IEEE P802.11  
Wireless LANs

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| Remaining PHY Math comment resolutions | | | | |
| Date: 2019-5-9 | | | | |
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| Hongyuan Zhang |  |  |

Abstract: This document contains proposed resolutions for comments from 11ax D4.1 with the CIDs below.

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| ***Clause 27.3.8***   * 20140   ***Clause 27.3.9***   * 20141,20142,20143,20144,20145,20517,20720,21388   ***Clause 27.3.10.2.1***   * 21556   ***Clause 27.3.10.2.2***   * 21557   ***Clause 27.3.10.3***   * 21558,21559,21560,21561,21562   ***Clause 27.3.10.10***   * 20579   ***Clause 28.3.11.1***   * 21003,21396   ***Clause 28.3.11.2***   * 21397   ***Clause 28.3.11.5.1***   * 21398   ***Clause 28.3.11.5.2***   * 21399   ***Clause 28.3.11.5.3***   * 21218   ***Clause 28.3.11.5.5***   * 21005   ***Clause 28.3.11.9***   * 20617,20723,21402   ***Clause 28.3.11.11***   * 21403   ***Clause 28.3.11.5.13***   * 21404   ***Clause 28.3.11.5.14***   * 21405 | | | | | | |  | |
|  | | | | | | |  | |
| 20140 | | 27.3.8 | 512.14 | In table 27-16, replace all the explantion of subsript r from "in the r-th RU" to " in the r-th occupied RU" | as in the comment | **Accepted.**  Page number is 515.30, Table index is 27-15 in D4.1. | | |

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| 20141 | 27.3.9 | 514.18 | HE can be used in 6GHz while VHT can not. Here the start frequency and channel width are referred to VHT channel Table 21-22. Please check if there is any issue for 6GHz band | as in the comment | **Revised.**  The channel starting frequency and center frequency for 6GHz band are defined in 27.3.22.2 (Channel allocation in the 6 GHz band). The calculation of center frequency is the same for 5GHz band and 6GHz band except the starting frequency and the number of valid channels are different.  Change to as in the resolution of CID20141 in doc IEEE802.11-19/0793r0. |
| 20142 | 27.3.9 | 514.51 | Please add "when midamble is not present. " after " shown in Equation (27-2) | as in the comment | **Accepted.**  Page number is 518.53 in D4.1. |
| 20143 | 27.3.9 | 516.15 | Change to " in the rth occupied RU" | as in the comment | **Accepted.**  Page number is 519.44 in D4.1. |
| 20144 | 27.3.9 | 516.20 | "Power difference" is not the right wording. Change to power scale factor | as in the comment | **Accepted.**  Page number is 520.30 in D4.1. |
| 20145 | 27.3.9 | 517.01 | The vairable N^tone\_Field is only used in Eq 27-5 for pre-HE modulated fields while in Table 27-17 it is also defined for the HE modeulated fields which are never used. Remove its values for the HE modulated fields | as in the comment | **Revised.**  Agree with the commentor.  Change to as in the resolution of CID20145 in doc IEEE802.11-19/0793r0. |
| 20517 | 27.3.9 | 514.44 | There are 4 instances of "Data field OFDM symbol" and about 20 of "data OFDM symbol", defined as "Data OFDM symbols are OFDM symbols in the Data field of an HE PPDU that are not midamble symbols." | Delete "in the Data field" at 514.29, 580.48, p. 648 (4x). Change "Data field OFDM symbol" to "data OFDM symbol" throughout (4x) | **Accepted.**  Delete "in the Data field" at 518.31, 585.48, 654.46, 654.50, 654.54 and 654.56 in D4.1. |
| 20720 | 27.3.9 | 516.36 | Re CID 16020: the resolution does not clarify why Table 9-321b and dot11HEPowerBoostFactorImplemented/Activated talk of a power boost factor "in the range [0.5, 2]" while 516.36 suggests the maximum power boost factor is 4 | Change "[0.5, 2]" to "[0.5, 4]" throughout (Table 9-321b and dot11HEPowerBoostFactorImplemented/Activated) | **Revised.**  Definition of *αr* on Page 516.36 states that the ratio between the maximum value of *αr* and the minimum value of *αr* can be up to 4 if Power Boost factor Support subfield of the HE PHY Capabilities Information field in the HE Capabilities element from all recipient STAs is 1. The range of *αr*  is [0.5,2] which indicates that the ratio can be up to 4.  To avoid any confusions, “the range of *αr*  is [0.5,2]” can be reinstated on P516.32.  Change to as in the resolution of CID20720 in doc IEEE802.11-19/0793r0. |
| 21388 | 27.3.9 | 518.57 | Table 27-18 is missing CH\_BANDWIDTH values for punctured MU transmission | Add missing values | **Revised.**  Change to as in the resolution of CID21388 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.9*

* On P518L14 (CID #20141):

 represents the center frequency of the portion of the PPDU transmitted in frequency segment *iSeg*. Table 21-7 (Center frequency of the portion of the PPDU transmitted in frequency segment *iSeg*) shows  as a function of the channel starting frequency, dot11CurrentChannel- Width (see Table 21-22 (Fields to specify VHT channels)) and CH\_BANDWIDTH, where *fCH,start, fP20,idx , fP40,idx* , and *fP80,idx* are given in Equation (21-4), Equation (21-5), Equation (21-7), and Equation (21- 9), respectively. Note that for HE STAs operating in 6GHz, channel starting frequency is 5.94GHz, the valid range for dot11CurrentChannelCenterFrequencyIndex0 and dot11CurrentChannelCenterFrequencyIndex1 is 1 to 253 (27.3.22.2(Channel allocation in the 6GHz band)).

* On P521L27 (CID #20145):

Table 27-16 (Number of modulated subcarriers and guard interval duration values for HE PPDU fields) summarizes the various values of as a function of bandwidth per frequency segment.

Please remove en*tries* corresponding to HE-STF, HE-LTF and Data fields in Table 27-16.

* On P520L45 (CID #20720): Please change *r*-th RU to *r*-th occupied RU throughout the spec.

*αr* is the power boost factor for the *r*-th occupied RU in an HE PPDU, in the range [0.5, 2]. For a DL HE MU PPDU, … , is always set to 1.

* On P518L57 (CID #21388):

Discussion: Due to the fact that γ*k,BW*  values are different for 160MHz and 80+80MHz, it is better to add CBW\_PUNC80+80\_PRI20 and CBW\_PUNC80+80\_SEC40 to the enumerated type of CH\_BANDWIDTH parameter when PPDU format is HE MU PPDU. To be consistent with the rest of the spec, CBW-PUNC160-PRI20 and CBW-PUNC160-SEC40 should be replaced with HE-CBW-PUNC160-PRI20 and HE-CBW-PUNC160-SEC40 respectively, in Table 27-3.

**Table 27-1—TXVECTOR and RXVECTOR parameters**

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| --- | --- | --- | --- | --- |
| **Parameter** | **Condition** | **Value** | **TXVECTOR** | **RXVECTOR** |
| **…** | **…** | **…** | **…** | **…** |
| CH\_BANDWIDTH | … | … | … | … |
| … | … | … | … |
| FORMAT is HE\_MU | Indicates the channel width of the PPDU. Enumerated type:  CBW20 for full 20 MHz  CBW40 for full 40 MHz CBW80 for full 80 MHz CBW160 for full 160 MHz  CBW80+80 for full 80+80 MHz HE-CBW-PUNC80-PRI for preamble puncturing in 80 MHz, where in the preamble only the secondary 20 MHz is punctured HE-CBW-PUNC80-SEC for preamble puncturing in 80 MHz, where in the preamble only one of the two 20 MHz sub-channels in secondary 40 MHz is punctured HE-CBW-PUNC160-PRI20 for preamble puncturing in 160 MHz, where in the primary 80 MHz of the preamble only the secondary 20 MHz is punctured  HE-CBW-PUNC80+80-PRI20 for preamble puncturing in 80+80 MHz, where in the primary 80 MHz of the preamble only the secondary 20 MHz is punctured HE-CBW-PUNC160-SEC40 for preamble puncturing in 160 MHz, where in the primary 80 MHz of the preamble the primary 40 MHz is present.  HE-CBW-PUNC80+80-SEC40 for preamble puncturing in 80+80 MHz, where in the primary 80 MHz of the preamble the primary 40 MHz is present. | Y | Y |
| CENTER\_26\_TONE\_RU | FORMAT is HE\_MU and CH\_BANDWIDTH is CBW80, CBW160, CBW80+80, HE-CBW-PUNC80-PRI, HE-CBW-PUNC80- SEC, HE-CBW-PUNC160- PRI20, HE-CBW-PUNC80+80-PRI20, HE-CBW-PUNC160- SEC40, or HE-CBW-PUNC80+80-SEC40.(#21409) | …  If the CH\_BANDWIDTH parameter is set to CBW160, CBW80+80,(#21409) HE-CBW-PUNC160-PRI20, HE-CBW-PUNC80+80-PRI20, HE-CBW-PUNC160-SEC40 or HE-CBW-PUNC80+80-SEC40:  … |  |  |

**Table 27-3— Interpretation of FORMAT, NON\_HT Modulation and CH\_BANDWIDTH parameters**

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| **Format** | **NON\_HT\_ MODULATION** | **CH\_BANDWIDTH** | **CH\_OFFSET** | **PPDU format** |
| HE | N/A | HE-CBW-PUNC80-PRI | N/A | … |
| HE | N/A | HE-CBW-PUNC80-SEC | N/A | … |
| HE | N/A | HE-CBW-PUNC160-PRI20 | N/A | The STA transmits an HE PPDU on the punctured 160 MHz bandwidth where only the secondary 20 MHz in the primary 80 MHz is punctured. |
| HE | N/A | HE-CBW-PUNC80+80-PRI20 | N/A | The STA transmits an HE PPDU on the punctured 80+80 MHz bandwidth where only the secondary 20 MHz in the primary 80 MHz is punctured. |
| HE | N/A | HE-CBW-PUNC160-SEC40 | N/A | The STA transmits an HE PPDU on the punctured 160 MHz bandwidth where the primary 40 MHz in the primary 80 MHz is present. |
| HE | N/A | HE-CBW-PUNC80+80-SEC40 | N/A | The STA transmits an HE PPDU on the punctured 80+80 MHz bandwidth where the primary 40 MHz in the primary 80 MHz is present. |

Please append the following entries in Table 27-17

**Table 27-17 —CH\_BANDWIDTH and γ*k,BW*** **for pre-HE modulated fields**

|  |  |
| --- | --- |
| HE-CBW-PUNC80-PRI | γk,80 |
| HE-CBW-PUNC80-SEC | γk,80 |
| HE-CBW-PUNC160-PRI20 | γk,160 |
| HE-CBW-PUNC80+80-PRI20 | γk,80 per frequency segment |
| HE-CBW-PUNC160-SEC40 | γk,160 |
| HE-CBW-PUNC80+80-SEC40 | γk,80 per frequency segment |

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| 21556 | 27.3.10.2.1 | 519.42 | T\_CS,HE(n) is cyclic shift value for spatial stream n, not for antenna index i\_TX. Furthermore, equations for cases with BEAM\_CHANGE=0 (e.g. Equation (27-8)) does not make use of T^{i\_TX}\_{CS}. | Change T^{i\_TX}\_{CS} to T\_{CS,HE}. | **Revised.**  Change to as in the resolution of CID21556 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.10.2.1*

* On P524L1 (CID #21556):

If the TXVECTOR parameter BEAM\_CHANGE is 0, then the cyclic shift value for the L-STF, L-LTF, L-SIG, RL-SIG, and HE-SIG-A fields is specified in 27.3.10.2.2 (Cyclic shift for HE modulated fields).

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| 21557 | 27.3.10.2.2 | 519.56 | Why is the term "For the r-th RU" need when T\_CS,HE(n) is not a function of "r"? | Delete "For the r-th RU,". | **Revised.**  Change to as in the resolution of CID21557 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.10.2.2*

* On P524L16 (CID #21557):

The cyclic shift value for the HE modulated fields for space-time stream n is shown in Table 21-11 (Cyclic shift values for the VHT modulated fields of a PPDU).

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| 21558 | 27.3.10.3 | 520.40 | Equation (27-6) describes the signal transmitted from a given STA, even in case of HE TB PPDU. And there is no preamble puncturing defined for HE TB PPDU - i.e., each STA transmits a single RU. | At P520L40, change "HE TB PPDU or HE MU PPDU with preamble puncturing" to "HE MU PPDU preamble puncturing" | **Rejected.**  Although HE TB PPDU HE modulated fields are transmitted in a single RU, HE TB PPDU pre-HE modulated fields are transmitted in the 20MHz channels overlapped with its assigned RU. Hence *Ω20MHz* contains one or more values in the range of 0 to *N20MHz*-1. I don’t see any indication of HE TB PPDU with preamble puncting in the text. |
| 21559 | 27.3.10.3 | 520.44 | Valid values for dot11CurrentChannelWidth are 20, 40, 80, 160 and 80+80 MHz (11ax D4.0 P466L64, REVmd D2.1 P4192L34). So, if N\_20MHz is the bandwidth indicated by dot11CurrentChannelWidth, then N\_20MHz cannot handle the case of preamble puncturing. | Fix the definition of N\_20MHz to properly handle preamble puncturing | **Revised.**  Change to as in the resolution of CID21559 in doc IEEE802.11-19/0793r0. |
| 21560 | 27.3.10.3 | 520.44 | dot11CurrentChannelWidth represents the operating channel width, not the packet bandwidth. Suppose operating channel width is 160MHz, and a STA 'wants' to transmitting 20 MHz PPDU. But Equation (27-8) will generate a 160MHz waveform because the summation over N\_20MHz is done over N\_20MHz=8 times. | Change "dot11CurrentChannelWidth" to "TXVECTOR parameter CH\_BANDWIDTH" | **Revised.**  Change to as in the resolution of CID21560 in doc IEEE802.11-19/0793r0. |
| 21561 | 27.3.10.3 | 520.50 | P520L50 says Equation (27-8) is for contiguous 20, 40, 80 and 160MHz. Then P520L52 says Equation (27-8) is for 20, 40, 80, 160 and 80+80 MHz. Similar comment on P521L63-65. | Delete "of contiguous 20 MHz, 40 MHz, 80 MHz and 160 MHz transmission" at P520L51 and P521L63. | **Revised.**  Change to as in the resolution of CID21561 in doc IEEE802.11-19/0793r0. |
| 21562 | 27.3.10.3 | 521.14 | Equation (27-8) is for L-STF, which is part of pre-HE modulated fields. And NSTS in Equation (27-8) is said to be defined in Table 27-16 per P521L14. Note that Table 27-16 defines NSTS to be 1 for pre-HE modulated fields. Then, the summation over m=1 to NSTS in Equation (27-8) becomes meaningless (summation from m=1 to "1"). | Fix the definition of NSTS used in Equation (27-8) and other similar equations in pre-HE modulated fields. | **Revised.**  It is meaningless to define N\_STS for pre-HE modulated fields. It is not used in equations when BEAM\_CHANGE is 1; and it uses NSTS for HE modulated field when BEAM\_CHANGE is 0. So the definition of NSTS,r,u for pre-HE modulated fields should be deleted in Table 27-15.  Change to as in the resolution of CID21562 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.10.3*

* On P525L7 (CID #21559, CID #21560):





* On P525L13 (CID #21561):

If the TXVECTOR parameter BEAM\_CHANGE is 0, the time domain representation of the L-STF field shall be as specified in Equation (27-8).

* On P526L18 (CID #21561):

If the TXVECTOR parameter BEAM\_CHANGE is 0, the time domain representation of the L-LTF field shall be as specified in Equation (27-10).

* On P525L41 (CID #21562):

*NSTS* is the number of space-time streams of HE-modulated fields in HE SU PPDU or HE ER SU PPDU as defined in Table 27-15 (Frequently used parameters)

* On P516L13(CID #21562): In Table 27-15 *NSTS, NSTS,r,u* entry
* On P517L12(CID #21562): In Table 27-15 last line

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| 20579 | 27.3.10.10 | 577.57 | "It is defined as STARTING\_SS\_NUM - 1 in SS Allocation / Random Access RU  Information subfield of Trigger frame User info field for u-th user in r-th RU in Figure 9-64e  (SS Allocation subfield format)." -- no, it's defined in Table 27-16 | Delete the cited text at the referenced location | **Revised.**  The commentor is wrong about Mr,u is defined in Table 27-16 for HE TB PPDU. But it will be better to clarify that this citation is for HE TB PPDU only. Change to as in the resolution of CID20579 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.10.10*

* On P582L56 (CID #20579):

*Mr,u* is given in Table 27-16 (Frequently used parameters) for HE SU PPDU, HE ER SU PPDU and HE MU PPDU. For HE TB PPDU, it is given in Starting Spatial Stream subfield in SS Allocation subfield of Trigger frame User info field for *u*-th user in *r*-th occupied RU in Figure 9-64e (SS Allocation subfield format).

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| 21003 | 27.3.11.1 | 578.12 | "The number of OFDM symbols in the Data field is determined by the LENGTH field in the L-SIG field (see  Equation (27-11)), the preamble duration and the settings of the GI+LTF Size, Pre-FEC Padding Factor and  PE Disambiguity fields in the HE-SIG-A field" -- there is no HE-SIG-A field in an HE TB PPDU | Append ", if present, or otherwise from the corresponding indications in the triggering PPDU" | **Revised.**  Change to as in the resolution of CID21003 in doc IEEE802.11-19/0793r0. |
| 21396 | 27.3.11.1 | 578.19 | “single stream pilot" is used frequenctly throughout the document, but never defined unambiguously. I suppose it refers to pilots as described in 27.3.11.13 | Add reference to section 27.3.11.13 or provide definition of "single stream pilots" in definition section. | **Revised.**  Change to as in the resolution of CID21396 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.11.1*

* On P583L12 (CID #21003):

The number of OFDM symbols in the Data field is determined by the LENGTH field in the L-SIG field (see Equation (27-11)), the preamble duration, and the settings of the GI+LTF Size, Pre-FEC Padding Factor and PE Disambiguity fields in the HE-SIG-A field (see 27.3.10.7 (HE-SIG-A)) for HE SU PPDU, HE ER PPDU and HE MU PPDU, or in the Common info field of the soliciting Trigger frame (see 9.3.1.22 (Trigger frame format)) for HE TB PDU.

* On P578L19 (CID #21396): Please add the following definition on P38L56, and change single stream pilots to single stream pilot throughout the spec to be consistent

high efficiency (HE) single stream pilot: the same pilot sequence is applied to all spatial time streams for a given resource allocation.

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| 21397 | 27.3.11.2 | 580.41 | Inconsistent terminology: "pre-FEC pad bits" on lines 41, 62, 64, ... , "pre-FEC padding bits" on lines 57 | Use consistent terminology (and use the same consistent terminology for post-FEC padding bits) | **Rejected.**  Padding bits and pad bits are interchangeably used in 801.11md. This should not be a concern in 11ax spec. |

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| 21398 | 27.3.11.5.1 | 582.36 | Why is there a need for formula (27-68)? Isn't this simply saying N\_CBPS,last = N\_CBPS,last\_init (see (27-62))? Compare with paragraph starting on line 28. | Replace with N\_CBPS,last = N\_CBPS,last\_init | **Revised.**  Change to as in the resolution of CID21398 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.0 *Clause 27.3.11.5.1*

On P582L36 (CID #21398):

The number of coded bits per symbol in the last OFDM symbol(s) of an HE SU PPDU or HE ER SU PPDU is , where  is defined in Equation (27-61).

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| 21399 | 27.3.11.5.2 | 583.35 | Why is there a need for formula (27-74)? Isn't this simply saying N\_CBPS,last = N\_CBPS,last\_init (see (27-62))? Compare with sentence on line 40. | Replace with N\_CBPS,last = N\_CBPS,last\_init, similar to N\_DBPS as on line 40. | **Rejected.**  In the cases where a=mod(a\_init,4)+1, i.e., LDPC Extra Symbol Segment field set to 1, then N\_CBPS,last ≠N\_CBPS,last,init. |

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| 21218 | 27.3.11.5.3 | 583.51 | The design of the PE/Post-FEC padding/LDPC puncturing rules is burdensome for high user counts, and should be revisited in this (or at least a future) amendment. The current design causes all users LDPC codewords to terminate in the final OFDM symbol. Then, even if the data rate of each user is tiny, a receiver of many users' HE\_TB PPDUs needs to decode an as many LDPC codewords as there are users, all within PE+SIFS. | Allow the Trigger frame (or a future Trigger frame) to command some STAs to send more than mSTBC OFDM symbols worth of Post-FEC padding bits. | **Rejected.**  This should not be a concern since AP dictates the number of UL STAs and PE Duration of the soclicited HE TB PPDU based on its capabilities. |

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| 21005 | 27.3.11.5.5 | 585.08 | Re CID 12652, 16376: not clear how what the AP indicates in a TRS Control subfield maps to what the non-AP STA uses in HE TB | After the first sentence of the first para of the referenced subclause add "The AP indicates the UL Data Symbols field in the TRS Control field."  After the last sentence of the first para of the referenced subclause, before the full stop, add ", respectively, from a Trigger frame. The common values TPE and NSYM are derived by non-AP STAs as shown in  26.5.3.3.4 and Equation (27-foo), respectively, from a TRS Control subfield; use of LDPC and STBC is fixed as shown in 26.5.3.3.4."  In the following NOTE change "the pre-FEC padding factor and LDPC Extra Symbol Segment fields for the HE TB PPDU" to "the Pre-FEC Padding Factor and LDPC Extra Symbol Segment fields in a Trigger frame" | **Revised.**  Change to as in the resolution of CID21005 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.11.5.5*

* On P591L10 (CID #21005):

For HE TB PPDU in response to a trigger frame, the AP indicates the UL Length, Pre-FEC Padding Factor, UL STBC and LDPC Extra Symbol Segment fields in the Trigger frame. The common values *TPE* and *NSYM* are derived by non-AP STAs as shown in Equation (27-115) and Equation (27-116).

For HE TB PPDU in response to a frame containing a TRS Control subfield, the AP indicates *NSYM* via the value of UL Data Symbols subfield, *FVAL*, in the TRS Control subfield. The common parameters, FEC\_CODING, LDPC\_EXTRA\_SYMBOL, DOPPLER, *NHE-LTF*, HE\_LTF\_MODE and *TPE*, are set as described in 26.5.3.3.4 (TXVECTOR parameters for HE TB PPDU response to TRS Control subfield). The value of L\_LENGTH is derived by non-AP STAs as shown in Equation (27-11) using TXTIME value defined in Equation (27-135).

NOTE—The AP might select any value for the pre-FEC padding factor and LDPC Extra Symbol Segment fields for the solicited HE TB PPDU, regardless of the respective values derived from the calculations described in the BCC or LDPC encoding process.

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| 20617 | 27.3.11.9 | 591.42 | " DCM can be applied only to  RUs containing data for 1 user." is ambiguous (can choose to apply to only X, or can only apply to X) | Change to "DCM cannot be applied to RUs containing data for more than one user." | **Rejected.**  It was resolved by CID 20839. |
| 20723 | 27.3.11.9 | 591.42 | Re CID 16031: "X can be applied only to Y" is ambiguous. It can mean "you can choose to apply X only to Y" or it can mean "you cannot apply X to anything other than Y" | At the referenced location change "In an HE MU PPDU or HE TB PPDU, DCM can be applied only to RUs containing data for 1 user" to "In an HE MU PPDU or HE TB PPDU, DCM can be applied only to RUs containing data for one user; it cannot be applied to RUs containing data for more than one user" | **Rejected.**  It was resolved by CID 20839. |
| 21402 | 27.3.11.9 | 589.7 | The interleaver is for BCC only. | Add "or segment parser" after "the interleaver." | **Revised.**  1024QAM modulation is not applied to BCC encoding since it does not support MCS 10 and MCS 11. The input to the constellation mapper is either from stream parser or segment parser if it is present.  Change to as in the resolution of CID21402 in doc IEEE802.11-19/0793r0. |

ax editor: please make the following change in D4.1 *Clause 27.3.11.9*

On P594L7 (CID #21402):

For 1024-QAM, the mapping of the bits at the output of the stream parser or segment parser if present to the complex constellation points is defined in Figure 27-37 …

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| 21403 | 27.3.11.11 | 593.15 | Is N\_SS,r,u meant for N\_STS,r,u? Subclause 27.3.11.10 (Space-time coding) is before this subclause. | If agreed, the correction will be applied to several locations in this subclause. | **Revised.**  The commentor is wrong to assume that N\_SS,r,u is meant for N\_STS,r,u. STBC encoding is done after LDPC tone mapping. To eliminate the confusion, it is better to reorganize the subclause based on the order of function blocks shown in transmit block diagram. |

ax editor: please make the following change in D4.1

* On P597L43 (CID #21403): Please move subclause 27.3.11.10 Space-time block coding after 27.3.11.11 LDPC tone mapper.

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| 21404 | 27.3.11.13 | 595.41 | Is {-50,36} a typo? Should it be {-50,-36}? | Correct it if agreed. | **Accepted.**  The commentor is correct that it should be {-50,-36} on P600.41 in D4.1. |

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| 21405 | 27.3.11.14 | 600.18 | It seems an "r" is missing on the left hand side of the equation. | Correct it if agreed. | **Rejected.**  The equation on the right hand side is sum over all occupied RUs. |