IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | U-SIG Comment Resolution Part 4 | | | | | | Date: 2021-03-18 | | | | | | 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 |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |

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 CID 1352, 1372, 1373, 1563, 1617, 1618, 1619, 1951, 2627, 2634, 2706, 2727, 2801, 2949, 3175.

R1: Minor revisions.

R2: Revise the resolution to CID 1618 and add the discussion on CID 1618.

R3: Minor revisions in the SR 2 field description.

# CID 1352, 2627

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1352 | 36.3.11.7.2 | 229.33 | " states of the fields" reads oddly | Try "values of the fields". Also at P229L37, instead of "field values of any field ... are set to Validate state" try "any field ... equals a value denoted/identified as Validate" Review all instances of "state" throughout clause 36 and for those with the same issue then replace by "value". | Revised.  Agree in principle with the commenter’s proposed change. Revise multiple places in the paragraph P229L33-L46 (6 appearances in D0.3, now 3 appearances in D0.4),  *Tgbe Editor: Please make changes for CID 1352 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-01-00be-u-sig-comment-resolution-part-4.docx) |
| 2627 | 36.3.11.7.2 | 229.33 | Move description of Validate/Disregard behavior for reserved bits and reserved values to a separate section preceding U-SIG and EHT-SIG, since this is common to both portions of the preamble | Move the entire paragraph to a separate section preceding 36.3.11.7, e.g., "Types of reserved bits and unused values in the the EHT preamble" | Rejected.  Similar to the CRC computation sub-caluse, which is applicable to both the U-SIG and EHT-SIG but it is a sub-clause under U-SIG with reference to EHT-SIG. This paragraph could be in the current location (beginning of U-SIG) to be more conhesive. |

***Instructions to the editor:***

**Please make the highlighted changes to P229L33-L46 as shown below:**

1. Reserved fields in the EHT preamble or reserved values of the fields in the EHT preamble are divided into two categories: Validate and Disregard. An EHT STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true shall set the Disregard fields and Validate fields in accordance with the requirements specified in this subclause. An EHT STA with dot11EHTBaseLineFeaturesImplementedOnly equal to false might be subject to a different set of requirements. Validate field values serve to indicate whether to continue reception of a PPDU at an EHT STA. If an EHT STA encounters a PPDU where at least one field in the preamble that is identified as Validate for the STA is not set to the value specified for the field in this subclause, or at least one field in the EHT preamble equals a value that is identified as Validate for the STA, the STA 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. If an EHT STA sees any of the fields identified as Disregard for the STA set to a value which is different from its specified value in this sub-clause, or field values of any field in the EHT preamble as being set to a value identified as Disregard for the STA in this subclause, it shall ignore these field values and they will have no impact on the STA’s continued reception of the PPDU (i.e., reception at the STA can continue as usual). For further details on receive behavior when encountered with Validate and Disregard fields or any field as being set to a value identified as Validate or Disregard, please refer to [36.3.21 (EHT receive procedure)](#bookmark282).

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***Instructions to the editor:***

**Please make the highlighted 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 the UL/DL field 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 the UL/DL field 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 values 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 (Combinations 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" \l "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 make the changes to P233L23 (title of Table 36-20) as shown below:**

**(Note that the change in the title of Table 36-20 proprogates to wherever it is referred, e.g., P286L45)**

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

***Instructions to the editor:***

**Please make the highlighted 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 values of this field, please refer to Table 36-20 (Combinations of UL/DL and PPDU Type And Compression Mode field). Undefined values of this field are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true. |

***Instructions to the editor:***

**Please make the change to P355L33-L35 of D0.4 (in 36.3.12.8.3 Common field for OFDMA transmission) as shown below:**

When devices read the value of the RU allocation subfield as being set to a value identified as Disregard, they shall skip User fields indicated by the field value and continue to process the EHT-SIG.

# CID 2727, 3175

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2727 | 36.3.11.7.2 | 230.25 | Define 320 MHz-1 and 320 MHz-2 and remove editor’s note in table | Need to define 320 MHz-1 and 320 MHz-2 either in this section or refer to a definition in another section | Revised.  Resolution to CID 1577 added the definition of 320 MHz-1 and 320 MHz-2. Here we add one sentence “See definition of 320 MHz-1 and 320 MHz-2 in 36.3.23.1 (Channelization for 320MHz channel).”  *Tgbe Editor: Please make changes for CID 2727 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-00-00be-u-sig-comment-resolution-part-4.docx) |
| 3175 | 36.3.11.7.2 | 230.20 | The 320 MHz Operating class need to be separated to two — one for 320-1 and another for 320-2. | At P230L20, P236L24, P239L22, change “Set to 4 for 320 MHz-1. Set to 5 for 320 MHz-2” to  “Set to 4 for 320 MHz EHT PPDU occupying one of the channels defined in the Operating class 137 in Table E-4. Set to 5 for 320 MHz EHT PPDU occupying one of the channels defined in the Operating class 138 in Table E-4.”   In Table E-4 (P385L25), in the row of the Operating Class 137, under the column of “Channel center frequency index”, change “31, 63, 95, 127, 159, 191” to “31, 95, 159”  Add a new Operating class to Table E-4: Operating class = 138 Channel starting frequency = 5.950 Channel spacing = 320 Channel center frequency index = 63, 127, 191  And update the Operating class numbers for the Reserved row appropriately. | Revised.  Agree to the commentor that 320-1 and 320-2 need to be revised.  Resolution to CID 2727 addresses this.  *Tgbe Editor: Please make changes for CID 3175 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-00-00be-u-sig-comment-resolution-part-4.docx) |

***Instructions to the editor:***

**Please make the changes to P230L16-28 (in Table 36-19), P236L20-26 (in Table 36-22), P239L18-24 (in Table 36-23) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| U-SIG-1 | B3–B5 | BW | 3 | Set to 0 for 20 MHz.  Set to 1 for 40 MHz.  Set to 2 for 80 MHz.  Set to 3 for 160 MHz.  Set to 4 for 320 MHz-1.  Set to 5 for 320 MHz-2.  See definition of 320 MHz-1 and 320 MHz-2 in 36.3.23.1 (Channelization for 320MHz channel).  Values 6 and 7 are Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true. |
|  |  |  |  | ***Editor’s Note: Need a definition of “320 MHz-1” and “320 MHz-***  ***2”.*** |

# CID 2706

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 2706 | 36.3.11.7.2 | 233.30 | EHT MU PPDU and EHT TB PPDU are PPDU format, not PPDU type | Change "EHT PPDU type" in the third column of Table 36-20 to "EHT PPDU format". | Accepted |

# CID 1563, 1617, 1619, 1951, 2801, 2949

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1563 | 36.3.11.7.2 | 236.59 | the total 11bits that are indicated as disregard exist in the U-SIG of EHT TB PPDU. Add the note to indicate whether those bits are related or not to trigger frame into a description of table 36-22. | as in comment. | Revised.  The 6-bit Disregard field of B20-B25 of U-SIG-1, 1-bit Validate field of B2 of U-SIG-2, and the 5-bit Disregard field of B11-B15 of U-SIG-2 in the EHT TB PPDU are set to value indicated in the U-SIG Disregard And Validate subfield in the Special User Info field in the Trigger frame. Make changes to these 3 fields according to Table 9-29j4.  Note to editor: same resolution to CID 1563, 1617, 1619, 1951, 2801, 2949.  *Tgbe Editor: Please make changes for CID 1563 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx) |
| 1617 | 36.3.11.7.2 | 236.58 | Specify how to set the Diregard field. For example, "copy and paste the U-SIG Reserved subfield of the Trigger frame". | See the comment. | Revised.  Resolutoin to CID 1563 addresses this.  *Tgbe Editor: Please make changes for CID 1617 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx) |
| 1619 | 36.3.11.7.2 | 238.48 | Specify how to set the Diregard field. For example, "copy and paste the U-SIG Disregard subfield of the Trigger frame". | See the comment. | Revised.  Resolutoin to CID 1563 addresses this.  *Tgbe Editor: Please make changes for CID 1619 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx) |
| 2949 | 36.3.11.7.2 | 236.59 | What value should "Disregard" subfields in U-SIG of EHT TB PPDU set to? Copy from Trigger frame or allow STA to define in some cases? | Clarify the description of Disregard subfield in U-SIG of EHT TB PPDU. | Revised.  Resolutoin to CID 1563 addresses this.  *Tgbe Editor: Please make changes for CID 2949 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx) |
| 2801 | 36.3.11.7.2 | 238.48 | No Value specified for "Disregard"? | See comment | Revised.  Resoluiton to CID 1563 addresses this.  *Tgbe Editor: Please make changes for CID 2801 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx) |
| 1951 | 36.3.11.7.2 | 236.59 | Optimize the default values of disregard to reduce the PAPR of U-SIG, the default values should be defind in trigger frame if those are copied from the trigger frame | As in comment | Revised.  There is no motion/SP to set the default values of disregard fields for PAPR reduction.  Resolution to CID 1536 addresses this.  *Tgbe Editor: Please make changes for CID 1951 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0354-00-00be-u-sig-comment-resolution-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P236L58-L59 (in Table 36-22) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| **U-SIG-1** | B20–B25 | Disregard | **6** | Set to value indicated in B25-B30 of the U-SIG Disregard And Validate subfield in the Special User Info field in the Trigger frame and Disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true. See Table 9-29j4 (Mapping from Special User Info field to U-SIG-1 and U-SIG-2 fields in the EHT TB PPDU). |

***Instructions to the editor:***

**Please make the changes to P237L7-L10 (in Table 36-22) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| **U-SIG-2** | B2 | Validate | **1** | Set to value indicated in B31 of the U-SIG Disregard And Validate subfield in the Special User Info field in the Trigger frame and Validate if dot11EHTBaseLineFeaturesImplementedOnly equals true. See Table 9-29j4 (Mapping from Special User Info field to U-SIG-1 and U-SIG-2 fields in the EHT TB PPDU). |

***Instructions to the editor:***

**Please make the changes to P238L47-L48 (in Table 36-22) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| **U-SIG-2** | B11–B15 | Disregard | **5** | Set to value indicated in B32-B36 of the U-SIG Disregard And Validate subfield in the Special User Info field in the Trigger frame and Disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true. See Table 9-29j4 (Mapping from Special User Info field to U-SIG-1 and U-SIG-2 fields in the EHT TB PPDU). |

# CID 1618, 2634

|  |  |  |  |  |  |
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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1618 | 36.3.11.7.2 | 238.15 | There is no description regarding how to set the Spatial Reuse 2 filed if the Bandwidth field indicates 20 MHz. Does the sentence "If the STA operating channel width is 20 MHz" mean "If the Bandwidth field indicates 20 MHz"? If it is, make the sentence consistent. Similarily, the sentence "If the STA operating channel width is 40 MHz in the 2.4 GHz band" also needs to be rephrased. | See the comment. | Revised.  Agree to the comment that description of the value of the field if the Bandwidth field indicates 20 MHz or 40MHz in the 2.4 GHz band need the be rephrased. Add one paragraph of “If the Bandwidth field indicates 20 MHz, this field is set to the same value as the Spatial Reuse 1 field, and disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true.” Delete the sentence “If the STA operating channel width is 20 MHz, then this field is set to the same value as the Spatial Reuse 1 field.” Chagne “If the STA operating channel width is 40 MHz in the 2.4 GHz band” to “If operating in the 2.4 GHz band”. We also break the Spatial Reuse 1 and Spatial Reuse 2 fields’ description into paragraphs and use proper indentation to improve readability.  Please see discussion on CID 1618 below this table.  *Tgbe Editor: Please make changes for CID 1618 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-00-00be-u-sig-comment-resolution-part-4.docx) |
| 2634 | 36.3.11.7.2 | 238.40 | "Spatial Reuse 2" field of EHT TB PPDU should be set to value of SPATIAL\_REUSE(2) and not SPATIAL\_REUSE(1) | In Table 36-22 (U-SIG field of an EHT TB PPDU), edit the description of "Spatial Reuse 2 field" as follows: Set to the value of the SPATIAL\_REUSE(12) parameter of the TXVECTOR, which contains a value from Table 27-23 | Revised.  Agree to the comment but there is a typo in the proposed change. It should be SPATIAL\_REUSE(2) instead of SPATIAL\_REUSE(12).  *Tgbe Editor: Please make changes for CID 2634 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-00-00be-u-sig-comment-resolution-part-4.docx) |

**Discussion on CID 1618**

CID 1618 asks the question “Does the sentence "If the STA operating channel width is 20 MHz" mean "If the Bandwidth field indicates 20 MHz"?” The answer is yes. We got this wording of “the STA operating channel width is 20 MHz” from the description of the SR 2 field in the HE-SIG-A of an HE TB PPDU in the 11ax spec D8.0 and it is ambiguous. The original sentences and wording (as firstly introduced in 16/0902r3 (<https://mentor.ieee.org/802.11/dcn/16/11-16-0902-03-00ax-proposed-text-changes-for-sr-fields-in-he-trigger-based-ppdu.docx>) and up to 11ax spec D1.1) is the following:

If Bandwidth is set to 20MHz, 40MHz, or 80MHz:

* Spatial Reuse field for the second 20MHz sub-band (See Note 1)
* When operating 20MHz, this field is set to same value as Spatial Reuse 1 field.
* When operating 40MHz in 2.4GHz band, this field is set to same value as Spatial Reuse 1 field

“When operating 20 MHz” actually means if the Bandwidth is set to 20MHz. “When operating 40MHz in 2.4 GHz band” actually means if the Bandwidth is set to 40MHz and the TB PPDU is transmitted in 2.4 GHz band. The sentences were revised in the comment resolution document 16/1476r21 (<https://mentor.ieee.org/802.11/dcn/16/11-16-1476-21-00ax-cr-for-section-25-9-spatial-reuse-operation-for-he-ppdu.docx>) and 11ax spec D1.2 (and up to the lastest 11ax spec draft) as the following:



Our proposed resolution to CID 1618 is to improve the wording for clarity. There may be a need to revise the description of SR 2/SR 3/SR 4 fields in the HE-SIG-A of an HE TB PPDU in the 11ax spec.

***Instructions to the editor:***

**Please make the changes to P237L12-L44 (in Table 36-22) as shown below:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** |
| U-SIG-2 | B3–B6 | Spatial Reuse 1 | 4 | Indicates whether or not specific spatial reuse modes are allowed in a subband of the PPDU during the transmission of this PPDU, and if PSR spatial reuse is allowed, indicates a value that is used to determine a limit on the transmit power of the PSRT PPDU.  If the Bandwidth field indicates 20 MHz or 40 MHz, then this field applies to the first 20 MHz subband.  If the Bandwidth field indicates 80 MHz, then this field applies to each 20 MHz subchannel of the first 40 MHz subband of the 80 MHz operating band.  If the Bandwidth field indicates 160 MHz, then this field applies to each 20 MHz subchannel of the first 80 MHz subband of the 160 MHz operating band.  If the Bandwidth field indicates 320 MHz-1 or 320 MHz-2, then this field applies to each 20 MHz subchannel of the first  160 MHz subband of the 320 MHz operating band.  Set to the value of the SPATIAL\_REUSE(1) parameter of the TXVECTOR, which contains a value from Table 27-23 (Spatial Reuse field encoding for an HE TB PPDU) for an HE TB PPDU (see  26.11.6 (SPATIAL\_REUSE)) and  26.10 (Spatial reuse operation)). |

***Instructions to the editor:***

**Please make the changes to P238L7-L46 (in Table 36-22) as shown below:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Two parts of U-SIG** | **Bit** | **Field** | **Number of bits** | **Description** | |
| U-SIG-2 | B7–B10 | Spatial Reuse 2 | 4 | Indicates whether or not specific spatial reuse modes are allowed in a subband of the PPDU during the transmission of this PPDU, and if PSR spatial reuse is allowed, indicates a value that is used to determine a limit on the transmit power of the PSRT PPDU.  If the Bandwidth field indicates 20 MHz, this field is set to the same value as the Spatial Reuse 1 field, and Disregard if dot11EHTBaseLineFeaturesImplementedOnly equals true.  If the Bandwidth field indicates 40 MHz:  This field applies to the second 20 MHz subband.  If operating in the 2.4 GHz band, this field is set to the same value as the Spatial Reuse 1 field.  If the Bandwidth field indicates 80 MHz, then this field applies to each 20 MHz subchannel of the second 40 MHz subband of the 80 MHz operating band.  If the Bandwidth field indicates 160 MHz, then this field applies to each 20 MHz subchannel of the second 80 MHz subband of the 160 MHz operating band.    If the Bandwidth field indicates 320 MHz-1 or 320 MHz-2, then this field applies to each 20 MHz subchannel of the second 160 MHz subband of the  320 MHz operating band.  Set to the value of the SPATIAL\_REUSE(2) parameter of the TXVECTOR, which contains a value from Table 27-23 (Spatial Reuse field encoding for an HE TB PPDU) for an HE TB PPDU (see  26.11.6 (SPATIAL\_REUSE) and  26.10 (Spatial reuse operation)). |

# CID 1372, 1373

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 1372 | 36.3.11.7.4 | 242.30 | Using U-SIG-1 (for instance) for both the first 26 data bits (e.g. Table 36-22) and the first OFDM symbol (e.g. fig 36-34)is a double abuse of terminology since a) BCC encoding causes the first 26 data bits to smear into the second OFDM symbol), and b) U-SIG-1-R doesn't carry \*new\* data\* bits so logically U-SIG-1-R carries repeated bits not data bits). | \*Don't\* refer to U-SIG-1 or 2 when talking about OFDM symbols; and don't call them parts either, since the "parts" terminology only applies to the data bits. Try "For an ER preamble, the U-SIG field is composed of four OFDM symbols, named, in sequential order, U-SIG-1-U, U-SIG-1-R, U-SIG-2-U and U-SIG-2-R. In the ER preamble, the U-SIG field carries 26+26 data bits or 52+52 BCC encoded bits, where the first 52 BCC encoded bits are repeated across U-SIG-1-U and U-SIG-1-R and the second 52 BCC encoded bits are repeated across U-SIG-2-U and U-SIG-2-R. For each of U\_SIG-1-U and U\_SIG-2-U, the encoded bits shall be interleaved, mapped to a BPSK constellation, and have pilots inserted. For each of U-SIG-1-R and U-SIG-2-R, the encoded bits shall be mapped to a QBPSK constellation without interleaving and have pilots inserted. [In this way U-SIG-1-U and U-SIG-1-R carry with same BCC coded bits but with and without interleaving respectively. Similarly U-SIG-2-U and U-SIG-2-R carry with same BCC coded bits but with and without interleaving respectively.] The constellation mapping of the U-SIG field in an ER preamble is the same as that of the HE-SIG-A field in an HE ER SU PPDU, and is shown in Figure 36-34 (Data subcarrier constellation of U-SIG symbols) [In this figure, add "-U" x4]. 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. BCC encoding, data interleaving, constellation mapping, and pilot insertion follow the steps described in ..." | Revised.  Agree to the comment not to abuse the terms of U-SIG-1 and U-SIG-2. Revise the paragraph to refer to four OFDM symbols of U-SIG as U-SIG-sym-1, U-SIG-sym-2, U-SIG-sym-3 and U-SIG-sym-4.  *Tgbe Editor: Please make changes for CID 1372 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-00-00be-u-sig-comment-resolution-part-4.docx) |
| 1373 | 36.3.11.7.4 | 243.06 | Using U-SIG-1 (for instance) for both the first 26 data bits (e.g. Table 36-22) and the first OFDM symbol (e.g. fig 36-34)is an abuse of terminology since BCC encoding causes the first 26 data bits to smear into the second OFDM symbol) | For EHT MU and TB, change U-SIG-1, U-SIG-2 to U-SIG-1-U and U-SIG-2-U respectively. Define that these are the first and second OFDM symbols of U-SIG in the text above. For ER, change U-SIG-1, U-SIG-2 to U-SIG-1-U and U-SIG-2-U respectively. Define that these are the first and second OFDM symbols of U-SIG in the text above. (U = unrotated) | Revised.  Agree to the comment not to abuse the terms of U-SIG-1 and U-SIG-2. Revise Figure 36-34 to refer to two OFDM symbos of U-SIG (U-SIG-sym-1 and U-SIG-sym-2) of the EHT MU PPDU and EHT TB PPDU, and refer to four OFDM symbols of U-SIG (U-SIG-sym-1, U-SIG-sym-2, U-SIG-sym-3 and U-SIG-sym-4) of the ER preamble. Also define U-SIG-sym-1 and U-SIG-sym-2 in the paragraph P241L26-L38.  *Tgbe Editor: Please make changes for CID 1373 as shown in the following document*  [*https://mentor.ieee.org/802.11/dcn/21/11-21-0495-03-00be-u-sig-comment-resolution-part-4.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-0495-00-00be-u-sig-comment-resolution-part-4.docx) |

***Instructions to the editor:***

**Please make the highlighted changes to P241L26-L38 as shown below:**

For an EHT MU PPDU and EHT TB PPDU, the U-SIG field is composed of two parts, U-SIG-1 and U-SIG-2, each containing 26 data bits. U-SIG-1 is transmitted before U-SIG-2. The data bits of the U-SIG OFDM symbols shall be BCC encoded at rate, R = 1 / 2 , interleaved, mapped to a BPSK constellation, and have pilots inserted following the steps described in 17.3.5.6 (Convolutional encoder), 27.3.12.8 (BCC interleavers), 17.3.5.8 (Subcarrier modulation mapping), and 17.3.5.9 (Pilot subcarriers), respectively. This process happens on a per-80 MHz subblock basis as U-SIG field may have different contents in different 80 MHz subblocks, while always having identical content in every 20 MHz subchannel of a given 80 MHz subblock. For every 80 MHz subblock in the EHT PPDU, the first and second half of the stream of 104 complex numbers generated by these steps (before pilot insertion) is divided into two groups of 52 complex numbers, where respectively, the first 52 complex numbers form the first OFDM symbol of U-SIG (denoted as U-SIG-sym-1) and the second 52 complex numbers form the second OFDM symbol of U-SIG (denoted as U-SIG-sym-2).

***Instructions to the editor:***

**Please make the changes to P242L29-P243L2 as shown below:**

For an ER preamble, the U-SIG field is composed of two parts, U-SIG-1 and U-SIG-2, each containing 26 data bits. U-SIG-1 is transmitted before U-SIG-2. The data bits of U-SIG-1 and U-SIG-2 shall be BCC encoded at rate R = 1 / 2 to form total 104 coded bits, interleaved, mapped to a BPSK constellation, and have pilots inserted following the steps described in 17.3.5.6 (Convolutional encoder), 27.3.12.8 (BCC interleavers), 17.3.5.8 (Subcarrier modulation mapping), and 17.3.5.9 (Pilot subcarriers), respectively. This process happens on a per-80 MHz subblock basis as U-SIG field may have different contents in different 80 MHz subblocks, while always having identical content in every 20 MHz subchannel of a given 80 MHz subblock. The following modulation process for the four symbols of U-SIG in an ER preamble is applicable to every 80MHz sub-block in the ER preamble. The first and second half of the stream of 104 complex numbers generated by these steps (before pilot insertion) is divided into two groups of 52 complex numbers, where respectively, the first 52 complex numbers form the first OFDM symbol of U-SIG (denoted as U-SIG-sym-1) and the second 52 complex numbers form the thrid OFDM symbol of U-SIG (denoted as U-SIG-sym-3) for the ER preamble. The first 52 encoded bits shall be mapped to a QBPSK constellation without interleaving and have pilots inserted following the steps described in 17.3.5.8 (Subcarrier modulation mapping) and 17.3.5.9 (Pilot subcarriers), respectively, to form the second OFDM symbol of U-SIG (denoted as U-SIG-sym-2) for the ER preamble. The second 52 encoded bits shall be mapped to a BPSK constellation without interleaving and have pilots inserted following the steps described in 17.3.5.8 (Subcarrier modulation mapping) and 17.3.5.9 (Pilot subcarriers), respectively, to form the fourth OFDM symbol of U-SIG (denoted as U-SIG-sym-4) for the ER preamble. The constellation mapping of the U-SIG field in an ER preamble is the same as that of the HE-SIG-A field in an HE ER SU PPDU, and is shown in Figure 36-34 (Data subcarrier constellation of U- SIG symbols). The QBPSK constellation on the data subcarriers in U-SIG-sym-2 is used to differentiate an ER preamble from an EHT MU PPDU and an EHT TB PPDU.

***Instructions to the editor:***

**Please make the changes to Figure 36-34 as shown below:**



**Figure 36-34—Data subcarrier constellation of U-SIG symbols**