IEEE P802.11
Wireless LANs

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| CC36 Comment Resolution on U-SIG Part 3 |
| Date: 2022-01-12 |
| Author(s): |
| Name | Affiliation | Address | Phone | email |
| Alice Chen | Qualcomm |  |  | alicel@qti.qualcomm.com |
| Sameer Vermani | Qualcomm |  |  | svverman@qti.qualcomm.com |
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Abstract

This submission proposes resolutions for the following comments from the CC36 on P802.11be D1.0: Some comments in 36.3.12.7.2 U-SIG.

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 4595, 4944, 4945, 5408, 6434, 6435, 7199, 7200, 7345, 7999, 8000, 8001, 8002, 8003, 8004, 8005.

R1: Updated page and line reference according to the latest 802.11be spec draft D1.4.

# CID 4595, 4944, 4945, 5408, 7999, 8000, 8001

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 7999 | 36.3.12.7.2 | 409.02 | Add the word "also" | Change"EHT defines an ER"to"EHT also defines an ER" | Accepted.Note to editor: This is in P557L11 in 802.11be spec draft D1.4. |
| 4944 | 36.3.12.7.2 | 409.02 | "For forward compatibility, EHT defines an ER preamble while not defining an ER PPDU". EHT has not defined an ER preamble. It has only defined the U-SIG of ER preamble. | define the entire ER preamble | Revised.The entire ER preamble was not defined. Only the U-SIG structure (not even the contents) of an ER preamble was defined for futureproof in R1. Therefore, change “an ER preamble” to “the U-SIG field of an ER preamble.”Note to editor: This is in P557L11 in 802.11be spec draft D1.4. Change “an ER preamble” to “the U-SIG field of an ER preamble.”*Tgbe Editor: Please make changes for CID 4944 as shown in the following document*[*https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx) |
| 4945 | 36.3.12.7.2 | 409.03 | "An EHT 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 introduced in IEEE 802.11 PHY clauses that are defined for 2.4, 5, and 6 GHz spectrum from Clause 36 (Extremely high throughput (EHT) PHY specification) onwards." Without a specific definition of all the fields preceeding the U-SIG of an ER preamble, this requirement is impossible. | define the entire ER preamble | Rejected.The entire ER preamble was not defined. Only the U-SIG structure (not even the contents) of an ER preamble was defined for futureproof in R1. Since it’s been made clear in this sentence that it’s “the U-SIG of an ER preamble,” no change is needed. |
| 5408 | 36.3.12.7.2 | 409.02 | Per Motion 137, #SP292, 802.11be supports to define ER preamble but not ER PPDU in R1. The sentence "EHT defiens an ER preamble while not defining an ER PPDU" should be conditioned on in R1. | Change to "EHT defines an ER preamble while not defining an ER PPDU for an EHT STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true." | Accepted.Note to editor: This is in P557L11 in 802.11be spec draft D1.4. |
| 4595 | 36.3.12.7.2 | 409.03 | "For forward compatibility, EHT defines an ER preamble while not defining an ER PPDU. An EHT 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 introduced in IEEE 802.11 PHY clauses that are defined for 2.4, 5, and 6 GHz spectrum from Clause 36 (Extremely high throughput (EHT) PHY specification) onwards. Regardless of the value of the PHY Version Identifier field in U-SIG, an EHT STA with dot11EHTBaseLineFeaturesImplementedOnly ..." is not future proofed in the sense that all EHT 11beR1 STAs and all future STAs are expected to respect that preamble. | Change dot11EHTBaseLineFeaturesImplementedOnly to dot11EHTOptionImplemented 2x in this paragraph. If R2 wants to add something stronger, they can, but by default (or by omission) R2 shouldn't be allowed to do something weaker. | Revised.All EHT STAs should be able to decode and interprent the version independent fields in U-SIG field of an ER preamble, and defer accordingly. Therefore, the two instances of the phrase “with dot11EHTBaseLineFeaturesImplementedOnly equal to true” are deleted. We could revise the sentence if any changes in R2.*Tgbe Editor: Please make changes for CID 4595 as shown in the following document*[*https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx) |
| 8000 | 36.3.12.7.2 | 409.03 | All EHT STAs should be able decode ER preamble. | Change"An EHT STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true shall be able to decode"to"An EHT STA shall be able to decode" | Accepted.Note to editor: This is same resolution to CID 4595. No change is needed. |
| 8001 | 36.3.12.7.2 | 409.08 | All EHT STAs shall be able to defer for the correct duration. | Delete "with dot11EHTBaseLineFeaturesImplementedOnly equal to true" | Accepted.Note to editor: This is same resolution to CID 4595. No change is needed. |

***Instructions to the editor:***

**Please make the changes to P557L10-L22 in 802.11be spec draft D1.4 (original P409L1-L12 in 802.11be spec draft D1.0) as shown below for CID 4595, 4944, 7999, 8000, 8001:**

(#1349)(#1351)(#2791)(#2802)(#3182)(#2702)The length of the U-SIG field for EHT MU PPDU and EHT TB PPDU is two OFDM symbols. For forward compatibility, EHT also defines the U-SIG field of an ER preamble while not defining an ER PPDU for an EHT STA with dot11EHTBaseLineFeaturesImplementedOnly equal to true. An EHT STA shall be able to decode and interpret the version independent content in the U-SIG field(#5657) of an ER preamble that may be introduced in IEEE 802.11 PHY clauses that are defined for 2.4, 5, and 6 GHz spectrum from Clause 36 (Extremely high throughput (EHT) PHY specification) onwards. Regardless of the value of the PHY Version Identifier field in U-SIG field(#5657), an EHT STA shall defer for the duration of the PPDU as defined in 36.3.22 (EHT receive procedure), report the information from the version independent fields within the RXVECTOR, and terminate the reception of the PPDU. The length of the U-SIG field for an ER preamble is four OFDM symbols.

# CID 7199, 7200, 7345, 8002, 8003, 8004

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 8002 | 36.3.12.7.2 | 409.16 | All EHT STAs shall set the Disregard and Validate fields to the defined value.If R2 decides to ‘use’ some of the Disregard/Validate fields, then R2 will have to change the name of the field which will no longer be Disregard/Validate for R2.So, even in R2, STAs will be required set the Disregard and Validate fields to the defined value. | Change“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.”to“An EHT STA shall set the Disregard fields and Validate fields in accordance with the requirements specified in this subclause.NOTE – Some of the Disregard or Validate fields might be redefined for EHT STAs with dot11EHTBaseLineFeaturesImplementedOnly equal to false.” | Revised.Agree to the comment. Make corresponding change and put the NOTE after the entire paragraph.Note to editor: This is P557L25 in 802.11be spec draft D1.4. Make the proposed change in the sentence, and the NOTE is after the entire paragraph.*Tgbe Editor: Please make changes for CID 8002 as shown in the following document*[*https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx) |
| 7199 | 36.3.12.7.2 | 409.23 | “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”. This sounds strange. If the Validate bit has the correct value, processing should continue. What is meant here? | Clarify | Revised.The confusion of the commentor may come from the writing of the sentence. There are two different things: a Validate field, or unused states of a field (not a Validate/Disregard field) defined as Validate. If one Validate field is set to the default value, it does not trigger the termination of reception of the PPDU. But if at least one Validate field has the incorrect value (which is not the default value), it triggers the termination of reception of the PPDU.Similarly, some fields in the EHT preamble have certain unused states are defined as Validate. A “value that is identified as Validate” means it is an unused state for the field, i.e., not one of the meaningful values for that field. We define such states to be Validate so that it triggers termination of reception of the PPDU. If one such field equals a value that is not identified as Validate for the STA, e.g., PHY Version Identifier subfield equals 0 (meaning EHT), it does not trigger the termination of reception of the PPDU. But if at least one such field equals a value that is identified as Validate for the STA, e.g., the Bandwidth subfield equals 6 for an EHT STA, it triggers termination of reception of the PPDU.For clarity, we change “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” to “If an EHT STA encounters a PPDU where at least one Validate field in the preamble is not set to the value specified in Clause 36, or at least one field in the EHT preamble equals a value that is identified as Validate for the STA.”*Tgbe Editor: Please make changes for CID 7199 as shown in the following document*[*https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx) |
| 7345 | 36.3.12.7 | 411.11 | It is not clear how the Validate is upposed to work. In Table 36-28, U-SIG-1 B25 is a Validate bit. Therefore according to the text at P409L21 "If an EHT STA encounters a PPDU where <cut> at least one field in the EHT preamble equals a value that is identified as Validate for the STA", the PPDU should be terminated. Therefore since B25 is defined as a Validate bit, every PPDU will be terminated. This does not appear to make sense, unless there is a missing NOT from the cited text on P409L21. | Change the text at P409L22 from "...or at least one field in the EHT preamble equals a value that is identified as Validate for the STA" to "or at least one field in the EHT preamble that does not equal a value that is identified as Validate for the STA". | Revised.The confusion of the commentor may come from the writing of the sentence. There are two different things: a Validate field, or unused states of a field (not a Validate/Disregard field) defined as Validate. If one Validate field is set to the default value, it does not trigger the termination of reception of the PPDU. But if at least one Validate field has the incorrect value (which is not the default value), it triggers the termination of reception of the PPDU.Similarly, some fields in the EHT preamble have certain unused states are defined as Validate. A “value that is identified as Validate” means it is an unused state for the field, i.e., not one of the meaningful values for that field. We define such states to be Validate so that it triggers termination of reception of the PPDU. If one such field equals a value that is not identified as Validate for the STA, e.g., PHY Version Identifier subfield equals 0 (meaning EHT), it does not trigger the termination of reception of the PPDU. But if at least one such field equals a value that is identified as Validate for the STA, e.g., the Bandwidth subfield equals 6 for an EHT STA, it triggers termination of reception of the PPDU.For clarity, we change “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” to “If an EHT STA encounters a PPDU where at least one Validate field in the preamble is not set to the value specified in Clause 36, or at least one field in the EHT preamble equals a value that is identified as Validate for the STA.”Note to editor: This CID 7345 has same resolution to CID 7199. No additional change is needed. |
| 8003 | 36.3.12.7.2 | 409.25 | "defer for the duration of the PPDU, ... terminate the reception of the PPDU" seems contradictory to each other. | Change"STA shall defer for the duration of the PPDU as defined in 36.3.22, report the information from the version independent fields within the RXVECTOR, and terminate the reception of the PPDU."to"STA shall defer for the duration of the PPDU as defined in 36.3.22 and report the information from the version independent fields within the RXVECTOR." | Accepted.Note to editor: This is in P557L36 in 802.11be spec draft D1.4. |
| 8004 | 36.3.12.7.2 | 409.26 | Suggesting a different wording. | "If an EHT STA sees any of the fields identified as Disregard for the STA set to a value that is differentfrom its specified value in this subclause or field values of any field in the EHT preamble as being setto a value identified as Disregard for the STA in this subclause,it shall ignore these field values and they will have no impact on STA's continued reception of the PPDU(i.e., reception at the STA can continue as usual)."to"An EHT STA shall ignore (i.e., do not check) the value of the Disregard fields when receiving the U-SIG and EHT-SIG.I.e., an EHT STA shall continue with its RX procedure as if the Disregard field value matched that specified in Clause 36 even if the value does not actually match." | Rejected.The proposed alternatively text does not add additional information. The text is better kept as is. |
| 7200 | 36.3.12.7.2 | 409.26 | "report the information from the version independent fields within the RXVECTOR". Add "other fields in RXVECTOR are reserved" | See comment | Rejected.The receive procedure subclause 36.3.22 does not explicitly mention other fields. The text is better kept as is until there is corresponding text in the receive procedure subclause.  |

***Instructions to the editor:***

**Please make the changes to P557L24-L43 in 802.11be spec draft D1.4 (original P409L14-L34 in 802.11be spec draft D1.0) as shown below for CID 7199, 7345, 8002, 8003:**

(#2704)(#2175)(#1353)(#1355)(#1969)(#1352)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 shall set the Disregard fields and Validate fields in accordance with the requirements specified in this subclause. 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 Validate field in the preamble is not set to the value specified in Clause 36, 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 36.3.22 (EHT receive procedure) and report the information from the version independent fields within the RXVECTOR. If an EHT STA sees any of the fields identified as Disregard for the STA set to a value that is different from its specified value in this subclause 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 (#4642)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, (#3174)refer to 36.3.22 (EHT receive procedure).

NOTE - Some of the Disregard or Validate fields might be redefined for EHT STAs with dot11EHTBaseLineFeaturesImplementedOnly equal to false.

# CID 6434, 6435, 8005

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| **CID** | **Clause** | **Page.Line** | **Comment** | **Proposed Change** | **Resolution** |
| 6434 | 36.3.12.7 | 409.40 | For consistency, add "frequency" between "80 MHz" and "subblock". | As in comment | Accepted.Note to editor: This is in P557L50 in 802.11be spec draft D1.4. Ditto the following locations in 802.11be spec draft D1.4: P557L50 (the second location of this phrase), P560L28/37, P561L17, P570L56 (two locations)/57/58.  |
| 6435 | 36.3.12.7 | 409.41 | For consistency, add "frequency" between "80 MHz" and "subblocks". | As in comment | Accepted.Note to editor: This is in P557L50 (the second location of the phrase) in 802.11be spec draft D1.4. This CID has same resolution to CID 6434 (which includes other locations in the spec draft). |
| 8005 | 36.3.12.7.2 | 409.42 | U-SIG content can be different different 80 MHz subblocks only in DL OFDMA. | Add the following text at P409L42:"NOTE 1 - An EHT MU PPDU with TXVECTOR parameter EHT\_PPDU\_TYPE equal to 1 or 2 has the same U-SIG content for all nonpunctured 20 MHz subchannels for all PPDU bandwidths.NOTE 2 - An EHT TB PPDU has the same U-SIG content for all nonpunctured 20 MHz subchannels for all PPDU bandwidths.NOTE 3 - Only the Punctured Channel Information field might have different value between different 80 MHz subblocks in an EHT MU PPDU with TXVECTOR parameter EHT\_PPDU\_TYPE equal to 0." | Revised.Accept the idea of the proposed change. Since clarification of U-SIG contents can be different for different 80MHz has been resolved to split the cases of EHT MU PPDU and EHT TB PPDU in CID 4692, in the resolution to this CID 8005, we only remove NOTE 2 in the proposed change.Note to editor: This is in P557L55 in 802.11be spec draft D1.4.*Tgbe Editor: Please make changes for CID 8005 as shown in the following document*[*https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx*](https://mentor.ieee.org/802.11/dcn/21/11-21-1165-01-00be-cc36-comment-resolution-on-u-sig-part-3.docx) |

***Instructions to the editor:***

**Please make the changes to P557L45-L55 in 802.11be spec draft D1.4 (original P409L36-L42 in 802.11be spec draft D1.0) as shown below for CID 6434, 6435, 8005:**

(#1371)For a 40 MHz EHT PPDU or ER preamble, the U-SIG field(#5657) content shall be identical in both 20 MHz subchannels. For an 80 MHz EHT PPDU or ER preamble, the U-SIG field(#5657) content shall be identical in all nonpunctured 20 MHz subchannels. (#4692)For a 160/320 MHz EHT MU PPDU or ER preamble, the U-SIG field(#5657) content shall be identical in all nonpunctured 20 MHz subchannels within each 80 MHz frequency subblock, and the U-SIG field(#5657) content in different 80 MHz frequency subblocks may be different. (#4692)For a 160/320 MHz EHT TB PPDU, the U-SIG content shall be identical in all nonpunctured 20 MHz subchannels within the PPDU bandwidth if dot11EHTBaseLineFeaturesImplementedOnly is equal to true.

NOTE 1 - An EHT MU PPDU with TXVECTOR parameter EHT\_PPDU\_TYPE equal to 1 or 2 has the same U-SIG content for all nonpunctured 20 MHz subchannels for all PPDU bandwidths.

NOTE 2 - Only the Punctured Channel Information field might have different values between different 80 MHz frequency subblocks in an EHT MU PPDU with TXVECTOR parameter EHT\_PPDU\_TYPE equal to 0.