IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | U-SIG Comment Resolution Part 3 | | | | | | Date: 2021-03-05 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Alice Chen | Qualcomm |  |  | alicel@qti.qualcomm.com | | Sameer Vermani | Qualcomm |  |  | svverman@qti.qualcomm.com | | Youhan Kim | Qualcomm |  |  |  | | Bin Tian | Qualcomm |  |  |  | | Myeongjin KIM | Samsung |  |  | mj1108.kim@samsung.com | |  |  |  |  |  | |

Abstract

This submission proposes resolutions for the following comments from the CC34 on P802.11be D0.3:

NOTE – Set the Track Changes Viewing Option in the MS Word to “All Markup” to clearly see the proposed text edits.

**Revision History:**

R0: Initial version. Resolve CIDs 1357, 1358, 1359, 1361, 1362, 1364, 1365, 1366, 1367, 1368, 1562, 1613, 1614, 1615, 1620, 1621, 1950, 2176, 2177, 2178, 2399, 2400, 2401, 2402, 2628, 2629, 2630, 2631, 2727, 2750, 2764, 2793, 2794, 2795, 2796, 2797, 2800, 2802, 2803, 2932, 2933, 2948, 3001, 3002, 3003, 3046, 3048, 3175, 3176, 3177, 3179, 3180, 3181, 3182, 3187, 3287, 3288, 3290, 3291. R0 has 59 CIDs.

R1: Remove CIDs 2794, 2796 & 2800, which are resolved in 21/325r7. Remove CIDs 1950 & 2764, which are reassigned to Shimi Shilo. Revise the rsolution to a few CIDs. R1 has 54 CIDs.

R2: Remove CIDs 2727 & 3175, which will be resolved later. R2 has 52 CIDs. Also make a few changes based on the discussion in the 03/17/2021 11be PHY call.

# CID 2948

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2948 | 36.3.11.7.2 | 230.02 | Should version independent field also include a few bits from B20-B24 which is disregard bits in version dependent field? | Allocate 1-2 disregard bits as version independent bits. | Rejected.  Version independent fields includes B0-B19 of U-SIG-1 is consistent to Motion 28, Motion 42, Motion 48, Motion 88, Motion 135, #SP236. No motion/SP supports to add more fields/bits as version independent fields/bits. |

# CID 2177, 2178, 3002, 3003, 2793, 2802, 3182

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 3002 | 36.3.11.7.2 | 236.15 | Change “Version Identifier” to “PHY Version Identifier” | See comment. | Accepted |
| 3003 | 36.3.11.7.2 | 239.11 | Change “Version Identifier” to “PHY Version Identifier” | See comment. | Accepted |
| 2177 | 36.3.11.7.2 | 236.15 | It is better to change “Version Identifier” to “PHY Version Identifier” to be align with the similar field in the EHT MU PPDU. | As suggested in the comment | Accepted |
| 2178 | 36.3.11.7.2 | 239.12 | It is better to change “Version Identifier” to “PHY Version Identifier” to be align with the similar field in the EHT MU PPDU. | As suggested in the comment | Accepted |
| 2793 | 36.3.11.7.2 | 230.15 | “Values 1-7 are Validate” is awkard wording | Change to “are Reserved and to be Validated” | Rejected.  Validate/Disregard fields and Validate/Disregard states of fields were defined in P229 for better definition of reserved bits and easiness in mandating Rx behavior. The current wording is exactly what we want. |
| 2802 | 36.3.11.7.2 | 239.12 | Why do we need a different PHY identifier for ER preamble? It says on page 242L38 that “The QBPSK constellation on U-SIG-1-R is used to differentiate an ER preamble from an EHT MU PPDU and an EHT TB PPDU.”. The receiver can (and has to) determine this is an ER preamble without this information in U-SIG. It seems no further explicit information is needed. | Correct | Revised.  Should be the same PHY Version Identifier field, so that EHT STAs could understand it. Change to the same PHY Version Identifier field description as in P230L13-15 and also remove the note.  *Tgbe Editor: Please make changes for CID 2802 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 3182 | 36.3.11.7.2 | 239.14 | What is the expected RX behavior if an EHT STA detects an ER preamble with Version Identifier = 0? | Clarify that EHT STA needs to defer based on L-SIG duration even if Version identifier = 0. | Revised.  Agree to add sentence to mandate the Rx behavior but this should be in P229L25-30.  *Tgbe Editor: Please make changes for CID 3182 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P239L11-L17 (in Table 36-23) as shown below:**

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| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| U-SIG-1 | B0–B2 | PHY Version Identifier | 3 | Differentiate between different PHY |
| clauses. Set to 0 for EHT. |
|  |  |  |  | Values 1–7 are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true. |
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***Instructions to the editor:***

**Please make the changes to P229L25-L30 as shown below:**

1. The size of the U-SIG for EHT MU PPDU and EHT TB PPDU is two symbols. For forward compatibility,
2. EHT defines an ER preamble while not defining an ER PPDU. An EHT
3. STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true shall be able to decode and interpret the version independent content in the U-SIG of an ER preamble that may be
4. introduced in IEEE 802.11 PHY clauses that are defined for 2.4, 5 and 6 GHz spectrum from clause 36 onwards. Regardless of the value of the PHY Version Identifier in U-SIG, an EHT

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1. STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true shall defer for the duration of the PPDU as defined in [36.3.21 (EHT receive procedure)](#bookmark282), report the information from the version independent fields within the RXVECTOR, and terminate the reception of the PPDU. The size of U-SIG for an ER preamble is four symbols.

# CID 1357, 1358, 1367

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1357 | 36.3.11.7.2 | 230.29 | “UL/DL” is a bad name since a) the name doesn’t indicate whether 1 is UL or DL, b) 0 doesn’t always mean DL | Change name to “UL” or “UPLINK\_FLAG” or “Uplink” etc. ditto P236L28, P239L26 | Rejected.  The field name doesn’t need to give any indication. The current field name and definition is same as the UL/DL field in the HE-SIG-A field in HE SU PPDU and HE ER SU PPDU. |
| 1358 | 36.3.11.7.2 | 230.35 | “See the TXVECTOR parameter xxxx” is weak since actually the PHY needs to populate this field with the TXVECTOR parameter provided by the MAC | Change “See” to “Set to”. Ditto P239L29, BSS\_COLOR in this table and at P236L32, and other parameters that are adopted 1:1 from the TXVECTOR | Rejected.  The wording of “See the TXVECTOR parameter xxxx” is same as the counterparts in the UL/DL and BSS color fields in the HE-SIG-A field in HE SU PPDU and HE ER SU PPDU. Cross references should be fine. |
| 1367 | 36.3.11.7.2 | 230.33 | PPDUs don’t have MAC addresses; frames do | Change to “If frame(s) contained within the PPDU are addressed to an AP”. Ditto P236L28. But actually I worry about broadcast frames etc, and maybe we need to talk in terms of “To DS”? Or just sidestep these complications at the PHY and refer to the TXVECTOR parameter | Rejected.  “Addressed to” means “sent to”. No MAC address is mentioned here. Note that the exact wording of “addressed to” in this definition is same as that in the UL/DL field in the HE-SIG-A field in HE SU PPDU and HE ER SU PPDU. |

# CID 1359, 2628, 2629, 2630, 3176

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 3176 | 36.3.11.7.2 | 230.52 | What are B0-B6? | Change “B0” to “B13” at P230L52, P230L55, P230L60.  Change “B1-B6” to “B14-B19” at P230L52, P230L56, P230L64.  Similar changed need to be done in Table 36-22 and 36-23. | Accepted |
| 1359 | 36.3.11.7.2 | 230.61 | B0 is set two times in this description: at P230L52-56 and again at P230L62 | Change P230L61-65 to a note: e.g. NOTE: B0 indicates TXOP length granularity and B1-B6 indicate the scaled value of the TXOP\_DURATION. Ditto P236L53-57 | Revised.  Agree to the comment and proposed change of using “Note:”. We make same change to P239L54-59, P236L42-57, P239L44-59.  *Tgbe Editor: Please make changes for CID 1359 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2628 | 36.3.11.7.2 | 230.56 | Error in TXOP computation in Table 36-19 (U-SIG field of an EHT MU PPDU) when TXOP\_DURATION is larger than 512us | Replace 8 with 128 as follows:  Otherwise, B0 is set to 1 and B1-B6 is set to floor((TXOP\_DURATION-512)/8128), | Revised.  Agree to replace 8 with 128 in the equation. Need to fix one typo in the proposed change to be floor((TXOP\_DURATION-512)/128). Ditto P236L48, P239L50.  Note to editor: Same resolution to CID 2628, 2629, 2630.  *Tgbe Editor: Please make changes for CID 2628 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2629 | 36.3.11.7.2 | 236.48 | Error in TXOP computation in Table 36-22 (U-SIG field of an EHT TB PPDU) when TXOP\_DURATION is larger than 512us | Replace 8 with 128 as follows:  Otherwise, B0 is set to 1 and B1-B6 is set to floor((TXOP\_DURATION-512)/8128), | Revised.  Resolution to CID 2628 resolves this.  *Tgbe Editor: Please make changes for CID 2629 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2630 | 36.3.11.7.2 | 239.50 | Error in TXOP computation in Table 36-23 (U-SIG field of an ER preamble) when TXOP\_DURATION is larger than 512us | Replace 8 with 128 as follows:  Otherwise, B0 is set to 1 and B1-B6 is set to floor((TXOP\_DURATION-512)/8128), | Revised.  Resolution to CID 2628 resolves this.  *Tgbe Editor: Please make changes for CID 2630 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P230L42-L65 (in Table 36-19), P236L34-57 (in Table 36-22), P239L35-59 (in Table 36-23) as shown below:**

|  |  |  |  |  |
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| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| U-SIG-1 | B13–B19 | TXOP | 7 | Set to 127 to indicate no duration information if the TXVECTOR parameter TXOP\_DURATION is UNSPECIFIED.  Set to a value less than 127 to indicate duration information for NAV setting  and protection of the TXOP as follows:  If the TXVECTOR parameter  TXOP\_DURATION is less than  512, then B13 is set to 0 and B14-B19 is set to floor(TXOP\_DU-  RATION/8).  Otherwise, B13 is set to 1 and B14-B19 is set to floor((TXOP\_DURATION- 512)/128).  Note:  B13 indicates TXOP length granularity. Set to 0 for 8 µs; otherwise set to 1 for 128 µs. B14-B19 indicates the scaled value of the TXOP\_DURATION. |

# CID 1613, 3046

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 3046 | 36.3.11.7.2 | 231.09 | B25. Better to give an explanation on why this bit is validate in order to align with other validate bits. | As commented | Rejected.  In 802.11 specifications, a reason is not given for every spec decision. The job of the specification is to specify the transmit operation and the expected receive behavior. Those things are precisely clear based on mentioning that this is a “validate” field. |
| 1613 | 36.3.11.7.2 | 231.09 | Similar to other Validate fields, add a reason why it is Validate in the Description. | See the comment. | Rejected.  In 802.11 specifications, a reason is not given for every spec decision. The job of the specification is to specify the transmit operation and the expected receive behavior. Those things are precisely clear based on mentioning that this is a “validate” field. |

# CID 1361, 1362, 2399, 2631, 2795, 3177, 3187

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1361 | 36.3.11.7.2 | 231.11 | “If B6 of U-SIG-1 is set to 0” is bad style | Refer to the fieldname i..e “if UL/DL of U-SIG is …”. Ditto P231L18, P232L7/9/19 etc | Accepted |
| 3177 | 36.3.11.7.2 | 231.11 | B6 has a name – UL/DL | Change “If B6 of U-SIG-1” to “If the UL/DL field in U-SIG” at P231L11, P231L18. | Accepted |
| 1362 | 36.3.11.7.2 | 231.19 | Why is “NOTE—If B6 of U-SIG-1 is set to 1, a value of 0 indicates a TB PPDU.” Here? — it belongs in the UL/DL field description | Move to within the UL/DL field , and add a reference to the table for the \*TB\* U-SIG field | Rejected.  Agree that this part is not well written, may cause confusion, and needs revision. This sentence shouldn’t be a “Note”. In fact, it defines the following: For UL, a value of 0 (in this PPDU Type and Compression mode field) indicates a TB PPDU. Actually, as in Table 36-20, for UL, a value of 1 (in this PPDU Type and Compression mode field) indicates an EHT SU transmission or an EHT sounding NDP. |
| 2399 | 36.3.11.7.2 | 231.10 | We can modify a description for the field of “PPDU Type And Compression Mode” for the clarification. | Change the description of “PPDU Type And Compression Mode” as follows:  If B6 of U-SIG-1 is set to 0,  - A value of 0 indicates a DL OFDMA PPDU.  - A value of 2 indicates a non-OFDMA DL MU-MIMO transmission.  A value of 1 indicates an EHT SU transmission or an EHT sounding NDP regardless of B6 of U-SIG-1.  NOTE—If B6 of U-SIG-1 is set to 1, a value of 0 indicates a TB PPDU.  Undefined values of this field are Validate.  For further clarifications on all states of this field, please refer to Table 36-20 (States of UL/DL and PPDU Type And Compression Mode field). | Revised.  Accept the proposed change and change the sentence “Undefined values of this field are Validate.” to “Undefined values of this field are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true.” Also change “DL OFDMA PPDU” to “DL OFDMA transmission,” and change “an EHT SU transmission” to “a transmission to a single user.”  Note to editor: Same resolution to CID 2399, 2631, 2795.  *Tgbe Editor: Please make changes for CID 2399 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2631 | 36.3.11.7.2 | 231.11 | Description of “PPDU type and compression mode” field provided in Table 36-19 (U-SIG field of an EHT MU PPDU) is incomplete and better replaced with a reference to Table 36-20 (States of UL/DL and PPDU Type and Compression Mode field). | Replace existing decription with the following:  The value of this field, together with the “UL/DL” field (B6 of U-SIG 1), conveys information about the format of this PPDU, whether it is intended for a single-user, whether EHT-SIG field is present and the format of the EHT-SIG field. The details are described in Table 36-20 (States of UL/DL and PPDU Type and Compression Mode field).  Not all values of this field are defined. Undefined values of this field are Validate. | Revised.  Agree that the description of this field needs improvement.  Proposed change and resolution to CID 2399 addresses this.  *Tgbe Editor: Please make changes for CID 2631 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2795 | 36.3.11.7.2 | 231.16 | “A value of 2 indicates a non-OFDMA DL MU-MIMO transmission.”. Only if B6 is set to 0. | Add contition on B6. | Revised.  Agree to the condition.  Proposed change and resolution to CID 2399 addresses this.  *Tgbe Editor: Please make changes for CID 2795 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 3187 | 36.3.11.7.2 | 231.11 | How are EHT SU transmission and EHT NDP distinguished from each other? | After Table 36-19, add that the EHT NDP sets the EHT-SIG MCS to 0, and Number of EHT-SIG Symbols to 0. | Revised.  Agree to the comment and proposed change. Slightly change the wording of the proposed change and add it after Table 36-20 instead of after Table 36-19.  *Tgbe Editor: Please make changes for CID 3187 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P231L10-28 (in Table 36-19) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| **U-SIG-2** | B0–B1 | PPDU Type And Compression Mode | **2** | If UL/DL is set to 0,  A value of 0 indicates a DL OFDMA transmission.  A value of 2 indicates a non-OFDMA DL MU-MIMO transmission.  A value of 1 indicates a transmission to a single user or an EHT sounding NDP regardless of UL/DL.  NOTE—If UL/DL is set to 1, a value of 0 indicates a TB PPDU.  Undefined values of this field are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true.  For further clarifications on all states of this field, please refer to [Table 36-](https://qualcomm-my.sharepoint.com/personal/alicel_qti_qualcomm_com/Documents/Documents/Work/EHT/Spec/11-21-0325-00-00be-u-sig-comment-resolution-part-1_backup.docx#bookmark92) [20 (States of UL/DL and PPDU Type](https://qualcomm-my.sharepoint.com/personal/alicel_qti_qualcomm_com/Documents/Documents/Work/EHT/Spec/11-21-0325-00-00be-u-sig-comment-resolution-part-1_backup.docx#bookmark92) [And Compression Mode field)](https://qualcomm-my.sharepoint.com/personal/alicel_qti_qualcomm_com/Documents/Documents/Work/EHT/Spec/11-21-0325-00-00be-u-sig-comment-resolution-part-1_backup.docx#bookmark92). |

***Instructions to the editor:***

**Please add the following paragraph to P233L55 (after Table 36-20) as shown below:**

If PPDU Type And Compression Mode is set to 1, the EHT MU PPDU can be a transmission to a singler user or an EHT sounding NDP regardless of the value of the UL/DL field. In addition to PPDU Type And Compression Mode being set to 1, if EHT-SIG MCS is set to 0 and Number of EHT-SIG Symbols is set to 0, it indicates an EHT sounding NDP.

# CID 1364, 1614, 1615, 2400, 2797, 3179, 3287

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2400 | 36.3.11.7 | 232.28 | We need to define clearly which 20MHz channel corresponding to each bit. | Change “where B3 applies to the lowest frequency 20 MHz channel and B6 to the highest frequency 20 MHz channel” to “where B3 applies to the lowest frequency 20 MHz channel, B4 to the second lowest frequency 20 MHz channel, B5 to the third lowest frequency 20 MHz channel and B6 to the highest frequency 20 MHz channel” | Revised.  Agree to the comment. Revise the proposed change to “where B3-B6 apply to from the lowest to highest frequency 20 MHz channels, respectively”.  *Tgbe Editor: Please make changes for CID 2400 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 1364 | 36.3.11.7.2 | 232.38 | If individual bits within a field need to be identified, then that’s a sure sign that something is wrong. Maybe the field should be broken up or be provided with multiple overlapping aluesions such as individually named sub-subfields (e.g. see VHTSIGA fig 21-18 and fig 21-19) Certainly we need to use values (with bitfields in parentheses) not 0111 etc since valies are how we unambiguously identify which is the LSB or MSB. | Omit all references to bit numbers by providing specific names. Use values not binary numbers (to avoid ordering confusion). Perhaps keep the binary alues if intuitively helpful but report if LSB-first or MSB-first. | Revised.  Agree to the comment. Note that this field also indicates the non-OFDMA punctured pattern of entire PPDU, and could not split bits into different fields. Since the binary 4-bit bitmap is intuitively helpful, add small change to specify how to map the 4-bit patterns to B3-B6 for clarity.  *Tgbe Editor: Please make changes for CID 1364 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2797 | 36.3.11.7.2 | 232.26 | Improve wording "a 4-bit bitmap that tells which 20 MHz channel is punctured" | Change to "a 4-bit bitmap that indicates which 20 MHz channel is punctured" | Accepted |
| 3287 | 36.3.11.7.2 | 232.19 | description seems to length for OFDMA case. Better to make a table like non-OFDMA case (see Table 36-21) | as in comment | Rejected.  Even if the allowed punctured patterns of each 80MHz subblock are put into a table, we still need all those words to define/describe them. Don’t see a “savings” of wording with a table. |
| 1614 | 36.3.11.7.2 | 232.08 | If B0-B1 of U-SIG-2 is set to 1 or 2, it indicates the non-OFDMA case or the EHT sounding NDP case. | Add “the EHT sounding NDP case” into the sentence. | Revised.  We delete the text “which is the non-OFDMA case”, and “which is the OFDMA case”, as then everything gets tied to the value of PPDU type and compression mode field, which is completely unambiguous. When PPDU type and compression mode is 1 (which is the case for an NDP ), the text precisely mentions how to interpret the bits B3-B7.  *Tgbe Editor: Please make changes for CID 1614 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 1615 | 36.3.11.7.2 | 234.08 | Table 36-21 can be also applied to the EHT sounding NDP. | Add "the EHT sounding NDP case" into the title of Table 36-21. | Rejected.  It is completely clear that this table is being used whenever the PPDU type and compression mode field takes a certain value. That process is clearly defined in the U-SIG table. Making the table title more verbose is unnecessary. |
| 3179 | 36.3.11.7.2 | 232.07 | "B0-B1 of U-SIG-2" is "PPDU Type and Compression Mode" | Change "B0-B1 of U-SIG-2" to "PPDU Type and Compression Mode" | Revised.  Accept the comment and proposed change. Ditto P232L19.  Furthermore, make a similar change of “B3–B5 of U-SIG-1” to “BW.”  *Tgbe Editor: Please make changes for CID 3179 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P232L7-L50 (in Table 36-19) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| U-SIG-2 | B3–B7 | Punctured Channel Information | 5 | If PPDU Type and Compression Mode is set to 1 or 2,  B3–B7 points to the entry of a bandwidth dependent table (defined i[n Table 36-21 (5-bit](https://qualcomm-my.sharepoint.com/personal/alicel_qti_qualcomm_com/Documents/Documents/Work/EHT/Spec/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx#bookmark93) [punctured channel indication for the non-OFDMA case in an EHT](https://qualcomm-my.sharepoint.com/personal/alicel_qti_qualcomm_com/Documents/Documents/Work/EHT/Spec/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx#bookmark93) [MU PPDU)](https://qualcomm-my.sharepoint.com/personal/alicel_qti_qualcomm_com/Documents/Documents/Work/EHT/Spec/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx#bookmark93)) to signal the non- OFDMA puncturing pattern of the entire PPDU bandwidth.  Undefined values of this field are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true.  If PPDU Type and Compression Mode is set to 0,  If BW is set to a value between 2 and 5, which indicates an 80/160/320 MHz PPDU, B3–B6 is a 4-bit bitmap that indicates which 20 MHz channel is punctured in the relevant  80 MHz segment, where B3-B6 apply to from the lowest to highest frequency 20 MHz channels. For each of the bits B3–B6, a value of 0 indicates that the corresponding 20 MHz channel is punctured, and a value of 1 is used otherwise. The following allowed punctured patterns (B3-B6) are defined for an  80 MHz segment: 1111, 0111, 1011,  1101, 1110, 0011, 1100, and  1001. Any field values other than the allowed punctured patterns are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true. Field value may be varied from one 80 MHz to the other.  If BW is set to 0 or 1, which indicates a 20/  40 MHz PPDU, B3–B6 are set to all 1s. Other values are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true.  B7 is set to 1 and disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true. |

# CID 1365, 2176, 3001, 3288

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 3001 | 36.3.11.7 | 232.61 | Set to 3 for EHT-MCS 15 | Change "EHT-MCS 0 + DCM" to "EHT-MCS 15". | Accepted |
| 2176 | 36.3.11.7.2 | 232.62 | EHT-MCS 0 + DCM corresponds to EHT-MCS 15. | Change "Set to 3 for EHT-MCS 0 + DCM" to "Set to 3 for EHT-MCS 15" | Accepted |
| 3288 | 36.3.11.7.2 | 232.62 | setting to 3, it should be EHT-MCS 15 | as in comment | Accepted |
| 1365 | 36.3.11.7.2 | 232.61 | "MCS0 + DCM" needs fixing since this is MCS15 | Change to MCS15 | Revised.  Change to “EHT-MCS15”, as in the proposed change of CID 3001, 2176, 3288.  *Tgbe Editor: Please make changes for CID 1365 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

# CID 1366, 1368, 1562, 2401, 2750, 2932, 2933, 3048, 3180

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2750 | 36.3.11.7.2 | 233.30 | Typo "RU allocation table" | Change "RU allocation table" to "RU Allocation subfields" | Accepted |
| 1366 | 36.3.11.7.2 | 233.38 | What does "Not to AP. Typically "DL"" mean? | Should this be "UL/DL = 0"? | Rejected.  This explanation is in one case when UL/DL=0 (as in the first column of the table). This is an explanation rather than parameter setting. |
| 1368 | 36.3.11.7.2 | 230.50 | "UL" in scare quotes is a concern since it hints that "UL" isn't fully defined | Change "To AP, i.e. "UL" to "UL/DL = 1" | Rejected.  The correct page number is 233 instead of 230. Similar to our resolution to CID 1366, this is an explanation rather than parameter setting. UL/DL=1 is already in the first column. |
| 2932 | 36.3.11.7.2 | 233.37 | In Table 36-20 in the row identified by UL/DL=0 and PPDU type and compression mode=1 and "Note" column: "(Not to AP. Typically "DL")" is misleading as first column explicitly states DL and can't be typically downlink. | Delete the statement in brackets | Rejected.  This column is the description of the value combination of the first and second columns. “DL” or “UL” also appears in other cases. |
| 2933 | 36.3.11.7.2 | 233.49 | In Table 36-20 in the row identified by UL/DL=1 and PPDU type and compression mode=1 and "Note" column: "(To AP, i.e., "UL")" is duplicated as first column already states UL | Delete the statement in brackets | Rejected.  This column is the description of the value combination of the first and second columns. “DL” or “UL” also appears in other cases. |
| 3048 | 36.3.11.7.2 | 233.36 | NDP does not needed to be explicitly listed in the table. Because NDP is not identified by this field. | Just list SU and remove NDP. | Rejected.  Can’t remove NDP here because NDP is partially identified by this field. |
| 1562 | 36.3.11.7.2 | 233.38 | NDP does not include the user field and can be transmitted to multiple STA. so, it is not unclear to set the total number of users in the PPDU as 1. | change '1' to ' ≥1" in the 4th row and 6th column in table 36-20, | Revised.  Agree that NDP does not include the user field. Can’t change to “≥1" which may be misleading. We change the title of the 5th column from “Total number of users in the PPDU” to “Total number of recipients in DL or transmitters in UL.” For the SU or sounding NDP case, change the value to “1 for SU, N/A for NDP” for clarity.  Note to editor: same resolution to CID 1562, 2401.  *Tgbe Editor: Please make changes for CID 1562 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 2401 | 36.3.11.7.2 | 233.37 | When UL/DL=0 and PPDU Type And Compression Mode=1, total number of users in the PPDU should be "1 for SU" not "1" considering NDP. | As in the comment | Revised.  Resolution to CID 1562 addresses this.  *Tgbe Editor: Please make changes for CID 2401 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 3180 | 36.3.11.7.2 | 233.40 | DL MU-MIMO needs at least two users. | In Table 36-20, in the row of UL/DL=0 and "PPDU Type and Compression Mode"=2, under the column of "Total number of users in the PPDU", change ">=1" to ">1" | Accepted |

***Instructions to the editor:***

**Please make the changes to P233L23-L53 (Table 36-20) as shown below:**

**Table 36-20—States of UL/DL and PPDU Type And Compression Mode field**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **U-SIG fields** | | **Description** | | | | |
| **UL/DL** | **PPDU Type And Compression Mode** | **EHT PPDU**  **type** | **EHT-SIG**  **present?** | **RU**  **allocation table present?** | **Total number of user fields in DL or transmitters in UL** | **Note** |
| 0 (DL) | 0 | EHT MU | Yes | Yes | ³ 1 | DL OFDMA (including non- MU-MIMO and MU-MIMO) |
| 1 | EHT MU | Yes | No | 1 for transmission to a single user, N/A for NDP | Transmission to a single user or NDP (Not to AP. Typically “DL”) |
| 2 | EHT MU | Yes | No | > 1 | DL MU-MIMO (non- OFDMA) |
| 3 | — | — | — | — | Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true |
| 1 (UL) | 0 | EHT TB | No | — | ³ 1 | UL OFDMA (including non- MU-MIMO and MU-MIMO) |
| 1 | EHT MU | Yes | No | 1 for transmission to a single user, N/A for NDP | Transmission to a single user or NDP (To AP, i.e., “UL”) |
| 2–3 | — | — | — | — | Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true |

# CID 2402, 3181, 3290

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2402 | 36.3.11.7.2 | 234 | Based on the passed PDT of 11-21/0104r3, we have MRU indices. So, RU or MRU index corrsponding to the puncturing pattern can be referred in Table 36-21. | Descriptions in "Cases" column can be canged as follows: 20 MHz puncturing for 80 MHz => 20 MHz puncturing (484+242 tone MRU) 20 MHz puncturing for 160 MHz => 20 MHz puncturing (996+484+242 tone MRU ) The rest can be also changed in this way  Change the wording of "Puncturing pattern" column to the wording of "Puncturing pattern (RU or MRU index)" column and the descriptions can be changed as follows: [1 1 1 1] for 20MHz => [1 1 1 1] (242-tone RU 1) [1 1 1 1] for 40MHz => [1 1 1 1] (484-tone RU 1) [1 1 1 1] for 80MHz => [1 1 1 1] (996-tone RU 1) [x 1 1 1] for 80MHz => [x 1 1 1] (484+242 tone MRU 1) [1 x 1 1] for 80MHz => [1 x 1 1] (484+242 tone MRU 2) The rest can be also changed in this way.  I can submit a PDT document for this. | Revised.  Agree that we could add RU or MRU indices in the non-OFDMA case to show the one-to-one correspondance. Still keep the bitmap like representation (e.g., [1 x 1 1]) which is intuitive.  *Tgbe Editor: Please make changes for CID 2402 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 3181 | 36.3.11.7.2 | 236.01 | This should not be a NOTE, as it is essential in interpreting the Table 36-21. | Change "NOTE - In the" to "In the" | Accepted |
| 3290 | 36.3.11.7.2 | 236.01 | In INACTIVE\_SUBCHANNELS, 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. However, 1 demotes nonpuctured subchannel in puncturing pattern. better to indicate the same way not to make confusing. | as in comment | Rejected.  As long as the way of indication is defined clearly, there should be no confusion. |

***Instructions to the editor:***

**Please make the changes to P234L1-P235L63 (Table 36-21) as shown below:**

**Table 36-21—5-bit punctured channel indication for the non-OFDMA case in an EHT MU**

**PPDU**

|  |  |  |  |
| --- | --- | --- | --- |
| **PPDU**  **bandwidth** | **Cases** | **Puncturing pattern**  **(RU or MRU Index)** | **Field value** |
| 20 MHz | No puncturing | [1 1 1 1]  (242-tone RU 1) | 0 |
| 40 MHz | No puncturing | [1 1 1 1]  (484-tone RU 1) | 0 |
| 80 MHz | No puncturing | [1 1 1 1]  (996-tone RU 1) | 0 |
| 20 MHz puncturing | [x 1 1 1]  (484+242-tone MRU 1) | 1 |
| [1 x 1 1]  (484+242-tone MRU 2) | 2 |
| [1 1 x 1]  (484+242-tone MRU 3) | 3 |
| [1 1 1 x]  (484+242-tone MRU 4) | 4 |
| 160 MHz | No puncturing | [1 1 1 1 1 1 1 1]  (2x996-tone RU 1) | 0 |
| 20 MHz puncturing | [x 1 1 1 1 1 1 1]  (996+484+242-tone MRU 1) | 1 |
| [1 x 1 1 1 1 1 1]  (996+484+242-tone MRU 2) | 2 |
| [1 1 x 1 1 1 1 1]  (996+484+242-tone MRU 3) | 3 |
| [1 1 1 x 1 1 1 1]  (996+484+242-tone MRU 4) | 4 |
| [1 1 1 1 x 1 1 1]  (996+484+242-tone MRU 5) | 5 |
| [1 1 1 1 1 x 1 1]  (996+484+242-tone MRU 6) | 6 |
| [1 1 1 1 1 1 x 1]  (996+484+242-tone MRU 7) | 7 |
| [1 1 1 1 1 1 1 x]  (996+484+242-tone MRU 8) | 8 |
| 40 MHz puncturing | [x x 1 1 1 1 1 1]  (996+484-tone MRU 1) | 9 |
| [1 1 x x 1 1 1 1]  (996+484-tone MRU 2) | 10 |
| [1 1 1 1 x x 1 1]  (996+484-tone MRU 3) | 11 |
| [1 1 1 1 1 1 x x]  (996+484-tone MRU 4) | 12 |

**Table 36-21—5-bit punctured channel indication for the non-OFDMA case in an EHT MU**

**PPDU *(continued)***

|  |  |  |  |
| --- | --- | --- | --- |
| **PPDU**  **bandwidth** | **Cases** | **Puncturing pattern**  **(RU or MRU Index)** | **Field value** |
| 320 MHz | No puncturing | [1 1 1 1 1 1 1 1]  (4x996-tone RU 1) | 0 |
| 40 MHz puncturing | [x 1 1 1 1 1 1 1]  (3x996+484-tone MRU 1) | 1 |
| [1 x 1 1 1 1 1 1]  (3x996+484-tone MRU 2) | 2 |
| [1 1 x 1 1 1 1 1]  (3x996+484-tone MRU 3) | 3 |
| [1 1 1 x 1 1 1 1]  (3x996+484-tone MRU 4) | 4 |
| [1 1 1 1 x 1 1 1]  (3x996+484-tone MRU 5) | 5 |
| [1 1 1 1 1 x 1 1]  (3x996+484-tone MRU 6) | 6 |
| [1 1 1 1 1 1 x 1]  (3x996+484-tone MRU 7) | 7 |
| [1 1 1 1 1 1 1 x]  (3x996+484-tone MRU 8) | 8 |
| 80 MHz puncturing | [x x 1 1 1 1 1 1]  (3x996-tone MRU 1) | 9 |
| [1 1 x x 1 1 1 1]  (3x996-tone MRU 2) | 10 |
| [1 1 1 1 x x 1 1]  (3x996-tone MRU 3) | 11 |
| [1 1 1 1 1 1 x x]  (3x996-tone MRU 4) | 12 |
| 320–80–40 | [x x x 1 1 1 1 1]  (2x996+484-tone MRU 7) | 13 |
| [x x 1 x 1 1 1 1]  (2x996+484-tone MRU 8) | 14 |
| [x x 1 1 x 1 1 1]  (2x996+484-tone MRU 9) | 15 |
| [x x 1 1 1 x 1 1]  (2x996+484-tone MRU 10) | 16 |
| [x x 1 1 1 1 x 1]  (2x996+484-tone MRU 11) | 17 |
| [x x 1 1 1 1 1 x]  (2x996+484-tone MRU 12) | 18 |
| [x 1 1 1 1 1 x x]  (2x996+484-tone MRU 1) | 19 |
| [1 x 1 1 1 1 x x]  (2x996+484-tone MRU 2) | 20 |
| [1 1 x 1 1 1 x x]  (2x996+484-tone MRU 3) | 21 |
| [1 1 1 x 1 1 x x]  (2x996+484-tone MRU 4) | 22 |
| [1 1 1 1 x 1 x x]  (2x996+484-tone MRU 5) | 23 |
| [1 1 1 1 1 x x x]  (2x996+484-tone MRU 6) | 24 |

# CID 3291

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 3291 | 36.3.11.7.2 | 236.61 | In PPDU Type And Compressed Mode, Undefined values of this field are Validate. | as in comment | Revised.  Add one sentence “Undefined values of this field are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true.”  *Tgbe Editor: Please make changes for CID 3291 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P236L60-L65 (in Table 36-22) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| **U-SIG-2** | B0–B1 | PPDU Type And Compressed Mode | **2** | Set to a value of 0 for a TB PPDU. For further clarification on all states of this field, please refer to Table 36-20 (States of UL/DL and PPDU Type And Compression Mode field). Undefined values of this field are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true. |

# CID 2803

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2803 | 36.3.11.7.2 | 239.06 | In 11ax, HE-SIG-A for SU and ER SU is identical. Why specify a different U-SIG for ER? | There may be no need for this separate definition. | Rejected.  Per Motion 137, #SP292, EHT only defines the ER preamble but not the ER PPDU. Only the version independent fields are certainly there. No other fields are defined in the U-SIG of ER preamble in any motion/SP. It is not clear at this point whether the ER preamble may be used for SU only. |

# CID 1620, 1621

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1620 | 36.3.11.7.2 | 239.60 | Specify how to set the Diregard field. For example, "set to all 1s". | See the comment. | Revised.  Change to “Set to all 1s and disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true.”  *Tgbe Editor: Please make changes for CID 1620 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |
| 1621 | 36.3.11.7.2 | 240.07 | Specify how to set the Diregard field. For example, "set to all 1s". | See the comment. | Revised.  Change to “Set to all 1s and disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true.”  *Tgbe Editor: Please make changes for CID 1621 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-02-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P239L60-P240L7 (in Table 36-23) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| U-SIG-1 | B20-B25 | Disregard | 6 | Set to all 1s and disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true. |
| U-SIG-2 | B0-B15 | Disregard | 16 | Set to all 1s and disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true. |