYMBOL | Update Table 36-1 to add definition for missing cases. | **Revised**  **Discussion:**  The comment points out the lack of definition for LDPC\_EXTRA\_SYMBOL when FORMAT is EHT\_MU. But no other parameters are identified with similar issue.  **Instruction to TGbd Editor:**  Please implement the proposed modification as part of resolution to CID 4581 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 7741 | 318.15 | 36.2.2 | SCRAMBLER\_INITIAL\_VALUE missed in TX/RXVECTOR | add to table 36-1 | **Rejected**  **Discussion:**  SCRAMBLER\_INITAL\_VALUE is used to carry the Scrambler Initialization field of the data field in an MU-RTS PPDU to its corresponding CTS PPDU. For Non-EHT case, SCRAMBLER\_INITAL\_VALUE is well defined in Table 27-1. In EHT case, It’s not yet clear how to convert the 11 bits EHT version Scrambler Initialization field of an MU-RTS transmitted in an EHT PPDU to 7 bits VHT version Scrambler Initialization field of the corresponding CTS transmitted in a Non-HT or Non-HT duplicate PPDU. |
| 5455 | 318.22 | 36.2.2 | What format will be used when receiving a TBD format with EHT ER preamble? | Define a format for ER preamble for RXVECTOR only. | **Rejected**  **Reason:**  The value of “FORMAT” parameter is defined in accordance with the corresponding PHY definition. EHT PHY only defines two PPDU formats: EHT\_MU and EHT\_TB, as in IEEE P802.11be D1.0. |
| 7119 | 318.31 | 36.2.2 | Shall we still allow/require support of HT\_GF? | Remove HT\_GF as a possible value of the FORMAT parameter. | **Rejected**  **Reason:**  The value of “HT\_GF” is defined in accordance with HT GF format as in IEEE 802.11-2020. HT GF format still remains in the latest 802.11revmc draft, therefore “HT\_GF” is still a valid value of the FORMAT parameter. |
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***Comments for sub-clause 36.2.2 (pg319): 7 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 7649 | 319.10 | 36.2.2 | There are difference in CHAN\_MAT, DELTA\_SNR, SNR and CQI. It should be same except which contents to carry. Please clarify. There are some missing entries in parameter SNR as well. Please fill those. | See comment. | **The comment provided wrong position of the spec text.** |
| 7980 | 319.24 | 36.2.2 | "a" should be "the" | Change "EHT TB PDU is a response." to "EHT TB PPDU is the response." | **Accepted**  **Discussion:**  There isn’t much different between “a response” and “the response”. But “the response” may slightly highlight the value comes from the corresponding trigger frame. |
| 4656 | 319.36 | 36.2.2 | Use "an RU" | Change "a RU" to "an RU", 5x in clause 36 | **Accepted**  **Discussion:**  This is more like an editorial comment. But in D1.2, there’s only one place (D1.2, pg419/ln17) to modify.  Note, CID 4656/6465 address the same editorial error. |
| 6465 | 319.36 | 36.2.2 | Change "a RU/MRU" to "an RU/MRU" | as in comment | **Accepted**  **Discussion:**  Note, CID 4656/6465 address the same editorial error. |
| 4528 | 319.38 | 36.2.2 | Expansion\_MAT for EHT\_MU format should split to two rows: one is PSDU\_LENGTH=0 (NDP), the other is PSDU\_Length>0. The requirement for TX vector should be N and MU. It should also be "O" for EHT TB PPDU. Please align with the requirments with DELTA\_SNR row. | as in the comment. | **Revised**  **Discussion:**  The comment points out an editorial error and gives a proper change proposal.  **Instruction to TGbd Editor:**  Please implement the proposed modification as part of resolution to CID 4528 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 7647 | 319.42 | 36.2.2 | It is not clear how to set EXPANSION\_MAT for EHT\_TB based on NDP. Is it always applied or is trigger frame tells to do so? Please clarify. | See comment. | **Revised**  **Discussion:**  As pointed out by CID 4528, the TXVECTOR parameter EXPANSION\_MAT should be optional for EHT\_TB. That means the presence of TXVECTOR parameter EXPANSION\_MAT for an EHT\_TB PPDU depends on the MAC decision, e.g. a measurement to corresponding NDP is performed. This comment could be resolved with the same resolution as to CID 4528.  **Instruction to TGbd Editor:**  Please implement the proposed modification as part of resolution to CID 7647 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 5805 | 319.53 | 36.2.2 | RXVECTOR parameter CHAN\_MAT should contain a vector in the number of selected subcarriers containing feedback matrices based on the channel measured during the training symbols of the currently received EHT sounding NDP instead of previous EHT sounding NDP. Notice that FORMAT is EHT\_MU and PSDU\_LENGTH is 0 implies EHT sounding NDP. | change "previous EHT sounding NDP" to "the currently received EHT sounding NDP" | **Accepted**  **Discussion:**  The comment is correct that the RXVECTOR parameter “CHAN\_MAT” carries the result of measurement to the currently received NDP PPDU. |
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***Comments for sub-clause 36.2.2 (pg320): 10 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 7650 | 320.13 | 36.2.2 | What is MU means in TXVECTOR and RXVECTOR parameters table? Please clarify and find all "MU" cases are correctly used in the table 36-1. | See comment. | **Revised**  **Discussion:**  In 11ax, “MU” means the parameter is organized in an array of values indexed by user index. In 11be, though there’s no SU format, “MU” is still useful to indicate some parameters are organized per user. An explanation to “MU” is added in the Note at the end of the Table 36-1.  **Instruction to TGbd Editor:**  Please implement the proposed modification as part of resolution to CID 7650 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 7981 | 320.22 | 36.2.2 | P329L23 already states that 'pass through' parameters are not listed explicitly in Table 36-1. | Delete the row for RCPI from Table 36-1 | **Accepted** |
| 6919 | 320.34 | 36.2.2 | The unit for SNR should be explicit | Change the first sentence to "Contains an array of average values of received SNR measurements in decibel for each spatial stream." | **Rejected**  **Discussion:**  The unit for SNR and average value is clearly defined in the cell that “Average value of SNR shall be the sum of the decibel values of SNR per subcarrier divided by the number of subcarriers represented in each steam as described in 9.4.1. 67b (EHT Compressed Beamforming Report field).” |
| 7120 | 320.34 | 36.2.2 | entries in last two columns are empty (presence in TXVECTOR and RXVECTOR) | Populate cells (presumably N/Y) | **Revised**  **Discussion:**  Agree on the comment.  **Instruction to TGbd Editor:**  Please insert “N” in TXVECTOR cell and “Y” in RXVECTOR cell in the first row of parameter “SNR” in Table 36-1, at pg320/ln34, in 802.11be D1.0.  Note, CID 7120/5806/4529/6918 address the same issue. |
| 5806 | 320.35 | 36.2.2 | The applicablity of parameter SNR to TXVECTOR and RXVECTOR is missing. | add "N" for TXVECTOR and "Y" for RXVECTOR | **Accepted**  **Discussion:**  Note, CID 7120/5806/4529/6918 address the same issue. |
| 4529 | 320.36 | 36.2.2 | Add "N" "Y" to the TxVector and RxVector Column | as in the comment. | **Accepted**  **Discussion:**  Note, CID 7120/5806/4529/6918 address the same issue. |
| 6918 | 320.36 | 36.2.2 | No "N" or "Y" in the last two cells in the row with "FORMAT is EHT\_MU and PSDU\_LENGTH is 0" | Add "Y" or "N" | **Revised**  **Discussion:**  Agree on the comment.  **Instruction to TGbd Editor:**  Please insert “N” in TXVECTOR cell and “Y” in RXVECTOR cell in the first row of parameter “SNR” in Table 36-1, at pg320/ln34, in 802.11be D1.0.  Note, CID 7120/5806/4529/6918 address the same issue. |
| 7121 | 320.40 | 36.2.2 | If parameter is not present, do we need a value in the last two columns? Simply merge all cells as on e.g. page 321, line 29. Check for similar occurrences in other places in Table 36-1. | See comment | **Revised**  **Discussion:**  Agree on the comment to keep the expression of non-presented case in a consistent way.  **Instruction to TGbd Editor:**  Merge Value cell, TXVECTOR cell and RXVECTOR cell together and mark “Not present.” for following parameters in Table 32-1 in 11be D1.0:   * SNR at pg320/ln42 * CQI at pg320/ln55 * REC\_MCS at pg322/ln50 * INACTIVE\_SUBCHANNELS at pg323/ln31 * CH\_BANDWIDTH\_IN\_NON\_HT at pg323/ln55 and remove the first row “FORMAT is EHT\_MU or EHT\_TB”. * RU\_ALLOCATION at pg326/ln29 * STARTING\_STS\_NUM at pg327/ln34 * NOMINAL\_PACKET\_PADDING at pg327/45 * TRIGER\_METHOD at pg327/ln55 * DEFAULT\_PE\_DURATION at pg328/ln15 * UPLINK\_FLAG at pg328/ln29 * STA\_ID at pg328/ln37 * EHT\_PRE\_FEC\_PADDING\_FACTOR at pg328/ln46 * EHT\_TB\_PE\_DISAMBIGUITY at pg329/ln16 |
| 4530 | 320.42 | 36.2.2 | Just like for the DELTA\_SNR, SNR may be included in the TXVECTOR for EHT\_MU with PSDU\_LENGTH >0 and TB PPDU for beamforming/precoding matrxi computation. Shouldn't be "Not present". | as in the comment. | **Rejected**  **Discussion:**  The parameter SNR is not requested unless for a RXVECTOR parameter in some received PPDU, as defined in 11ax and previous amendment. There’s no technical discussion supporting to change the use of parameter SNR. |
| 6920 | 320.49 | 36.2.2 | The unit for CQI should be explicit | Change the first sentence to "Contains an array of received per-RU average SNRs in decibel for each spatial stream." | **Rejected**  **Discussion:**  The unit for CQI is clearly defined in the cell that “where each per-RU average SNR is the arithmetic mean of the SNR in decibels over a 26-tone RU as described in 9.4.1.67d (EHT CQI Report field).” |
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***Comments for sub-clause 36.2.2 (pg321): 4 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 8086 | 321.23 | 36.2.2 | Considering PPDU Type And Compression Mode in U-SIG, MU\_COMPRESSION\_MODE should be combined to EHT\_PPDU\_TYPE. | as in comment | **Revised**  **Discussion:**  As pointed out by CID 7307 and 7982, the parameter “MU\_COMPRESSION\_MODE” is not necessary and could be removed. And with removal of the parameter “MU\_COMPRESSION\_MODE”, the issued addressed by this comment doesn’t exist.  **Instruction to TGbd Editor:**  Please remove the entry for parameter “MU\_COMPRESSION\_MODE” in Table 36-1. |
| 7307 | 321.24 | 36.2.2 | Do we actually use the field "MU\_COMPRESSION\_MODE" as defined here? Compression is only mentioned in conjunction with the "PPDU Type and Compression Mode" field in U-SIG. There appears to be no individual "compression" field that relates to the presence of an RU allocation subfield. | Check and remove if not needed. | **Revised**  **Discussion:**  Agree on the comment.  **Instruction to TGbd Editor:**  Please remove the entry for parameter “MU\_COMPRESSION\_MODE” in Table 36-1.  Note, CID 7307/7982 address the same issue. |
| 7982 | 321.24 | 36.2.2 | MU\_COMPRESSION\_MODE is not used anywhere else in D1.0. Furthermore, the information on whether the RU Allocation subfield is present or not in the EHT-SIG is conveyed by by UPLINK\_FLAG and EHT\_PPDU\_TYPE. | Delete the row for MU\_COMPRESSION\_MODE from Table 36-1. | **Accepted**  **Discussion:**  Agree on the comment.  Note, CID 7307/7982 address the same issue. |
| 6914 | 321.54 | 36.2.2 | Change "transmit output power" to "transmit power". | As in commen | **Accepted**  **Discussion:**  Agree on the comment that the expression “transmit output power” is redundant. |
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***Comments for sub-clause 36.2.2 (pg322): 6 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 6924 | 322.30 | 36.2.2 | TXVECTOR/RXVECTOR support for MCS will be different for MU and TB format. E.g.: only one entry for TB ("Y"), multiple entries for MU ("MU") | Create separate rows for EHT\_MU FORMAT and EHT\_TB FORMAT | **Revised**  **Discussion:**  Agree on the comment that the meaning of TXVECTOR/RXVECTOR for EHT\_MU and EHT\_TB PPDUs are different. A note for “MU” is added at the end of Table 36-1 to explain the use of “MU” for EHT\_MU and EHT\_TB PPDUs individually.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 6924 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 5808 | 322.31 | 36.2.2 | Change "Indicates the modulation and coding schemes used in the transmission of the PPDU" to "Indicates the modulation and coding schemes used in the transmission of the data field of the PPDU" | As in commen | **Accepted**  **Discussion:**  Agree on the comment. The parameter “MCS” is used for the data field of the PPDU. |
| 7122 | 322.38 | 36.2.2 | Why is MCS\_EHT\_SIG included in RXVECTOR? This appears of no value to the MAC. | Set "N" in RXVECTOR column. | **Accepted**  **Discussion:**  Agree on the comment. At RX side, the value of MCS\_EHT\_SIG subfield in the U-SIG field of an EHT MU PPDU is used for rx PHY to decode the following EHT\_SIG field in the same PPDU. This process is transparent to MAC until the preamble is successfully decoded and PHY-RXSTART.indicaiton(RXVECTOR) is issued to MAC. Therefore the parameter MCS\_EHT\_SIG is not useful to MAC layer. |
| 4531 | 322.41 | 36.2.2 | EHT-SIG is not present in EHT TB PPDU. | For MCS\_EHT\_SIG, change "FORMAT is EHT\_MU or EHT\_TB" to "FORMAT is EHT\_MU" | **Revised**  **Discussion:**  Agree on the comment that since EHT-SIG is not present in an EHT TB PPDU, the parameter MCS\_EHT\_SIG is not present for EHT\_TB format accordingly. Propose to remove “EHT\_TB” from the first row.  **TGbe Editor:**  Please remove “or EHT\_TB” in the FORMAT cell of the first row in the entry for parameter “MCS\_EHT\_SIG” at pg322/ln41 in Table 36-1 in sub-clause 36.2.2 in IEEE P802.11be D1.0.. |
| 7123 | 322.48 | 36.2.2 | REC\_MCS is not used anywhere in D1.0 | Delete the row for REC\_MCS from Table 36-1. | **Rejected**  **Reason:**  REC\_MCS is a traditional RXVECTO parameter that provides an option for the PHY of a STA that receives a PPDU to recommend a MCS value based on the PHY’s receiving measurement for the STA’s MAC to consider for following transmission. |
| 8086 | 322.50 | 36.2.2 | REC\_MCS,the receiver recommended MCS, why does it optionally apply to EHT MU format but not the EHT TB format? | as in the comment. | **Rejected**  **Reason:**  REC\_MCS is a traditional RXVECTO parameter that provides an option for the PHY of a STA that receives a PPDU to recommend a MCS value based on the PHY’s receiving measurement for the STA’s MAC to consider for following transmission. The similar measurement is not feasible in an EHT\_TB PPDU per user since the preamble portion of an EHT\_TB PPDU is mixed with signals from multiple users. |
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***Comments for sub-clause 36.2.2 (pg323): 8 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 4125 | 323.16 | 36.2.2 | 320-1 and 320-2 BWs are listed in Table-36-1 TXVECTOR AND RXVECTOR parameters and in Table 9-29j3. 320-1 and 320-2 are not clearly defined in the draft. Add text and a figure illustrating how they provide 6 contiguous 160 MHz BW channels in the 6 GHz band. | As commented | **Rejected**  **Reason:**  320 MHz-1 and 320 MHz-2 are clearly defined in sub-clause 36.3.23.2. There’s no necessity to provide figures. |
| 7984 | 323.26 | 36.2.2 | No need for "equal to" | Change "NON\_HT\_MODULATION is equal to NON\_HT\_DUP\_OFDM" to "NON\_HT\_MODULATION is NON\_HT\_DUP\_OFDM | **Accepted**  **Discussion:**  Agree on the comment. “NON\_HT\_MODULATION” is a parameter and “NON\_HT\_DUP\_OFDM” is one of the parameter’s value. |
| 5565 | 323.30 | 36.2.2 | EHT\_TB also has the information of INACTIVE\_SUBCHANNELS not for transmitting pre-EHT modulated fields. | as a comment | **Revised**  **Discussion:**  Agree on the comment. In 11be D1.0, the TXVECTOR parameter “INACTIVE\_SUBCHANNELS” is not present in an EHT TB PPDU. But as CID 5565, 7651 and 4532 point out, 11be has specified the punctured mask for TG PPDU and MAC could use this parameter to indicate the puncturing pattern for a EHT TB PPDU transmission.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 5565/7651/4532 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 7651 | 323.30 | 36.2.2 | In case of EHT\_TB PPDU,spectrum mask is determined based on Disable Subchannel Bitmap field which can be carried in INACTIVE\_SUBCHANNELS in TXVECTOR. | Set TXVECTOR = Y for INACTIVE\_SUBCHANNELS, FORMAT = EHT\_TB and use same value as in FORMAT is EHT\_MU, or FORMAT is NON\_HT and NON\_HT\_MODULATION is equal to NON\_HT\_DUP\_OFDM. | **Revised**  **Discussion:**  Agree on the comment. In 11be D1.0, the TXVECTOR parameter “INACTIVE\_SUBCHANNELS” is not present in an EHT TB PPDU. But as CID 5565, 7651 and 4532 point out, 11be has specified the punctured mask for TG PPDU and MAC could use this parameter to indicate the puncturing pattern for a EHT TB PPDU transmission.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 5565/7651/4532 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 4532 | 323.31 | 36.2.2 | INACTIVE\_SUBCHANNELS shall also present for the TXVECTOR of the TB PPDU since 11be specified the punctured mask for TB PPDU too. In R1, MAC can set this vector based on the static puncturing pattern indicate in the management frame. | as in the comment. | **Revised**  **Discussion:**  Agree on the comment. In 11be D1.0, the TXVECTOR parameter “INACTIVE\_SUBCHANNELS” is not present in an EHT TB PPDU. But as CID 5565, 7651 and 4532 point out, 11be has specified the punctured mask for TG PPDU and MAC could use this parameter to indicate the puncturing pattern for a EHT TB PPDU transmission.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 5565/7651/4532 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 8087 | 323.33 | 36.2.2 | add reference 35.2.1.2.2 (INACTIVE\_SUBCHANNELS) | as in comment | **Revised**  **Discussion:**  Agree on the comment and propose to add the reference to sub-clause 35.2.1.2.2 for FORMAT is EHT\_MU or EHT\_TB.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 8087 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 7985 | 323.46 | 36.2.2 | CH\_BANDWINDTH\_IN\_NON\_HT is not present for DSSS, HR/DSSS. | Change "FORMAT is NON\_HT" to "FORMAT is NON\_HT and NON\_HT\_MODULATION is NON\_HT\_DUP\_OFDM" | **Accepted**  **Discussion:**  Agree on the comment. The bandwidth indication with scrambling sequence is not defined for DSSS or HR/DSSS PHY. |
| 8088 | 323.46 | 36.2.2 | CBW320 and CBW320-1/2 are mixed in use. For example, at P42L8, you can see the description of "TXVECTOR parameter CH\_BANDWIDTH equal to CBW320". However there is no CBW320 in TX/RXVECTOR parameter defined in the table at P323L12. But here in CH\_BANDWIDTH\_IN\_NON\_HT, CBW320 is used. make it clear whether to defind CBW320 to cover both CBW320-1 and CBW320-2. | as in comment | **Revised**  **Discussion:**  CBW320, CBW320-1 and CBW320-2 are all enumerate values of corresponding parameters. Defining an enumerate value as CBW320 or CBW320-1/CBW320-2 depends on the necessity to differentiate channelization type 320 MHz-1 from 320 MHz-2. For parameter “CH\_BANDWIDTH\_IN\_NON\_HT”, it’s not necessary to differentiate 320 MHz-1 from 320 MHz-2. But the author agree with the commenter that the definition of enumerated type need to be specified.  **TGbe Editor:**  Please replace “CBW20, CBW40, CBW160, CBW320” at pg323/ln46 with following text:  “ CBW20 for 20 MHz. CBW40 for 40 MHz. CBW80 for 80 MHz. CBW160 for 160 MHz. CBW320 for 320 MHz-1 and 320 MHz-2“ |

***Comments for sub-clause 36.2.2 (pg324): 4 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 7986 | 324.13 | 36.2.2 | EOF padding delimiter is detected by MAC. Hence, PHY does not know where the EOF padding starts, and hence does not know the APEP\_LENGTH at the RX side. | Change "O" in the RXVECTOR column to "N" | **Accepted**  **Discussion:**  Agree on the comment. |
| 6090 | 324.30 | 36.2.2 | "the terms "space-time stream" and "spatial streams" are equivalent in EHT" This is not acceptible fix for the wrong term "space-time stream". It is more safe to change the few occurences of the term "space-time stream(s)" to "spatial stream(s)". | See comment | **Rejected**  **Reason:**  The current note is an editorial proceeding of the situation that EHT PHY doesn’t support STBC but may share the term “space-time” as a special case with previous amendments in which STBC is supported. |
| 7987 | 324.30 | 36.2.2 | The phrase before the comma and the phrase after the comma do not read well - missing a word like 'hence'. | Change "Note that the EHT PHY does not support STBC, the terms "space-time stream" and "spatial streams" are equivalent in EHT." to "The terms "space-time stream" and "spatial streams" are equivalent in EHT because the EHT PHY does not support STBC." | **Revised**  **Discussion:**  Agree on the comment in principle. The addressed sentence is more like an explanation and note. So propose to keep the style as a note.  **TGbe Editor:**  *Please implement the following change in the Value cell of the first row in the entry of parameter “NUM\_STS” at pg2324/ln 30 in Table 36-1 in IEEE P802.11be D1.0:*  ***Replace***  “Note that the EHT PHY does not support STBC, the terms "space-time stream" and "spatial streams" are equivalent in EHT.”  **with**  “Note that the terms “space-time stream” and “spatial streams” are equivalent because the EHT PHY does not support STBC.”. |
| 8089 | 324.32 | 36.2.2 | add MRU after RU in descrption of RU\_ALLOCATION parameter | as in comment | Note, this comment provides a wrong location of the addressed text. The relative comments to parameter “RU\_ALLOCATION” have been resolved by Mengshi. |
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***Comments for sub-clause 36.2.2 (pg325): 2 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 7988 | 325.17 | 36.2.2 | TXVECTOR parameter TXOP\_DURATION is not a 7 bits integer. I.e., P325L14 says that TXOP\_DURATION takes values 0-8448.  Also, the notation "B1-B6 = floor(TXOP\_DURATION/8)" is not clear. For example, if TXOP\_DURATION = 41, which of the following two is it? (a) B1=1, B2=0, B3=1, B4=0, B5=0, B6=0 (b) B1=0, B2=0, B3=0, B4=1, B5=0, B6=1  Similarly, in case of "TXOP\_DURATION = 8 x B14-B19", which of the following is it? B14=1, B15=0, B16=1, B17=0, B18=0, B19=0 (1) TXOP\_DURATION = 8 \* 5 (0b000101) = 40 (2) TXOP\_DURATION = 8 \* 40 (b101000) = 320 (3) TXOP\_DURATION = 8 \* 1(B14) - 0(B19) = 8 (4) TXOP\_DURATION = 8 \* (1(B14) - 0(B19)) = 8 | Change the 2nd and 3rd paragraphs under the Value column for the TXOP\_DURATION::"FORMAT is EHT\_MU or EHT\_TB" row to  'The TXOP subfield in U-SIG is computed from the TXVECTOR parameter TXOP\_DURATION as follows: TXOP\_DURATION = UNSPECIFIED: TXOP = 127. TXOP\_DURATION < 512: TXOP = 2 x floor(TXOP\_DURATION/8). Otherwise: TXOP = 2 x floor((TXOP\_DURATION - 512)/128) + 1.  The RXVECTOR parameter TXOP\_DURATION is computed from the value of the TXOP subfield in U-SIG as follows: TXOP = 127: TXOP\_DURATION = UNSPECIFIED. TXOP is an even number: TXOP\_DURATION = 8 x TXOP/2. Otherwise: TXOP\_DURATION = 512 + 128 x (TXOP-1)/2." | **Accepted**  **Discussion:**  Agree on the comment in principle. The description of parameter TXOP\_DURATION should be in consistence with the that of the TXOP subfield in U-SIG. |
| 4533 | 325.22 | 36.2.2 | "TXVECTOR parameter TXOP\_DURATION (7 bits integer B0-B6)" is not 7 bit. TXOP subfield of U-SIG is 7 bit. Also, TXVECTOR uses B0 to B7 while RXVECTOR uses B13-B19. Need to harmnoize the two. | as in the comment. | **Revised**  **Discussion:**  Agree on the comment in principle. Agree on the comment in principle. The description of parameter TXOP\_DURATION should be in consistence with the that of the TXOP subfield in U-SIG.  **TGbe Editor:**  Please implement the same change proposal by CID 7988. |
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***Comments for sub-clause 36.2.2 (pg327): 1 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 7654 | 327.49 | 36.2.2 | HE TB PPDU shall be EHT TB PPDU. | See comment. | **Accepted** |
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***Comments for sub-clause 36.2.2 (pg328): 7 comments***

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| --- | --- | --- | --- | --- | --- |
| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 7655 | 328.10 | 36.2.2 | Please check PE value. Is it 0, 4, 8, 12 or 16 or 0, 4, 8, 12, 16 or 20? | See comment. | **Revised**  **Discussion:**  As CID 7991 pointed out, EHT supports 20 usec PE. Therefore 20 us should be add as one of PE value.  **TGbe Editor:**  CID 7655/7126/7991 address the same issue. Please implement the same proposed change of CID 7991. |
| 7126 | 328.11 | 36.2.2 | Should 20 usec be included in the list? | See comment | **Revised**  **Discussion:**  As CID 7991 pointed out, EHT supports 20 usec PE. Therefore 20 us should be add as one of PE value.  **TGbe Editor:**  CID 7655/7126/7991 address the same issue. Please implement the same proposed change of CID 7991. |
| 7991 | 328.12 | 36.2.2 | EHT supports 20 usec PE as well | Change "12, or 16" to "12, 16 or 20" | **Accepted**  **Discussion:**  Agree on the comment. |
| 7128 | 328.18 | 36.2.2 | In the NOTE, "MU" is not listed as a possible value in the TXVECTOR and RXVECTOR columns. | Add "MU" and define its meaning. BTW, does "MU" apply to both MU-MIMO and OFDMA. What about mixed mode? Some parameters may have multple values for one RU and single value for another ... | **Revised**  **Discussion:**  Agree on the comment that the value “MU” is still necessary for Table 36-1. Propose to add “MU” and similar interpretation into the note at the end of the table as in 11ax.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 7128 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 6922 | 328.20 | 36.2.2 | The title of subclause 35.10 is "EHT BSS Operation", not "Rules for setting some TXVECTOR parameters for PPDUs transmitted by an EHT STA", but 35.8 is. And, neither of them talks about BSS\_COLOR.  The same issue in line 35 of this page. | Put the right subclause number and title. | **Rejected**  **Reason:**  In 11be D1.2, the title of sub-clause 35.10 has been updated as “Rules for setting some TXVECTOR parameters for PPDUs transmitted by an EHT STA”. Similar as the chapter organization as clause 26, sub-clause 35.10 will introduce the rules for EHT MAC to set TXVECTOR parameters including BSS\_COLOR. The missing of corresponding text in sub-clause 35.10 will be updated in following reversions. And the addressed text by this comment should not be changed. |
| 7127 | 328.34 | 36.2.2 | Why is RXVECTOR support for STA\_ID "MU"? There should be no requirement to recover all STA\_IDs in an MU PPDU. | Change "MU" to "Y" in last column | **Revised**  **Discussion:**  Agree on the comment that it’s not necessary to recover all STA\_ID from a received EHT MU PPDU. Therefore the value “MU” for RXVECTOR means it’s per user. Further, “MU” and its interpretation should be added into the note at the end of the table.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 7127 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 7656 | 328.34 | 36.2.2 | All of STA\_ID for EHT\_MU should be transferred to MAC in RXVECTOR? Please clarify. | See comment. | **Revised**  **Discussion:**  As pointed out by CID 7127, it’s not necessary to recover all STA\_ID from a received EHT MU PPDU. Therefore the value “MU” for RXVECTOR means it’s per user. Further, “MU” and its interpretation should be added into the note at the end of the table.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 7656 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |

***Comments for sub-clause 36.2.2 (pg329): 5 comments***

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| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 6921 | 329.18 | 36.2.2 | Some of the entries under TXVECTOR and RXVECTOR are "MU". It should be defined in the NOTE of the tbale | As in commen | **Revised**  **Discussion:**  Agree on the comment that the value “MU” is still necessary for Table 36-1. Propose to add “MU” and similar interpretation into the note at the end of the table as in 11ax.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 6921 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 5807 | 329.22 | 36.2.2 | The definition of "MU" is missing in the note. | add the following below "O=optional" "For an EHT MU PPDU, MU indicates that the parameter is present per user. For an EHT TB PPDU, MU in the "TXVECTOR" column indicates that the parameter is present once and MU in the "RXVECTOR" column indicates the parameter is not present (the receiver knows the values since they were specified in the triggering PPDU). Parameters specified to be present per user are conceptually supplied as an array of values indexed by u, where u takes values 0 to NUM\_USERS - 1." | **Revised**  **Discussion:**  Agree on the comment that the value “MU” is still necessary for Table 36-1. Propose to add “MU” and similar interpretation into the note at the end of the table as in 11ax.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 5807 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 6824 | 329.22 | 36.2.2 | TXVECTOR column includes the term 'MU', which is not explained in the notes. | Add a description of the TX Vector category "MU" | **Revised**  **Discussion:**  Agree on the comment that the value “MU” is still necessary for Table 36-1. Propose to add “MU” and similar interpretation into the note at the end of the table as in 11ax.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 6824 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |
| 4643 | 329.24 | 36.2.2 | Since the standard is 4000+ pages long, a lot of items can only be practically found by text searching. However, text searching for the source of a TXVECTOR parameter used in clause 36 will fail because of this opaque "See also" language. | Enumerate all the parameters needed from Table 27-1 in this clause (agreed that the description can be delegated to clause 27). | **Rejected**  **Discussion:**  The current standard has been 4000+ pages long, it’s not necessary to copy redundant information again and again into multiple clauses. The current text style used in Table 36-1 is trying to reduce the copy redundant information with clear link to the location of referred text. Further, when a reader tries to find information about a TXVECTOR parameter in a legacy PHY, clause 36 is obviously not the good place since it lacks the interpretation of how to use these parameters in the legacy PHY. |
| 8014 | 349.22 | 36.2.2 | Definition for "MU" is mising. | At P349L22, add the following text:  "MU indicates that the parameter is present per user for an EHT MU PPDU. For an EHT TB PPDU, MU in the "TXVECTOR" column indicates that the parameter is present once and MU in the "RXVECTOR" column indicates the parameter is not present (the receiver knows the values since they were specified in the triggering PPDU). Parameters specified to be present per user are conceptually supplied as an array of values indexed by u, where u takes values 0 to NUM\_USERS - 1." | **Revised**  **Discussion:**  Agree on the comment that the value “MU” is still necessary for Table 36-1. Propose to add “MU” and similar interpretation into the note at the end of the table as in 11ax.  **TGbe Editor:**  Please implement the proposed modification as part of resolution to CID 8014 as in <https://mentor.ieee.org/802.11/dcn/21/11-21-2035-00-00be-cr-d1-0-txvector-rxvector-parameters.docx> |

***Comments for sub-clause 36.3.21 (pg544): 1 comments***

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| --- | --- | --- | --- | --- | --- |
| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 8146 | 544.26 | 36.3.21 | NUM\_USERS is not defined in Table 36-1. This parameter should be defiend in Table 36-1 | as in comment | **Revised**  **Discussion:**  The parameter “NUM\_USERS” is not defined for 11be. Instead, the number of user in an RU or M-RU is determined by RU\_ALLOCATION and STA\_ID parameters for that RU or M-RU.  **TGbe Editor:**  Please replace “and NUM\_USERS” with “RU\_ALLOCATION and STA\_ID” at pg544/ln26 in sub-clause 36.3.21 (EHT transmit procedure) in IEEE P802.11be D1.0. |
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*-----------------------****Proposed Spec Text Modifications for sub-clause 36.2.2****--------------------------*

**36.2 EHT PHY service interface**

***......***

**36.2.2 TXVECTOR and RXVECTOR parameters**

***......***

***TGbe Editor: please implement following proposed modification to Table 36-1 (TXVECTOR and RXVECTOR parameters) at pg319/ln38 in sub-clause 36.2.2 (TXVECTOR and RXVECTOR parameters) in IEEE P802.11be D1.0 as proposed below as part of resolution to CID 4581, 4528, and 7647 respectively***

**Table 36-1—TXVECTOR and RXVECTOR parameters**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Condition** | **Value** | **TXVECTOR** | **RXVECTOR** |
| ~~…~~ | ~~…~~ |  |  |  |
| EXPANSION\_MAT | FORMAT is EHT\_MU and PSDU\_LENGTH > 0  *[CID# 4528/7647]* | For each user, contains a vector in the number of all the subcarriers in a RU/MRU that is assigned to this user. The vector for each subcarrier contains feedback matrices as defined in 36.3.17.2 (EHT beamforming feedback matrix V) based on the channel measured during the training symbols of previous EHT sounding NDPs, HE NDPs or VHT NDPs. | ~~Y~~MU | Y |
| FORMAT is EHT\_TB | Contains a vector in the number of selected subcarriers containing feedback matrices as defined in [36.3.17.2 (EHT](#bookmark276) [beamforming feedback matrix V)](#bookmark276) based on the channel measured during the training symbols of previous EHT sounding NDPs, HE NDPs or VHT NDPs. | ~~Y~~O | Y |
| Otherwise | Not present | N | N |
| … | … |  |  |  |
| LDPC\_EXTRA\_SYMBOL | FORMAT is EHT\_TB | Indicates the presence of the LDPC extra symbol segment in an EHT TB PPDU.  Integer:  1 indicates that an LDPC extra symbol segment is present. 0 indicates that an LDPC extra symbol segment is not pres- ent. | Y | N |
| FORMAT is EHT\_MU  *[CID# 4581]* | Not present | N | N |
| Otherwise | See corresponding entry in Table 27-1 (TXVECTOR and RXVECTOR parameters). | | |
|  |  |  |  |  |

***TGbe Editor: please implement following proposed modification to Table 36-1 (TXVECTOR and RXVECTOR parameters) at pg329/ln21 in sub-clause 36.2.2 (TXVECTOR and RXVECTOR parameters) in IEEE P802.11be D1.0 as proposed below as part of resolution to CID 7650, 6924, 7127, 7128, 7656, 6921, 5807, 6824, and 8014 respectively***

|  |
| --- |
| NOTE—In the “TXVECTOR” and “RXVECTOR” columns, the following apply:  Y = Present;  N = Not present; O = Optional;  MU indicates that the parameter is present per user for an HE MU PPDU. For an EHT TB PPDU, MU in the “TXVECTOR” column indicates that the parameter is present once and MU in the “RXVECTOR” column indicates the parameter is not present (the receiver knows the values since they were specified in the triggering PPDU). Parameters specified to be present per user are conceptually supplied as an array of values indexed by *u*, where *u* takes values 0 to the number of users.  *[CID# 7650/6924/7127/7128/7656/6921/5807/6824/8014]*  See also Table 27-1 (TXVECTOR and RXVECTOR parameters) for other TXVECTOR and RXVECTOR parameters used to transmit and/or receive a DSSS, HR/DSSS, OFDM, ERP, HT, VHT, or HE PPDU. |

***TGbe Editor: please implement following proposed modification to Table 36-1 (TXVECTOR and RXVECTOR parameters) at pg323/ln30 in sub-clause 36.2.2 (TXVECTOR and RXVECTOR parameters) in IEEE P802.11be D1.0 as proposed below as part of resolution to CID 5565, 7651, 4532, 8087, and xxxx respectively***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| INACTIVE\_SUBCHANNELS | FORMAT is EHT\_MU, or  FORMAT is NON\_HT and NON\_HT\_MODULATION is  equal to NON\_HT\_DUP\_ OFDM | Indicates the 20 MHz subchannels that are punctured.  A bitmap indexed by the 20 MHz subchannels in ascending order with the LSB indicating the lowest frequency 20 MHz subchannel. A bit is set to 1 to indicate that the corresponding 20 MHz subchannel is punctured and set to 0 to indicate the corresponding 20 MHz subchannel is not punctured.  See 35.2.1.2.2 (INACTIVE\_SUBCHANNELS) for details. | Y | N |
| FORMAT is EHT\_TB | ~~Not present.~~  Indicates the 20 MHz subchannels that are punctured.  A bitmap indexed by the 20 MHz subchannels in ascending order with the LSB indicating the lowest frequency 20 MHz subchannel. A bit is set to 1 to indicate that the corresponding 20 MHz subchannel is punctured and set to 0 to indicate the corresponding 20 MHz subchannel is not punctured.  See 35.2.1.2.2 (INACTIVE\_SUBCHANNELS) for details.  *[CID# 5565/7651/4532/8087]* | ~~N~~Y | N |
| Otherwise | See corresponding entry in Table 27-1 (TXVECTOR and RXVECTOR parameters). | | |

------------------------ ***End of proposed changes for Table 36-1 -------------------------------------------***

**References:**

1. **IEEE P802.11be/D1.0, May 2021.**