IEEE P802.11  
Wireless LANs

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| PDT-EHT-preamble-EHT-SIG-Draft | | | | |
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Abstract

This document contains proposed draft text for EHT-preamble-EHT-SIG.

R0: initial version

R1: modified based on the comments received during the presentation

R2: add clarification on EHT-SIG content channels (green)

R3: resolve Ron’s comments in email (blue)

34.3.10.7 EHT-SIG

34.3.10.7.1 General

The EHT-SIG field provides the necessary signaling in addition to U-SIG for the STAs to interpretate the EHT PPDU. For OFDMA, EHT-SIG contains signaling allowing the STAs to understand the corresponding resources to be used in the EHT modulated fields of the PPDU. The integer fields of the EHT-SIG field are transmitted in unsigned binary format, LSB first, where the LSB is in the lowest numbered bit position.

Dynamic split is defined as the split of User fields across EHT-SIG content channels according to TBD.

34.3.10.7.2 EHT-SIG content channels

The EHT-SIG field of a 20 MHz EHT MU PPDU contains one EHT-SIG content channel. The EHT-SIG field of an EHT MU PPDU that is 40 MHz or wider contains two EHT-SIG content channels. The EHT-SIG content channels per 80MHz is allowed to carry the different information when EHT MU PPDU is wider than 80MHz.

The EHT-SIG content channel format is shown in Figure 34-x (EHT-SIG content channel format). The EHT-SIG content channel consists of a Common field followed by a User Specific field. The configuration of the **Common field** regarding the postion and number of CRC and Tail subfields is TBD.

|  |
| --- |
| Figure 34-x EHT-SIG content channel format |

The Common field of an EHT-SIG content channel contains information regarding the resource unit allocation such as the RU assignment to be used in the EHT modulated fields of the PPDU, the RUs allocated for MU-MIMO and the number of users in MU-MIMO allocations. The Common field is defined in 34.3.10.7.3 (Common field). The configuration of the **Common field** regarding the postion and number of CRC andTail subfields is TBD.

The union of the User Specific fields in the EHT-SIG content channels contains information for all users in the PPDU on how to decode their payload. As shown in Figure 34-x (EHT-SIG content channel format), the User Specific field is organized into User Block fields that in turn contain User fields. See 34.3.10.7.4 (User Specific field) for a description of the contents of the User Specific field. If there is only one user, the final User Block field is also the 1st User Block field.

34.3.10.7.3 Common field

The Common field for non-compressed mode format is defined in Table 34-xx1 (Common field for non-compressed mode). The configuration of the **Common field** regarding the postion and number of CRC and **Tail** subfields is TBD.

|  |  |  |  |
| --- | --- | --- | --- |
| Table 34-xx1 Common field for non-compressed mode | | | |
| Subfield | Number of subfields | Number of bits per subfield | Description |
| TBD | *1* | TBD | Carries version dependent information that is overflowed from U-SIG field. The contents are TBD. |
| RU Allocation | *N* | TBD | *N* RU Allocation subfields are present in an EHT-SIG content channel, where:  *N*= 1 if the Bandwidth field in the U-SIG field is TBD1 (indicating a 20 MHz or 40 MHz EHT MU PPDU)  *N*= 2 if the Bandwidth field in the U-SIG field is TBD2 (indicating an 80 MHz EHT MU PPDU)  *N* = 4 if the Bandwidth field in the U-SIG field is TBD3 (indicates a 160 MHz or 80+80 MHz EHT MU PPDU)  *N*= 8 if the Bandwidth field in the U-SIG field is TBD4 (indicating a 320 MHz or 160+160 MHz EHT MU PPDU)  Each RU Allocation subfield in an EHT-SIG content channel corresponding to a 20 MHz frequency segment indicates the RU assignment, including the size of the RU(s) and their placement in the frequency domain, to be used in the EHT modulated fields of the EHT MU PPDU in the frequency domain, also indicates information needed to compute the number of users allocated to each RU~~, where the subcarrier indices of the RU(s) meet the conditions in Table 34-xx (RUs associated with each RU Allocation subfield for each EHT-SIG content channel and PPDU bandwidth)~~. |
| CRC | TBD | TBD | The CRC is calculated over TBD bits |
| Tail | TBD | 6 | Used to terminate the trellis of the convolutional decoder. Set to 0 |

The following subfields exists in U-SIG and/or EHT-SIG:

* GI+EHT-LTF Size
* LDPC Extra Symbol Segment
* Pre-FEC Padding Factor
* PE Disambiguity
* Preamble Puncturing Pattern Indication
* Number of EHT-LTF symbols



A 4×996 tone RU cannot be indicated by the RU allocation subfield.

A 3×996+484-tone RU is referred to by seven RU Allocation subfields per EHT-SIG content channel, for both EHT-SIG content channels. The seven RU Allocation subfields per EHT-SIG content channel are labeled from the first RU Allocation subfield to the seventh RU Allocation subfield.

A 3×996-tone RU is referred to by six RU Allocation subfields per EHT-SIG content channel, for both EHT-SIG content channels. The six RU Allocation subfields per EHT-SIG content channel are labeled from the first RU Allocation subfield to the sixth RU Allocation subfield.

A 2×996+484-tone RU is referred to by five RU Allocation subfields per EHT-SIG content channel, for both EHT-SIG content channels. The five RU Allocation subfields per EHT-SIG content channel are labeled from the first RU Allocation subfield to the fifth RU Allocation subfield.

A 2×996 tone RU is referred to by four consecutive RU Allocation subfields per EHT-SIG content channel, for both EHT-SIG content channels. The four RU Allocation subfields per EHT-SIG content channel are labeled from the first RU Allocation subfield to the fourth RU Allocation subfield.

A 996+484-tone RU is referred to by three RU Allocation subfields per EHT-SIG content channel, for both EHT-SIG content channels. The three RU Allocation subfields per EHT-SIG content channel are labeled from the first RU Allocation subfield to the third RU Allocation subfield.

A 996-tone RU is referred to by two consecutive RU Allocation subfields per EHT-SIG content channel, for both EHT-SIG content channels. The two consecutive RU Allocation subfields per EHT-SIG content channel are labeled the first RU Allocation subfield and the second RU Allocation subfield.

A 484+242-tone RU by two RU allocation subfields in the EHT-SIG content channel which overlapps with the 242-tone RU and one RU allocation subfield in the other EHT-SIG content channel. The two RU Allocation subfields in the EHT-SIG content channel (with two RU Allocation subfields) are labeled the first RU Allocation subfield and the second RU Allocation subfield.

NOTE—Although there may be two or more RU Allocation subfields per EHT-SIG content channel for the users of a RU size greater than 484 subcarriers, each user is described by only one User field, which is located in one EHT-SIG content channel.

A 484-tone RU is referred to by a single RU Allocation subfield per EHT-SIG content channel, for both EHT-SIG content channels.

Smaller RUs are referred to by a single RU Allocation subfield in a single EHT-SIG content channel.

For an RU that is referred to by a first or only RU Allocation subfield in an EHT-SIG content channel, the RU Allocation subfield encodes the number of User fields per RU contributed to the User Specific field in the same EHT-SIG content channel as the RU Allocation subfield. This number is labeled *Nuser*(*r*, *c*) for RU *r* and EHT-SIG content channel *c* as described in Table 34-xx3 (RU Allocation subfield).

For an RU that is referred to by two or more RU Allocation subfields in an EHT-SIG content channel (e.g., a 996-tone RU in a 160 MHz or 80+80 MHz PPDU), the RU Allocation subfield other than the first one in the EHT-SIG content channel encodes zero additional User fields per RU contributed to the User Specific field in the same EHT-SIG content channel as the RU Allocation subfield.

In an EHT MU PPDU, an RU that is not allocated to a user can be indicated as follows ~~(TBD)~~:

* The RU Allocation subfield in the EHT-SIG Common field is set to TBD1 or TBD2 value (see Table 34-xx3 (RU Allocation subfield)).
* All RU Allocation subfields at the same position in each EHT-SIG Common field of the two EHT-SIG content channels are set to TBD4 or TBD5 value (see Table 34-xx3 (RU Allocation subfield)).
* The STA-ID subfield in the EHT-SIG User field is set to 2046 for samller than 242-tone RU (see Ref XX (STA\_ID) and Ref XX (User Specific field)). Whether STA ID 2046 can be used to indicated unallocated RU for equal or larger than 242-tone RU or not is TBD.

The subcarriers in the EHT modulated fields of a PPDU that correspond to an unallocated RU shall not be modulated.

If an RU is an unallocated RU, zero users are allocated to it. Otherwise, the number of users allocated to RU *r* is determined from the RU size and *Nuser*(*r*, *c*) as follows:

* If RU *r* is a 26-tone or 52-tone RU or 106-tone RU, then one user is allocated to the RU.
* If RU *r* is 242-tone RU, then the number of users allocated to the RU is *Nuser*(*r*, *c*).
* If RU *r* is a 484-tone or larger RU, then the number of users allocated to the RU equals the number of User fields for the RU summed across both EHT-SIG content channels, i.e., *Nuser*(*r*, 1) + *Nuser*(*r*, 2).

NOTE 1—The exact dynamic split of User fields between the two content channels, *Nuser*(*r*, 1) and *Nuser*(*r*, 2), is not specified and might be used to reduce any disparity in the number of User fields between content channels.

NOTE 2—If the number of users per RU is greater than one, then the users in the RU are multiplexed using MU-MIMO.

~~For a 996-tone RU, for each EHT-SIG content channel, the first 8-bit RU Allocation subfield referring to the RU may use values in the range 208–215 (11010y~~~~2~~~~y~~~~1~~~~y~~~~0~~ ~~in binary representation) as in Table 27-26 (RU Allocation subfield) with y~~~~2~~~~y~~~~1~~~~y~~~~0~~ ~~indicating the number of User fields signaled in the corresponding content channel, while the second 8-bit RU Allocation subfield referring to the RU shall be set to 115 (01110011 in binary representation).~~

~~As defined in Table 27-24 (Common field) and Table 27-25 (RUs associated with each RU Allocation subfield for each HE-SIG-B content channel and PPDU bandwidth), the Center 26-tone RU field carries the same value in both HE-SIG-B content channels. The User field that corresponds to the center 26-tone RU is carried in HE-SIG-B content channel 1.~~

|  |  |  |
| --- | --- | --- |
| * ~~RUs associated with each RU Allocation subfield for each HE-SIG-B content channel and PPDU bandwidth~~ | | |
| ~~PPDU bandwidth~~ | ~~RU Allocation subfield and Center 26-tone RU subfield (if present)~~ | ~~RUs in the subcarrier range, or overlapping with the subcarrier range if the RU is larger than a 242-tone RU~~ |
| ~~20 MHz~~ | ~~The RU Allocation subfield in a single HE-SIG-B content channel~~ | ~~[–122:122]~~ |
| ~~40 MHz~~ | ~~The RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[–244:–3]~~ |
| ~~The RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[3:244]~~ |
| ~~80 MHz~~ | ~~The first RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[–500:–259]~~ |
| ~~The first RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[–258:–17]~~ |
| ~~Center 26-tone RU subfield in HE-SIG-B content channel 1 and 2~~ | ~~[–16:–4, 4:16]~~ |
| ~~The second RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[17:258]~~ |
| ~~The second RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[259:500]~~ |
| ~~160 MHz or 80+80 MHz~~ | ~~The first RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[–1012:–771]~~ |
| ~~The first RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[–770:–529]~~ |
| ~~Center 26-tone RU subfield for lower frequency 80 MHz in HE-SIG-B content channel 1~~ | ~~[–528:–516, –508:–496]~~ |
| ~~The second RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[–495:–254]~~ |
| ~~The second RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[–253:–12]~~ |
| ~~The third RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[12:253]~~ |
| ~~The third RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[254:495]~~ |
| ~~Center 26-tone RU subfield for higher frequency 80 MHz in HE-SIG-B content channel 2~~ | ~~[496:508, 516:528]~~ |
| ~~The fourth RU Allocation subfield in HE-SIG-B content channel 1~~ | ~~[529:770]~~ |
| ~~The fourth RU Allocation subfield in HE-SIG-B content channel 2~~ | ~~[771:1012]~~ |

The RU Allocation subfield in the EHT-SIG field of an EHT-PPDU sent to multiple users includes the RU allocation for Multiple RUs as well as Single RU. The mapping from the TBD-bit RU Allocation subfield to the RU assignment and the number of User fields per RU contributed to the User Specific field in the same EHT-SIG content channel as the RU Allocation subfield is defined in the Table 34-xx3 (RU Allocation subfield). The RU allocation subfield includes large size of RU aggregation for OFDMA transmission as follows:

* For 80 MHz
  + 484 + 242
* For 160 MHz
  + 484 + 996
* For 320 MHz
  + 3x996
  + 2x996+484
  + 3x996+484
* Other cases are TBD.

The indications for large Multiple RUs are TBD. Other entries TBD. Not all the 106+26-tone and 52+26 tone MRU are applicable when PPDU BW is greater than or equal to 80 MHz. Please refer to Ref XX for the applicable modes.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Table 34-xx3 RU Allocation subfield | | | | | | | | | | | | | |
| **order** | **#1** | | **#2** | | **#3** | **#4** | **#5** | **#6** | **#7** | | **#8** | **#9** | **Number of entries** | |
| TBD | 26 | | 26 | | 26 | 26 | 26 | 26 | 26 | | 26 | 26 | 1 | |
| TBD | 26 | | 26 | | 26 | 26 | 26 | 26 | 26 | | 52 | | 1 | |
| TBD | 26 | | 26 | | 26 | 26 | 26 | 52 | | | 26 | 26 | 1 | |
| TBD | 26 | | 26 | | 26 | 26 | 26 | 52 | | | 52 | | 1 | |
| TBD | 26 | | 26 | | 52 | | 26 | 26 | 26 | | 26 | 26 | 1 | |
| TBD | 26 | | 26 | | 52 | | 26 | 26 | 26 | | 52 | | 1 | |
| TBD | 26 | | 26 | | 52 | | 26 | 52 | | | 26 | 26 | 1 | |
| TBD | 26 | | 26 | | 52 | | 26 | 52 | | | 52 | | 1 | |
| TBD | 52 | | | | 26 | 26 | 26 | 26 | 26 | | 26 | 26 | 1 | |
| TBD | 52 | | | | 26 | 26 | 26 | 26 | 26 | | 52 | | 1 | |
| TBD | 52 | | | | 26 | 26 | 26 | 52 | | | 26 | 26 | 1 | |
| TBD | 52 | | | | 26 | 26 | 26 | 52 | | | 52 | | 1 | |
| TBD | 52 | | | | 52 | | 26 | 26 | 26 | | 26 | 26 | 1 | |
| TBD | | 52 | | | 52 | | 26 | 26 | 26 | | 52 | | 1 | |
| TBD | | 52 | | | 52 | | 26 | 52 | | | 26 | 26 | 1 | |
| TBD | | 52 | | | 52 | | 26 | 52 | | | 52 | | 1 | |
| TBD | | 26 | | 26 | 26 | 26 | 26 | 106 | | | | | 1 | |
| TBD | | 26 | | 26 | 52 | | 26 | 106 | | | | | 1 | |
| TBD | | 52 | | | 26 | 26 | 26 | 106 | | | | | 1 | |
| TBD | | 52 | | | 52 | | 26 | 106 | | | | | 1 | |
| TBD | | 106 | | | | | 26 | 26 | 26 | | 26 | 26 | 1 | |
| TBD | | 106 | | | | | 26 | 26 | 26 | | 52 | | 1 | |
| TBD | | 106 | | | | | 26 | 52 | | | 26 | 26 | 1 | |
| TBD | | 106 | | | | | 26 | 52 | | | 52 | | 1 | |
| TBD | | 52 | | | 52 | | -- | 52 | | | 52 | | 1 | |
| TBD1 | | Punctured 242-tone RU | | | | | | | | | | | 1 | |
| TBD2 | | Unassigned 242-tone RU | | | | | | | | | | | 1 | |
| TBD3 | | 242-tone RU; contributes zero User fields to the User Specific field in the same EHT-SIG content channel as this RU Allocation subfield and is not unallocated | | | | | | | | | | | 1 | |
| TBD4 | | 484-tone RU; contributes zero User fields to the User Specific field in the same EHT-SIG content channel as this RU Allocation subfield and is not unallocated | | | | | | | | | | | 1 | |
| TBD5 | | 996-tone RU; contributes zero User fields to the User Specific field in the same EHT-SIG content channel as this RU Allocation subfield and is not unallocated | | | | | | | | | | | 1 | |
| TBD | | 106 | | | | | 26 | 106 | | | | | 1 | |
| TBD | | 242 | | | | | | | | | | | 8 | |
| TBD | | 484 | | | | | | | | | | | 8 | |
| TBD | | 996 | | | | | | | | | | | 8 | |
| TBD | | 2\*996 | | | | | | | | | | | 8 | |
| TBD | 26 | | | 26 | 26 | 26 | 26 | 52+26 | | | | 26 | 1 | |
| TBD | 26 | | | 26+52 | | | 26 | 26 | 26 | | 26 | 26 | 1 | |
| TBD | 26 | | | 26+52 | | | 26 | 26 | 26 | | 52 | | 1 | |
| TBD | 26 | | | 26+52 | | | 26 | 52 | | | 26 | 26 | 1 | |
| TBD | 26 | | | 26 | 52 | | 26 | 52+26 | | | | 26 | 1 | |
| TBD | 26 | | | 26+52 | | | 26 | 52+26 | | | | 26 | 1 | |
| TBD | 26 | | | 26+52 | | | 26 | 52 | | | 52 | | 1 | |
| TBD | 52 | | | | 26 | 26 | 26 | 52+26 | | | | 26 | 1 | |
| TBD | 52 | | | | 52 | | 26 | 52+26 | | | | 26 | 1 | |
| TBD | 52 | | | | 52+26 | | | 52 | | 52 | | | 1 | |
| TBD | 26 | | 26 | | 26 | 26 | 26+106 | | | | | | 1 | |
| TBD | 26 | | 26+52 | | | | 26 | 106 | | | | | 1 | |
| TBD | 26 | | 26 | | 52 | | 26+106 | | | | | | 1 | |
| TBD | 26 | | 26+52 | | | | 26+106 | | | | | | 1 | |
| TBD | 52 | | | | 26 | 26 | 26+106 | | | | | | 1 | |
| TBD | 52 | | | | 52 | | 26+106 | | | | | | 1 | |
| TBD | 106+26 | | | | | | | 26 | 26 | | 26 | 26 | 1 | |
| TBD | 106+26 | | | | | | | 26 | 26 | | 52 | | 1 | |
| TBD | 106+26 | | | | | | | 52 | | | 26 | 26 | 1 | |
| TBD | 106 | | | | | | 26 | 52+26 | | | | 26 | 1 | |
| TBD | 106+26 | | | | | | | 52+26 | | | | 26 | 1 | |
| TBD | 106+26 | | | | | | | 52 | | | 52 | | 1 | |
| TBD | 106+26 | | | | | | | 106 | | | | | 1 | |
| TBD | 106 | | | | | | 26+106 | | | | | | 1 | |
|  | | | | | | | | | | | | | | |

Note: Punctured RU 242 shall be used when the preamble portion of corresponding 20MHz is punctured.

Note: TBD1-TBD5 are just for reference purposes.

~~If a single RU in a 40 MHz PPDU overlaps the subcarrier ranges [–244:–3] and [3:244], the corresponding RU Allocation subfields in the respective content channels shall both refer to the same RU.~~

~~If a single RU in an 80 MHz PPDU overlaps more than one of the subcarrier ranges [–500:–259], [–258:–17], [17:258] or [259:500], the corresponding RU Allocation subfields in the respective content channels shall all refer to the same RU.~~

~~If a single RU in a 160 MHz or 80+80 MHz PPDU overlaps more than one of the subcarrier ranges [–1012:–771], [–770:–529], [–495:–254], [–253:–12], [12:253], [254:495], [529:770] or [771:1012], the corresponding RU Allocation subfields in the respective content channels shall all refer to the same RU.~~

In Table 34-xx3 (RU Allocation subfield), the number of entries column refers to the number of RU Allocation subfield values that refer to the same RU assignment to be used in the frequency domain but differ in the number of User fields per RU. The number of User fields per RU indicated by the RU Allocation subfields of an EHT-SIG content channel indicate the number of User fields in the User Specific field of the EHT-SIG content channel.

For an MU-MIMO allocation of RU size greater than 242 subcarriers, the dynamic split of User fields between EHT-SIG content channel 1 and EHT-SIG content channel 2 per 80MHz is decided by the AP (on a per case basis) and signaled by the AP using the RU Allocation subfields in each EHT-SIG content channel. See Annex TBD for examples.

The pre-HE modulated fields (see Figure Ref XX (Timing boundaries for EHT PPDU fields if midamble is not present)) are not transmitted in 20 MHz subchannels in which the preamble is punctured.

~~If the Bandwidth field in the HE-SIG-A field of an HE MU PPDU is 4, 5, 6 or 7, then one or more 20 MHz subchannels of the preamble are punctured, as defined in Table 27-20 (HE-SIG-A field of an HE MU PPDU). If two adjacent 20 MHz subchannels that comprise a 40 MHz subchannel in which a 484-tone RU is located are punctured, then B7–B0 of the RU Allocation subfields corresponding to the two 20 MHz subchannels shall both be set to 113 (242-tone RU is empty) or shall both be set to 114 (see Table 27-26 (RU Allocation subfield)) to indicate that the preamble is punctured in both the 20 MHz subchannels. Each punctured 20 MHz subchannel that does not have B7–B0 of its corresponding RU Allocation subfield set to 114 shall have B7–B0 of its RU Allocation subfield set to 113.~~

The Common field for compressed mode format is defined in Table 34-xx3 (Common field). The configuration of the common field regarding the postion and number of CRC and tail subfields is TBD.

|  |  |  |  |
| --- | --- | --- | --- |
| Table 34-xx3 Common field for compressed mode | | | |
| Subfield | Number of subfields | Number of bits per subfield | Description |
| TBD | *1* | TBD | Carries version dependent information that is overflowed from U-SIG field. |
| Number of non-OFDMA users | *1* | 3 | Indicates the number of non-OFDMA users.  Set to n to indicate n+1 non-OFDMA users. |
| CRC | TBD | TBD | The CRC is calculated over TBD bits |
| Tail | TBD | TBD | Used to terminate the trellis of the convolutional decoder. Set to 0 |

34.3.10.7.4 User Specific field

The User Specific field of an EHT-SIG content channel consists of zero or more User Block fields followed by padding (if present) as shown in Figure 34-x (EHT-SIG- content channel format). Each non-final User Block field is made up of two User fields that contain information for two STAs that is used to decode their payloads. The final User Block field contains information for one or two users depending on the number of users in the EHT-SIG content channel. If the non-compressed mode is used, then the number of User fields is indicated by the RU Allocation subfields

The User Block field is defined in Table 34-x0 (User Block field).

|  |  |  |  |
| --- | --- | --- | --- |
| Table 34-x0 User Block field | | | |
| Field | Number of fields | Number of bits per field | Description |
| User field | *N* | TBD | *N* User fields are present, where:  *N*= 1 if it is the final User Block field, and if there is only one user in the final User Block field.  *N*= 2 otherwise.  The User field format for a non-MU-MIMO allocation is defined in Table 34-x1 (User field format for a non-MU-MIMO allocation). The User field format for a MU-MIMO allocation is defined in Table 34-x2 (User field format for a MU-MIMO allocation). |
| *…* | *…* | *…* | *…* |
| CRC | 1 | 4 | The CRC is calculated over bits 0 to TBD for a User Block field that contains one User field, and bits 0 to TBD for a User Block field that contains two User fields. See 34.x.x (CRC computation). |
| Tail | 1 | 6 | Used to terminate the trellis of the convolutional decoder. Set to 0. |

The contents of the User field differ depending on whether the field addresses a user in a non-MU-MIMO allocation in an RU or a user in an MU-MIMO allocation in an RU.

The User field format for a non-MU-MIMO allocation is defined in Table 34-x1 (User field format for a non-MU-MIMO allocation).

|  |  |  |  |
| --- | --- | --- | --- |
| Table 34-x1 User field format for a non-MU-MIMO allocation | | | |
| Bit | Subfield | Number of bits | Description |
|  | STA-ID | TBD | Indicate the STA-ID related information |
|  | NSTS | 4 | Indicate the number of space-time streams i.e., 1 to 16 streams and is set to the number of space-time streams minus 1. |
| *…* | *…* | *…* | *…* |

The User field format for an MU-MIMO allocation is defined in Table 34-x2 (User field format for a MU-MIMO allocation).

|  |  |  |  |
| --- | --- | --- | --- |
| Table 34- x2 User field format for a MU-MIMO allocation | | | |
| Bit | Subfield | Number of bits | Description |
|  | STA-ID | TBD | Indicate the STA-ID related information |
|  | Spatial Configuration | 6 | Indicates the number of spatial streams for a user in an MU-MIMO allocation (see Table 34x-x3 (Spatial Configuration subfield encoding)). |
|  |  |  |  |

A User field for an MU-MIMO allocation includes a 6-bit Spatial Configuration subfield that indicates the number of spatial streams for each user and the total number of spatial streams in the MU-MIMO allocation. The subfield shown in Table 34-x3 (Spatial Configuration subfield encoding) is constructed by using the entries corresponding to the value of number of users (*Nuser*) multiplexed using MU-MIMO in an RU.

If the non-compressed mode is used and MU-MIMO is used in RU of size greater than or equal to 242 subcarriers, the number of users(*Nuser*) in MU-MIMO allocation is equal to the number of User fields per RU signaled for the RU in the associated RU allocation subfield of the common field in the same EHT-SIG content channel.

The User field positions within an RU are defined to be logically continuous: the last User field corresponding to an RU in EHT-SIG content channel 1 is immediately followed by the first User field corresponding to the same RU in EHT-SIG content channel 2.

For a given value of *Nuser*, the six bits of the Spatial Configuration subfield are used as follows: A STA with a STA-ID that matches the TBD-bit ID signaled in the User field for an MU-MIMO allocation derives the number of spatial streams allocated to it using the row corresponding to the signaled 6-bit Spatial Configuration subfield and the column corresponding to the User field position in the User Specific field. The starting stream index for the user is computed by summing the *NSTS* in the columns prior to the column indicated by the user’s User field position.

**Table 34-x3 - Spatial Configuration subfield encoding**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Nuser | B5…B0 | Nsts[1] | Nsts[2] | Nsts[3] | Nsts[4] | Nsts[5] | Nsts[6] | Nsts[7] | Nsts[8] | Total Nsts | total entry |
| 2 | 000000-000011 | 1-4 | 1 |  |  |  |  |  |  | 2-5 | 10 |
| 000100-000110 | 2-4 | 2 |  |  |  |  |  |  | 4-6 |
| 000111-001000 | 3-4 | 3 |  |  |  |  |  |  | 6-7 |
| 001001 | 4 | 4 |  |  |  |  |  |  | 8 |
| 3 | 000000-000011 | 1-4 | 1 | 1 |  |  |  |  |  | 3-6 | 20 |
| 000100-000110 | 2-4 | 2 | 1 |  |  |  |  |  | 5-7 |
| 000111-001000 | 3-4 | 3 | 1 |  |  |  |  |  | 7-8 |
| 001001 | 4 | 4 | 1 |  |  |  |  |  | 9 |
| 001010-001100 | 2-4 | 2 | 2 |  |  |  |  |  | 6-8 |
| 001101-001110 | 3-4 | 3 | 2 |  |  |  |  |  | 8-9 |
| 001111 | 4 | 4 | 2 |  |  |  |  |  | 10 |
| 010000-010001 | 3-4 | 3 | 3 |  |  |  |  |  | 9-10 |
| 010010 | 4 | 4 | 3 |  |  |  |  |  | 11 |
| 010011 | 4 | 4 | 4 |  |  |  |  |  | 12 |
| 4 | 000000-000011 | 1-4 | 1 | 1 | 1 |  |  |  |  | 4-7 | 35 |
| 000100-000110 | 2-4 | 2 | 1 | 1 |  |  |  |  | 6-8 |
| 000111-001000 | 3-4 | 3 | 1 | 1 |  |  |  |  | 8-9 |
| 001001 | 4 | 4 | 1 | 1 |  |  |  |  | 10 |
| 001010-001100 | 2-4 | 2 | 2 | 1 |  |  |  |  | 7-9 |
| 001101-001110 | 3-4 | 3 | 2 | 1 |  |  |  |  | 9-10 |
| 001111 | 4 | 4 | 2 | 1 |  |  |  |  | 11 |
| 010000-010001 | 3-4 | 3 | 3 | 1 |  |  |  |  | 10-11 |
| 010010 | 4 | 4 | 3 | 1 |  |  |  |  | 12 |
| 010011 | 4 | 4 | 4 | 1 |  |  |  |  | 13 |
| 010100-010110 | 2-4 | 2 | 2 | 2 |  |  |  |  | 8-10 |
| 010111-011000 | 3-4 | 3 | 2 | 2 |  |  |  |  | 10-11 |
| 011001 | 4 | 4 | 2 | 2 |  |  |  |  | 12 |
| 011010-011011 | 3-4 | 3 | 3 | 2 |  |  |  |  | 11-12 |
| 011100 | 4 | 4 | 3 | 2 |  |  |  |  | 13 |
| 011101 | 4 | 4 | 4 | 2 |  |  |  |  | 14 |
| 011110-011111 | 3-4 | 3 | 3 | 3 |  |  |  |  | 12-13 |
| 100000 | 4 | 4 | 3 | 3 |  |  |  |  | 14 |
| 100001 | 4 | 4 | 4 | 3 |  |  |  |  | 15 |
| 100010 | 4 | 4 | 4 | 4 |  |  |  |  | 16 |
| 5 | 000000-000011 | 1-4 | 1 | 1 | 1 | 1 |  |  |  | 5-8 | 49 |
| 000100-000110 | 2-4 | 2 | 1 | 1 | 1 |  |  |  | 7-9 |
| 000111-001000 | 3-4 | 3 | 1 | 1 | 1 |  |  |  | 9-10 |
| 001001 | 4 | 4 | 1 | 1 | 1 |  |  |  | 11 |
| 001010-001100 | 2-4 | 2 | 2 | 1 | 1 |  |  |  | 8-10 |
| 001101-001110 | 3-4 | 3 | 2 | 1 | 1 |  |  |  | 10-11 |
| 001111 | 4 | 4 | 2 | 1 | 1 |  |  |  | 12 |
| 010000-010001 | 3-4 | 3 | 3 | 1 | 1 |  |  |  | 11-12 |
| 010010 | 4 | 4 | 3 | 1 | 1 |  |  |  | 13 |
| 010011 | 4 | 4 | 4 | 1 | 1 |  |  |  | 14 |
| 010100-010110 | 2-4 | 2 | 2 | 2 | 1 |  |  |  | 9-11 |
| 010111-011000 | 3-4 | 3 | 2 | 2 | 1 |  |  |  | 11-12 |
| 011001 | 4 | 4 | 2 | 2 | 1 |  |  |  | 13 |
| 011010-011011 | 3-4 | 3 | 3 | 2 | 1 |  |  |  | 12-13 |
| 011100 | 4 | 4 | 3 | 2 | 1 |  |  |  | 14 |
| 011101 | 4 | 4 | 4 | 2 | 1 |  |  |  | 15 |
| 011110-011111 | 3-4 | 3 | 3 | 3 | 1 |  |  |  | 13-14 |
| 100000 | 4 | 4 | 3 | 3 | 1 |  |  |  | 15 |
| 100001 | 4 | 4 | 4 | 3 | 1 |  |  |  | 16 |
| 100010-100100 | 2-4 | 2 | 2 | 2 | 2 |  |  |  | 10-12 |
| 100101-100110 | 3-4 | 3 | 2 | 2 | 2 |  |  |  | 12-13 |
| 100111 | 4 | 4 | 2 | 2 | 2 |  |  |  | 14 |
| 101000-101001 | 3-4 | 3 | 3 | 2 | 2 |  |  |  | 13-14 |
| 101010 | 4 | 4 | 3 | 2 | 2 |  |  |  | 15 |
| 101011 | 4 | 4 | 4 | 2 | 2 |  |  |  | 16 |
| 101100-101101 | 3-4 | 3 | 3 | 3 | 2 |  |  |  | 14-15 |
| 101110 | 4 | 4 | 3 | 3 | 2 |  |  |  | 16 |
| 101111-110000 | 3-4 | 3 | 3 | 3 | 3 |  |  |  | 15-16 |
| 6 | 000000-000011 | 1-4 | 1 | 1 | 1 | 1 | 1 |  |  | 6-9 | 54 |
| 000100-000110 | 2-4 | 2 | 1 | 1 | 1 | 1 |  |  | 8-10 |
| 000111-001000 | 3-4 | 3 | 1 | 1 | 1 | 1 |  |  | 10-11 |
| 001001 | 4 | 4 | 1 | 1 | 1 | 1 |  |  | 12 |
| 001010-001100 | 2-4 | 2 | 2 | 1 | 1 | 1 |  |  | 9-11 |
| 001101-001110 | 3-4 | 3 | 2 | 1 | 1 | 1 |  |  | 11-12 |
| 001111 | 4 | 4 | 2 | 1 | 1 | 1 |  |  | 13 |
| 010000-010001 | 3-4 | 3 | 3 | 1 | 1 | 1 |  |  | 12-13 |
| 010010 | 4 | 4 | 3 | 1 | 1 | 1 |  |  | 14 |
| 010011 | 4 | 4 | 4 | 1 | 1 | 1 |  |  | 15 |
| 010100-010110 | 2-4 | 2 | 2 | 2 | 1 | 1 |  |  | 10-12 |
| 010111-011000 | 3-4 | 3 | 2 | 2 | 1 | 1 |  |  | 12-13 |
| 011001 | 4 | 4 | 2 | 2 | 1 | 1 |  |  | 14 |
| 011010-011011 | 3-4 | 3 | 3 | 2 | 1 | 1 |  |  | 13-14 |
| 011100 | 4 | 4 | 3 | 2 | 1 | 1 |  |  | 15 |
| 011101 | 4 | 4 | 4 | 2 | 1 | 1 |  |  | 16 |
| 011110-011111 | 3-4 | 3 | 3 | 3 | 1 | 1 |  |  | 14-15 |
| 100000 | 4 | 4 | 3 | 3 | 1 | 1 |  |  | 16 |
| 100001-100011 | 2-4 | 2 | 2 | 2 | 2 | 1 |  |  | 11-13 |
| 100100-100101 | 3-4 | 3 | 2 | 2 | 2 | 1 |  |  | 13-14 |
| 100110 | 4 | 4 | 2 | 2 | 2 | 1 |  |  | 15 |
| 100111-101000 | 3-4 | 3 | 3 | 2 | 2 | 1 |  |  | 14-15 |
| 101001 | 4 | 4 | 3 | 2 | 2 | 1 |  |  | 16 |
| 101010 - 101011 | 3-4 | 3 | 3 | 3 | 2 | 1 |  |  | 15-16 |
| 101100 | 3 | 3 | 3 | 3 | 3 | 1 |  |  | 16 |
| 101101-101111 | 2-4 | 2 | 2 | 2 | 2 | 2 |  |  | 12-14 |
| 110000-110001 | 3-4 | 3 | 2 | 2 | 2 | 2 |  |  | 14-15 |
| 110010 | 4 | 4 | 2 | 2 | 2 | 2 |  |  | 16 |
| 110011-110100 | 3-4 | 3 | 3 | 2 | 2 | 2 |  |  | 15-16 |
| 110101 | 3 | 3 | 3 | 3 | 2 | 2 |  |  | 16 |
| 7 | 000000-000011 | 1-4 | 1 | 1 | 1 | 1 | 1 | 1 |  | 7-10 | 50 |
| 000100-000110 | 2-4 | 2 | 1 | 1 | 1 | 1 | 1 |  | 9-11 |
| 000111-001000 | 3-4 | 3 | 1 | 1 | 1 | 1 | 1 |  | 11-12 |
| 001001 | 4 | 4 | 1 | 1 | 1 | 1 | 1 |  | 13 |
| 001010-001100 | 2-4 | 2 | 2 | 1 | 1 | 1 | 1 |  | 10-12 |
| 001101-001110 | 3-4 | 3 | 2 | 1 | 1 | 1 | 1 |  | 12-13 |
| 001111 | 4 | 4 | 2 | 1 | 1 | 1 | 1 |  | 14 |
| 010000-010001 | 3-4 | 3 | 3 | 1 | 1 | 1 | 1 |  | 13-14 |
| 010010 | 4 | 4 | 3 | 1 | 1 | 1 | 1 |  | 15 |
| 010011 | 4 | 4 | 4 | 1 | 1 | 1 | 1 |  | 16 |
| 010100-010110 | 2-4 | 2 | 2 | 2 | 1 | 1 | 1 |  | 11-13 |
| 010111-011000 | 3-4 | 3 | 2 | 2 | 1 | 1 | 1 |  | 13-14 |
| 011001 | 4 | 4 | 2 | 2 | 1 | 1 | 1 |  | 15 |
| 011010-011011 | 3-4 | 3 | 3 | 2 | 1 | 1 | 1 |  | 14-15 |
| 011100 | 4 | 4 | 3 | 2 | 1 | 1 | 1 |  | 16 |
| 011101-011110 | 3-4 | 3 | 3 | 3 | 1 | 1 | 1 |  | 15-16 |
| 011111-100001 | 2-4 | 2 | 2 | 2 | 2 | 1 | 1 |  | 12-14 |
| 100010-100011 | 3-4 | 3 | 2 | 2 | 2 | 1 | 1 |  | 14-15 |
| 100100 | 4 | 4 | 2 | 2 | 2 | 1 | 1 |  | 16 |
| 100101-100110 | 3-4 | 3 | 3 | 2 | 2 | 1 | 1 |  | 15-16 |
| 100111 | 3 | 3 | 3 | 3 | 2 | 1 | 1 |  | 16 |
| 101000-101010 | 2-4 | 2 | 2 | 2 | 2 | 2 | 1 |  | 13-15 |
| 101011-101100 | 3-4 | 3 | 2 | 2 | 2 | 2 | 1 |  | 15-16 |
| 101101 | 3 | 3 | 3 | 2 | 2 | 2 | 1 |  | 16 |
| 101110-101111 | 2-4 | 2 | 2 | 2 | 2 | 2 | 2 |  | 14-16 |
| 110000 | 3 | 3 | 2 | 2 | 2 | 2 | 2 |  | 16 |
| 8 | 000000-000011 | 1-4 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 8-12 | 41 |
| 000100-000110 | 2-4 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 10-12 |
| 000111-001000 | 3-4 | 3 | 1 | 1 | 1 | 1 | 1 | 1 | 12-13 |
| 001001 | 4 | 4 | 1 | 1 | 1 | 1 | 1 | 1 | 14 |
| 001010-001100 | 2-4 | 2 | 2 | 1 | 1 | 1 | 1 | 1 | 11-13 |
| 001101-001110 | 3-4 | 3 | 2 | 1 | 1 | 1 | 1 | 1 | 13-14 |
| 001111 | 4 | 4 | 2 | 1 | 1 | 1 | 1 | 1 | 15 |
| 010000-010001 | 3-4 | 3 | 3 | 1 | 1 | 1 | 1 | 1 | 13-14 |
| 010010 | 4 | 4 | 3 | 1 | 1 | 1 | 1 | 1 | 16 |
| 010011-010101 | 2-4 | 2 | 2 | 2 | 1 | 1 | 1 | 1 | 12-14 |
| 010110-010111 | 3-4 | 3 | 2 | 2 | 1 | 1 | 1 | 1 | 14-15 |
| 011000 | 4 | 4 | 2 | 2 | 1 | 1 | 1 | 1 | 16 |
| 011001-011010 | 3-4 | 3 | 3 | 2 | 1 | 1 | 1 | 1 | 15-16 |
| 011011 | 3 | 3 | 3 | 3 | 1 | 1 | 1 | 1 | 16 |
| 011100-011110 | 2-4 | 2 | 2 | 2 | 2 | 1 | 1 | 1 | 13-15 |
| 011111-100000 | 3-4 | 3 | 2 | 2 | 2 | 1 | 1 | 1 | 15-16 |
| 100001 | 3 | 3 | 3 | 2 | 2 | 1 | 1 | 1 | 16 |
| 100010-100100 | 2-4 | 2 | 2 | 2 | 2 | 2 | 1 | 1 | 14-16 |
| 100101 | 3 | 3 | 2 | 2 | 2 | 2 | 1 | 1 | 16 |
| 100110-100111 | 2-3 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 15-16 |
| 101000 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 16 |

The user ordering identified by the column headers *NSTS*[*s*], *s*= 1, 2, 3, … in Table 34-x3 (Spatial Configuration subfield encoding) shall be the same as the user index *u*, *u* = 0, 1, 2, … in Equation (34-xx), i.e., *u* = *s* – 1.

The total number of spatial streams (total *NSTS*) is computed by summing all columns for the row signaled by the Spatial Configuration field and is indicated in Table 34-x3 (Spatial Configuration subfield encoding) under the column Total *NSTS*.

34.3.10.7.5 Encoding and modulation

The Common field of each EHT-SIG content channel shall be BCC encoded at rate *R* = 1/2.

Each User Block field in the User Specific field of each EHT-SIG content channel shall be BCC encoded at rate *R* = 1/2. If the number of User fields in an EHT-SIG content channel is odd, there is a single User field in the final User Block field. CRC and tail bits are added immediately after the last User field in each User Block field. Padding bits are appended immediately after the tail bits corresponding to the final User Block field in each EHT-SIG content channel to round up to the next multiple of number of data bits per EHT-SIG OFDM symbol.

The padding bits may be set to any value. Further padding bits are appended to each EHT-SIG content channel so that the number of OFDM symbols after encoding and modulation in different 20 MHz subchannels is the same. For the Common field and each User Block field, the information bits, tail bits and padding bits (if present) are BCC encoded at rate *R* = 1/2 using the encoder described in 17.3.5.6 (Convolutional encoder). If the coding rate of the EHT-SIG-MCS is not equal to 1/2, the convolutional encoder output bits for each field are concatenated, then the concatenated bit streams are punctured as described in 17.3.5.6 (Convolutional encoder).

The coded bits are interleaved as described in 34.x (BCC interleavers). The interleaved bits are mapped to constellation points from the EHT-SIG-MCS specified in U-SIG and have pilots inserted following the steps described in 17.3.5.8 (Subcarrier modulation mapping) and 17.3.5.9 (Pilot subcarriers), respectively. Each EHT-SIG OFDM symbol shall have 52 data tones.

The guard interval used for each EHT-SIG OFDM symbol shall be 0.8 μs.

The number of OFDM symbols in the EHT-SIG field, denoted NSYM,EHT-SIG, shall be indicated in the Number Of EHT-SIG Symbols field in the U-SIG field of an EHT MU PPDU (see 34.x (Content)).

For EHT-SIG content channel *c* (*c* = 1 to 2) in 80 MHz frequency segment *i80FS*, the complex number assigned to the *k-*th data subcarrier of the *n-*th symbol is denoted . The time domain waveform for the EHT-SIG field, transmitted on frequency segment *iSeg* and transmit chain *iTX*, is given by Equation (34-x).

(34-x)

where

is given in Table 34-x (Number of modulated subcarriers and guard interval duration values for EHT PPDU fields)

is the phase rotation value for EHT-SIG field PAPR reduction. If the EHT-SIG field is modulated with EHT-SIG-MCS TBD (MCS0 with DCM),. For all other modulation schemes,

is defined in 34.x (L-SIG definition)

are defined in 17.3.5.10 (OFDM modulation)

is the number of OFDM symbols in the EHT-SIG field

From Equation (34-x) and 34.3.10.7.2 (EHT-SIG content channels), a 20 MHz PPDU contains one EHT-SIG content channel as shown in Figure 34-x1 (EHT-SIG content channel for a 20 MHz PPDU).



|  |
| --- |
| Figure 34-x1*-* EHT-SIG content channel for a 20 MHz PPDU |

From Equation (34-x) and 34.3.10.7.2 (EHT-SIG content channels), a 40 MHz PPDU contains two EHT-SIG content channels, each occupying a 20 MHz frequency segment as shown in Figure 34-x2 (EHT-SIG content channel for a 40 MHz PPDU). EHT-SIG content channel 1 occupies the 20 MHz subchannel that is lower in frequency. EHT-SIG content channel 2 occupies the 20 MHz subchannel that is upper in frequency.



|  |
| --- |
| Figure 34-x2  EHT-SIG content channel for a 40 MHz PPDU |

From Equation (34-x) and 34.3.10.7.2 (EHT-SIG content channels), an 80 MHz PPDU contains two EHT-SIG content channels each of which is duplicated as shown in Figure 34-x3 (EHT-SIG content channels and their duplication in an 80 MHz PPDU). EHT-SIG content channel 1 occupies the 20 MHz subchannel that is lowest in frequency and is duplicated on the 20 MHz subchannel that is third lowest in frequency. EHT-SIG content channel 2 occupies the 20 MHz subchannel that is second lowest in frequency and is duplicated on the 20 MHz subchannel that is highest in frequency.

|  |
| --- |
|  |
| Figure 34-x3- EHT-SIG content channels and their duplication in an 80 MHz PPDU |

If a single RU or multiple RUs for an allocation in an 80 MHz PPDU overlaps more than one of the subcarrier ranges [–500:–259], [–253:–12], [12:253] or [259:500], the corresponding RU Allocation subfields in the respective content channels shall all refer to the same RU or same multiple RUs.

If the Bandwidth field in the U-SIG field of an EHT MU PPDU (see Table 34-x (U-SIG field of an EHT MU PPDU)) indicates 80 MHz and and preamble is punctured, the mapping of the EHT-SIG content channels to 20 MHz subchannels shall be the same as for an 80 MHz PPDU (see Figure 34-x3 (EHT-SIG content channels and their duplication in an 80 MHz PPDU)), with the exception that punctured 20 MHz subchannels shall be excluded.

From Equation (34-x) and 34.3.10.7.2 (EHT-SIG content channels), a 160 MHz PPDU contains four EHT-SIG content channels each of which are duplicated as shown in Figure 34-x4 (EHT-SIG content channels and their duplication in a 160 MHz PPDU). EHT-SIG content channel 1 in 80 MHz frequency segment 1 occupies the 20 MHz subchannel that is lowest in frequency and is duplicated on the 20 MHz subchannel that is third lowest in frequency. EHT-SIG content channel 2 in 80 MHz frequency segment 1 occupies the 20 MHz subchannel that is second lowest in frequency and is duplicated on the 20 MHz subchannel that is fourth lowest in frequency. EHT-SIG content channel 1 in 80 MHz frequency segment 2 occupies the 20 MHz subchannel that is fifth lowest in frequency and is duplicated on the 20 MHz subchannel that is seventh lowest in frequency. EHT-SIG content channel 2 in 80 MHz frequency segment 2 occupies the 20 MHz subchannel that is sixth lowest in frequency and is duplicated on the 20 MHz subchannel that is highest in frequency. EHT-SIG content channels with a same index may carry different information in different 80MHz frequency segments.

|  |
| --- |
|  |
| Figure 34-x4- EHT-SIG content channels and their duplication in a 160 MHz PPDU |

If a single RU or multiple RUs for an allocation in a 160 MHz PPDU overlaps more than one of the subcarrier ranges [–1012:–771], [–765:–524], [–500:–259], [–253:–12], [12:253], [259:500], [524:765] or [771:1012], the corresponding RU Allocation subfields in the respective content channels shall all refer to the same RU or same multiple RUs.

If the Bandwidth field in the U-SIG field of an EHT MU PPDU (see Table 34-x (U-SIG field of an EHT MU PPDU)) indicates 160 MHz and preamble is punctured, the mapping of the EHT-SIG content channels to 20 MHz subchannels shall be the same as for a 160 MHz PPDU (see Figure 34-x4 (EHT-SIG content channels and their duplication in a 160 MHz PPDU)), with the exception that punctured 20 MHz subchannels shall be excluded.

From Equation (34-x) and 34.3.10.7.2 (EHT-SIG content channels), a 320 MHz PPDU contains eight EHT-SIG content channels each of which is duplicated as shown in Figure 34-x5 (EHT-SIG content channels and their duplication in a 320 MHz PPDU). EHT-SIG content channel 1 in 80 MHz frequency segment 1 occupies the 20 MHz subchannel that is lowest in frequency and is duplicated on the 20 MHz subchannel that is third lowest in frequency. EHT-SIG content channel 2 in 80 MHz frequency segment 1 occupies the 20 MHz subchannel that is second lowest in frequency and is duplicated on the 20 MHz subchannel that is fourth lowest in frequency. EHT-SIG content channel 1 in 80 MHz frequency segment 2 occupies the 20 MHz subchannel that is fifth lowest in frequency and is duplicated on the 20 MHz subchannel that is seventh lowest in frequency. EHT-SIG content channel 2 in 80 MHz frequency segment 2 occupies the 20 MHz subchannel that is sixth lowest in frequency and is duplicated on the 20 MHz subchannel that is eighth lowest in frequency. EHT-SIG content channel 1 in 80 MHz frequency segment 3 occupies the 20 MHz subchannel that is ninth in frequency and is duplicated on the 20 MHz subchannel that is eleventh lowest in frequency. EHT-SIG content channel 2 in 80 MHz frequency segment 3 occupies the 20 MHz subchannel that is tenth lowest in frequency and is duplicated on the 20 MHz subchannel that is twelfth lowest in frequency. EHT-SIG content channel 1 in 80 MHz frequency segment 4 occupies the 20 MHz subchannel that is thirteenth lowest in frequency and is duplicated on the 20 MHz subchannel that is fifteenth lowest in frequency. EHT-SIG content channel 2 in 80 MHz frequency segment 4 occupies the 20 MHz subchannel that is fourteenth lowest in frequency and is duplicated on the 20 MHz subchannel that is highest in frequency. EHT-SIG content channels with a same index may carry different information in different 80MHz frequency segments.

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| --- |
|  |
| Figure 34-x5- EHT-SIG content channels and their duplication in a 320 MHz PPDU |

If a single RU or multiple RUs for an allocation in a 320 MHz PPDU overlaps more than one of the subcarrier ranges [-2036:-1795], [-1789:-1548], [-1524:-1283], [-1277,-1036], [–1012:–771], [–765:–524], [–500:–259], [–253:–12], [12:253], [259:500], [524:765], [771:1012], [1036:1277], [1283, 1524], [1548, 1789] or [1795: 2036], the corresponding RU Allocation subfields in the respective content channels shall all refer to the same RU or same multiple RUs.

If the Bandwidth field in the U-SIG field of an EHT MU PPDU (see Table 34-x (U-SIG field of an EHT MU PPDU)) indicates 320 MHz and preamble is punctured, the mapping of the EHT-SIG content channels to 20 MHz subchannels shall be the same as for a 320 MHz PPDU (see Figure 34-x5 (EHT-SIG content channels and their duplication in a 320 MHz PPDU)), with the exception that punctured 20 MHz subchannels shall be excluded.