IEEE P802.11  
Wireless LANs

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| Comment Resolutions for 11be D3.0 TXVECTOR/RXVECTOR Parameters – Part I | | | | |
| Date: 2023-03-11 | | | | |
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Abstract

This submission provisions with resolutions to the following 33 CIDs for clause 36.2.2 regarding TXVECTOR and RXVECTOR parameters in IEEE P802.11be D3.0 in WG LB 271, including suggested spec text modification to IEEE P802.11be D3.0 to TGbe editor:

* CIDs: 15022, 15033, 15256, 15258, 15327, 15328, 15329, 15330, 15331, 15332, 15333, 15334, 15335, 15336, 15337, 15338, 15339, 15340, 15341, 15342, 15343, 15344, 15345, 17147, 17148, 17153, 17154, 17155, 17156, 17157, 17158, 17159, and 17237

Revisions:

* R0: comment resolutions initial draft
* R1: resolution update based on group discussion
* R2: address resolution to CID 15333 and 15336

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.***

***Comments for sub-clause 36.2.2: 33 comments***

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| --- | --- | --- | --- | --- | --- |
| **CID** | **Pg/Ln** | **Clause** | **Comment** | **Proposed Changed** | **Resolution** |
| 17237 | 666.07 | 36.2.2 | "an EHT STA may receive a PPDU with an unknown PPDU format that is defined after Clause 36". Wording is not appropriate. If and when new PPDU formats get added, we probably won't refer to them as "unknown PPDU formats that are defined after Clause 36". Wording should be "future proof" and not refer to unknown and future clauses and formats. | To avoid referring to unknown and future clauses, rewrite sentences starting at P666L7 as: "An EHT STA may receive a PPDU that contains the L-STF, L-LTF, L-SIG, RL-SIG, and U-SIG fields, but has a PHY Version Identifier field in the U-SIG field other than 0. In such cases, for forward compatibility, it shall still report the information from the version independent fields in the U-SIG field within the RXVECTOR." | **Accepted**  **Discussion:**  Agree on the comment and suggested changes. The addressed sentence is “For forward compatibility, an EHT STA may receive a PPDU with an unknown PPDU format that is defined after Clause 36 (Extremely high throughput (EHT) PHY specification), which contains the L-STF, L-LTF, L-SIG, RL-SIG, and U-SIG fields, and has the PHY Version Identifier field in the U-SIG field set to a Validate value. In such cases, it shall still report the information from the version independent fields in the U-SIG field within the RXVECTOR.” The proposed changes provide better readability. |
| 17159 | 667.09 | 36.2.2 | The sentence "which contains the L-STF, L-LTF, L-SIG, RL-SIG, and U-SIG fields, and has the PHY Version Identifier field in the U-SIG field set to a Validate value" is repeated in FORMAT value description in Table 26-1. Suggest remove it here. | as in comment | **Rejected**  **Reason:**  The addressed sentence is not intended to define the PHY\_VER\_UNKNOWN as in Table 36-1. The intension is to explain the necessity to define such a FORMAT value with precise statement. |
| 15327 | 668.37 | 36.2.2 | L\_DATARATE is a fixed value in TXVECTOR only to indicate 6 Mb/s in the "Otherwise" entry. Then it brings no information to EHT PHY in that case. | Change the value of "Otherwise" entry to "Not present" then merge it with the entry of "PHY\_VER\_UNKNOWN". | **Revised**  **Discussion:**  Agree on the comment. Parameter “L\_DATARATE” in HE was updated in Revme D2.1 following similar logic.  **TGbe Editor:**  Please remove the row of “Otherwise” and change “FORMAT is PHY\_VER\_UNKNOWN” to “Otherwise” |
| 15328 | 669.18 | 36.2.2 | In the Value column for "FORMAT is EHT\_TB", it should be "an RU" | Replace "a" with "an" | **Accepted**  **Discussion:**  It’s an editorial correction. |
| 15258 | 669.18 | 36.2.2 | "A RU" should be "an RU" | Change "A RU" into "an RU" | **Accepted**  **Discussion:**  It’s an editorial correction. |
| 17148 | 669.18 | 36.2.2 | “a RU” should be “an RU” | as in comment | **Accepted**  **Discussion:**  It’s an editorial correction. |
| 15329 | 669.48 | 36.2.2 | For similar receiving measurement, CHAN\_MAT claims "the currently received EHT sounding NDP" while DELTA\_SNR just claims it as "the received EHT sounding NDP". The different wordings may confuse readers and make them to wonder whether there're actual differences behind these two statements. If there's no particular purpose, it's suggested to use the same statement. | Either use "the currently received EHT sounding NDP" or "the received EHT sounding NDP" for both CHAN\_MAT and DELTA\_SNR | **Revised**  **Discussion:**  Agree on the comment and “the currently received EHT sounding NDP” is more precise.  **TGbe Editor:**  Please replace “the received EHT sounding NDP” with “the currently received EHT sounding NDP” at P669/L47 for parameter “DELTA\_SNR”. |
| 15330 | 670.23 | 36.2.2 | RXVECTOR parameter SNR contains an array of average values of received SNR for each spatial stream. So "SNR indications of 8 bits" in confusing because it may refer to the parameter SNR or the average values of received SNR for each spatial stream". The latter one should be the correct interpretation. | Change "SNR indications of 8 bits are supported" to "The average SNR values of 8 bits are supported" | **Accepted**  **Discussion:**  Agree on the comment. |
| 15331 | 670.41 | 36.2.2 | Though the calculation of the average value in SNR array and CQI array are the same, they use difference statements. SNR uses "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 stream", while CQI simply uses "each per-RU average SNR is the arithmetic mean of the SNR in decibels over a 26-tone RU". I think CQI's statement is brief and elegant. | Change the whole Value column of SNR when "FORMAT is EHT\_MU and PSDU\_LENGTH is 0" to: "Contains an array of average values of received SNR emasurements for each spatial stream, wherer each average SNR value is the arithmetic mean of the per-subcarrier SNR in decibels in one spatial stream as described in 9.4.1.71 (EHT Compressed Beamforming Report field). The average SNR value of 8 bits are supported." | **Revised**  **Discussion:**  Agree on the comment with editorial correction.  **TGbe Editor:**  Change the whole Value column of SNR when "FORMAT is EHT\_MU and PSDU\_LENGTH is 0" to: "Contains an array of average values of received SNR measurements for each spatial stream, where each average SNR value is the arithmetic mean of the per-subcarrier SNR in decibels in the corresponding spatial stream as described in 9.4.1.71 (EHT Compressed Beamforming Report field). The average SNR value of 8 bits are supported." |
| 17153 | 671.35 | 36.2.2 | "numerOfOctets" is not defined anywhere. | Change the sentence in the same way as the one in Table 22-1 of REVme\_D1.3: "The allowed values for the TXPWR\_LEVEL\_INDEX parameter are in the range from 1 to N/2, where N is the number of octets in dot11TxPowerLevelExtended." | **Accepted**  **Discussion:**  Agree on the comment to improve the readability with consistent description style. |
| 17154 | 671.47 | 36.2.2 | Should be "in the range from 0 to 255". | as in comment | **Rejected**  **Reason:**  Following the resolution to 17161 in 11-13/603r1. |
| 17156 | 672.13 | 36.2.2 | An "and" should be added before "measured" in the sentence. The same comment applies to line 21 of the same page. | Change the sentence to "This parameter is a measure by the PHY of the power observed at the antennas used to receive the current PPDU and measured during the reception of non-EHT portion of the EHT PPDU preamble." | **Revised**  **Discussion:**  Agree partially on the comment that the addressed sentence needs to be improved for better readability. But the existing term “measured” is correctly used to complement “measure by the PHY of the power”. While the real issue is “measure” should be “measurement” as already modified in Table 27-1 in Revme D2.1.  **TGbe Editor:**  Replace “measure” with “measurement” at pg672/ln13, and pg672/ln19 |
| 17157 | 672.13 | 36.2.2 | The descriptions of the Values for "FORMAT is EHT\_MU or EHT\_TB" and "FORMAT is PHY\_VER\_UNKNOWN" are basically the same. Suggest using the same description. If "non-EHT portion of the EHT PPDU preamble" is used, suggest adding "(see Figure 36-29 (Timing boundaries for EHT PPDU fields) )" for the definition of "non-EHT portion of the EHT PPDU preamble. | as in comment | **Rejected**  **Reason:**  While the commenter is correct that the description for both entries are pretty similar, the reason to list those preambles in PHY\_VER\_UNKNOWN case instead of directly using “non-EHT portion” is because the received PPDU may have no “non-EHT portion” defined, depending on future design. |
| 15332 | 672.48 | 36.2.2 | How to use REC\_MCS is never defined in the spec and history specs and it's only optional message from local PHY to local MAC. It's more like an implementation-depended operation. Removal of this parameter doesn't impact this function in a specific implementation. | Remove REC\_MCS from the spec. | **Revised**  **Discussion:**  Agree on the comment with editorial correction.  **TGbe Editor:**  Remove the parameter “REC\_MCS’ from Table 36-1 |
| 15022 | 673.24 | 36.2.2 | if the PHY version is unknown, the bandwidth may be larger or smaller in later generation. | add CBW unknown | **Revised**  **Discussion:**  Agree on the comment. When PHY version indicates unknown, it’s possible the Bandwidth subfield in the U-SIG may indicate undefined value. So it’s necessary to define a value to indicate such cases.  **TGbe Editor:**  Please implement the proposed modification to sub-clause 36.2.2 as marked as the resolution to CID 15022 as in <https://mentor.ieee.org/802.11/dcn/23/11-23-0741-01-00be-cr-d3-0-txvector-rxvector-parameters-part1.docx> |
| 15333 | 674.11 | 36.2.2 | The parameter CH\_BANDWIDTH\_IN\_NON\_HT is not a new parameter designed specifically for EHT, nor an old parameter whose definition is extendedfor EHT format. It's an extension of a non-EHT format PPDU with EHT capability. Therefore its extended definition should be modified upon its original definition. | Remove "CH\_BANDWIDTH\_IN\_NON\_HT" from Table 36-1, and update the definition of "CH\_BANDWIDTH\_IN\_NON\_HT" in sub-clause 17.2.2 (TXVECTOR parameters) and sub-clause 17.2.3 (RXVECTOR parameters) accordingly. | **Revised**  **Discussion:**  Agree on the comment. Parameter “CH\_BANDWIDTH\_IN\_NON\_HT” in sub-clause 17.2.2 has been updated in D3.0.  **TGbe Editor:**  Please remove the parameter “CH\_BANDWIDTH\_IN\_NON\_HT” at P674/L11 from Table 36-1 |
| 17155 | 674.36 | 36.2.2 | There is no need to indicate APEP\_LENGTH is 0 or a number of octets. In addition, there is no need to say "FORMAT is ENT\_MU" since "The EHT sounding NDP is a variant of the EHT MU PPDU." per 36.3.18 EHT sounding NDP, | Remove "Integer" .  Change the first sentence to "If 0, indicates an EHT sounding NDP." | **Rejected**  **Reason:**  Though EHT sounding NDP is a variant of the EHT MU PPDU, as the commenter pointed, out, there isn’t a specific FORMAT value to indicate EHT sounding NDP. Both APEP\_LENTH is 0 and FORMAT is EHT\_MU is the correct definition of EHT sounding NDP. |
| 15033 | 675.10 | 36.2.2 | Same statement of EHY PHY not supporting STBC has been appeared in various sections. One example in the following. NUM\_STS, "Note that the terms "space-time stream" and "spatial streams" are equivalent because STBC is not supported in EHT PPDUs". | Maybe better put in paragraph of 36.1 instead of this table. | **Rejected**  **Reason:**  The purpose of addressed sentence in Table 36-1 is not to state that EHT doesn’t support STBC, but to explain why the parameter “NUM\_STS” is referring “spatial streams” not “space-time streams”. |
| 15334 | 675.15 | 36.2.2 | It should be "RU and M-RU" | Replace "RU" with "RU or M-RU" from ln15 to ln26 | **Accepted** |
| 15335 | 675.19 | 36.2.2 | "NUM\_STS summed over all users per RU is not greateer than 8" implies NUM\_STS summed over multiple RUs could be greater than 8, which is not correct. The limitation to summed NUM\_STS is implemented cross all RUs. | Replace "NUM\_STS summed over all users per RU is not greateer than 8" with "NUM\_STS summed over all users and all RUs or M-RUs is not greateer than 8". And remove "NUM\_STS summed over all users per RU is not greateer than 8" at pg675/ln26 in the EHT\_TB entry. | **Revised**  **Discussion:**  Agree on the comment with editorial correction.  **TGbe Editor:**  Replace "NUM\_STS summed over all users per RU is not greater than 8" with "In each RU or MRU, NUM\_STS summed over all users is not greater than 8". And remove "NUM\_STS summed over all users per RU is not greater than 8" at pg675/ln26 in the EHT\_TB entry |
| 15336 | 677.11 | 36.2.2 | The explanation of Value of SPATIAL\_REUSE lacks of necessary details. It should at least explain the value range and meaning of each value. | update the explanation content in the Value column for both EHT\_MU and EHT\_TB to give brief introduction of the value range and the meaning of each value. | **Revised**  **Discussion:**  Agree on the comment. The value range of SPATIAL\_REUSE is in accordance with Table 27-22 and Table 27-23.  **TGbe editor:**  Add the following text before “See 35.10” in the Value cell for “FORMAT is EHT\_MU”:  “Integer in the range: 0 – 15.”  And add the following text before “See 35.10” in the Value cell for “FORMAT is EHT\_TB”:  “For each of the values, integer in the range: 0 – 15.” |
| 15337 | 679.11 | 36.2.2 | "no more than 1 user" means "a single user" | replace "no more than 1 user" with "a single user" | **Accepted**  **Discussion:**  Editorial improvement. |
| 15338 | 679.17 | 36.2.2 | "no more than 1 user" means "a single user" | replace "no more than 1 user" with "a single user" | **Accepted**  **Discussion:**  Editorial improvement. |
| 15339 | 679.41 | 36.2.2 | The value column should at least define the range of valid value. | Add "Integer in the range: 1 - 16" | **Revised**  **Discussion:**  Agree in principle.  **TGbe editor:**  Add "Integer in the range: 1 - 8". |
| 15340 | 680.13 | 36.2.2 | The text in the Value column should be refined, and the value type should be clarified as Enumerated type. | Replace the current text in Value column with "Indicates the nominal packing padding duration as defined in 9.4.2.31.3.5 (EHT PPE Thresholds field).  Enumerated type:  0\_us for 0 us;  8\_us for 8 us;  16\_us for 16 us;  20\_us for 20 us." | **Accepted**  **Discussion:**  Editorial improvement. |
| 17147 | 680.13 | 36.2.2 | "Possibles" should be "Possible" | as in comment | **Revicsed**  **Discussion:**  Agree with the comment. The addressed text will be replaced as part of resolution to CID 15340.  **TGbe Editor:**  Please implement the resolution to CID 15340. |
| 15341 | 680.33 | 36.2.2 | The value type should be clarified as Enumerated type. | Replace "A value 0, 4, 8, 12, 16 or 20 indicating the PE field duration in us." with "Enumerated type:  0\_us for 0 us;  4\_us for 4 us;  8\_us for 8 us;  12\_us for 12 us;  16\_us for 16 us;  20\_us for 20 us." | **Accepted**  **Discussion:**  Editorial improvement. |
| 15342 | 681.20 | 36.2.2 | The value range should be defined for a specific parameter | Insert following text before "Otherwise not present.": "Integer in the range: 0 - 3  0 for a pre-FEC padding factor of 4;  1 for a pre-FEC padding factor of 1;  2 for a pre-FEC padding factor of 2;  3 for a pre-FEC padding factor of 3; " | **Accepted**  **Discussion:**  Editorial improvement. |
| 15344 | 682.11 | 36.2.2 | The value type and range should be defined for a specific parameter. | Replace the current text in the Value column with following: "Indicates the power boost factor of the occupied RU or MRU.  Floating in the range: 0.5 - 2.  See 35.11.1.2 (POWER\_BOOST\_FACTOR)." | **Rejected**  **Reason:**  The value range of parameter POWER\_BOOST\_FACTOR is condition dependent as explained in 35.11.1.2. |
| 15345 | 682.19 | 36.2.2 | The text in the Value column should keep the same style as for other parameters. | Re+A59:F64place "The" with "Indicates the" | **Accepted**  **Discussion:**  Editorial improvement. |
| 15256 | 682.24 | 36.2.2 | To be consistent, a full stop should be added. | Add a full stop to "Not present". | **Accepted**  **Discussion:**  Editorial improvement. |
| 15343 | 681.36 | 36.2.2 | The value definition lacks of details for parameters "TB\_DISREGARD\_IN\_USIG1", "TB\_VALIDATE\_IN\_USIG2", and the "TB\_DISREGARD\_IN\_USIG2" | Add the definition of the value type and range. | **Revised**  **Discussion:**  Agree. The text should be improved to indicate the value range for these parameters.  **Instruction to TGbe editor:**  Please implement the proposed modification as part of resolution to CID 15343 in <https://mentor.ieee.org/802.11/dcn/23/11-23-0741-01-00be-cr-d3-0-txvector-rxvector-parameters-part1.docx> |
| 17158 | 681.36 | 36.2.2 | Since there are multiple bits in the Disregard filed, "value" should be "values". In addition, the order of those values relative to the bit positions should be specified. | as in comment | **Revised**  **Discussion:**  Partially agree with the commenter. The value for TB\_DISREGARD\_IN\_USIG1 is set to 0 as defined in sub-clause 35.5.2.2.4. But the text should be improved to indicate the value range. Besides, the parameter “TB\_VALIDATE\_IN\_USIG2” could be 0 or 1, therefore the text for “TB\_VALIDATE\_IN\_USIG2” should be “values” instead of “value”.  **Instruction to TGbe editor:**  Please implement the proposed modification as part of resolution to CID 17158 in <https://mentor.ieee.org/802.11/dcn/23/11-23-0741-01-00be-cr-d3-0-txvector-rxvector-parameters-part1.docx> |

*-----------------------****Proposed Spec Text Modifications for sub-clause 36.2.2****--------------------------*

**36.2 EHT PHY service interface**

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**36.2.2 TXVECTOR and RXVECTOR parameters**

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***TGbe Editor: please implement following proposed modification to Table 36-1 (TXVECTOR and RXVECTOR parameters) at pg673/ln26 in sub-clause 36.2.2 (TXVECTOR and RXVECTOR parameters) in IEEE P802.11be D3.0 as proposed below as part of resolution to CID 15022, 15343 and 17158***

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Parameter** | **Condition** | **Value** | **TXVECTOR** | | **RXVECTOR** |
| ~~…~~ | ~~…~~ |  |  | |  |
| CH\_BANDWIDTH | FORMAT is EHT\_MU or EHT\_TB | Indicates the channel width of the PPDU. Enumerated type: CBW20 for 20 MHz. CBW40 for 40 MHz. CBW80 for 80 MHz. CBW160 for 160 MHz. CBW320-1 for 320 MHz-1. CBW320-2 for 320 MHz-2. | Y | | Y |
| FORMAT is PHY\_VER\_UNKNOWN | Indicates the channel width of the PPDU. Enumerated type: CBW20 for 20 MHz. CBW40 for 40 MHz. CBW80 for 80 MHz. CBW160 for 160 MHz. CBW320-1 for 320 MHz-1. CBW320-2 for 320 MHz-2 CBWX, otherwise *[CID# 15022]* | N | | Y |
| Otherwise | See corresponding entry in Table 19-1 (TXVECTOR and RXVECTOR parameters), Table 21-1 (TXVECTOR and RXVECTOR parameters), or Table 27-1 (TXVECTOR and RXVECTOR parameters). | | | |
| … | … | … |  | |  |
| TB\_DISREGARD\_IN\_USIG1 | FORMAT is EHT\_TB | Indicates the values to be set for the Disregard field in U-SIG-1.  See 35.5.2.2.4 (Allowed settings of the Trigger frame fields and TRS Control subfield). *[CID 15343/17158]* | Y | | N |
| Otherwise | Not present. | | | |
| TB\_VALIDATE\_IN\_USIG2 | FORMAT is EHT\_TB | Indicates the values to be set for the Validate field in U-SIG-2.  See 36.3.12.7.2 (Content). *[CID 15343/17158]* | | Y | N |
| Otherwise | Not present. | | | |
| TB\_DISREGARD\_IN\_USIG1 | FORMAT is EHT\_TB | Indicates the values to be set for the Disregard field in U-SIG-2.  See 35.5.2.2.4 (Allowed settings of the Trigger frame fields and TRS Control subfield). *[CID 15343/17158]* | | Y | N |
| Otherwise | Not present. | |  |  |
|  |  |  | |  |  |

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

**References:**

1. **IEEE P802.11be/D3.0, Feb 2023.**