­IEEE P802.11  
Wireless LANs

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| PHY section editorial comments on D0.4 | | | | |
| Date: 2016-08-30 | | | | |
| Author(s): | | | | |
| Name | Affiliation | Address | Phone | email |
| Sungeun Lee | Cypress Semiconductor Corporation | 90 Matawan Rd Matawan NJ 07747 |  | sule at cypress.com |
| Kai Xie | Cypress Semiconductor Corporation | 90 Matawan Rd Matawan NJ 07747 |  | kaxi at cypress.com |
| Saishankar Nandagopalan | Cypress Semiconductor Corporation |  |  | snan at cypress.com |
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Abstract

This document contains editorial text change proposal in the physical layer section of an IEEE TGax Draft 0.4.

Revisions:

* Rev 0: Initial version of the document.

**Discussion #1** (D0.4, P128L02, Section 26.3.3)**:**

Spatial and frequency mapping block is newly introduced in TGax and used in many places (Figure 26-9, Figure 26-10, Figure 26-11), but it is not listed in the block introduction. Please insert the new block named ‘Spatial and frequency mapping’ into the list.

**Proposed text change #1:**

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To TGax editor, D0.4, P128L02, Section 26.3.3:

* Spatial mapper
* Spatial and frequency mapping

1. Inverse discrete Fourier transform (IDFT)

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**Discussion #2** (D0.4, P141L07, Section 26.3.7.1):

The 106-tone RU and 242-tone RU are not described in the statement. Include those RUs as follows:

**Proposed text change #2:**

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To TGax Editor: D0.4, P141L07, Section 26.3.7.1

The 26-tone RU, 52-tone RU, 106-tone RU and 242-tone RU are used in the 20 MHz, 40 MHz, 80 MHz, 160 MHz and 80+80 MHz HE MU PPDU formats or HE trigger-based PPDU formats using OFDMA transmission.

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**Discussion #3** (D0.4, P152L09 Section 26.3.9):

The equations in 16/872r1 are not correctly reflected in D0.4. should be changed to and the summation for *m* should be upto  in Equations (26-4) and (26-5).

**Proposed text change #3:**

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To TGax Editor: D0.4, P152L09 Section 26.3.9

In an HE SU PPDU, HE MU PPDU and HE extended range SU PPDU, each field, , is defined as the summation of one or more subfields, where each subfield is defined to be an inverse discrete Fourier transform as specified in Equation (26-4)(#2158).(#526)



 (26-4)

In an HE trigger-based PPDU, transmitted by user-*u* in the *r*-th RU, each field, , is defined in Equation (26-5).(#526)



 (26‑5)

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**Discussion #4 (**D0.4, P153L21, Section 26.3.9, P157L54, Section 26.3.10.4):

*TGI,*HE-LTF1, *TGI,*HE-LTF2, and *TGI,*HE-LTF4 are declared in Table 26-13, but the value of those parameters are never defined in the specification. In addition, GI duration is depending on LTF+CP combination, which is not one-to-one mapping from HE-LTF mode. Moreover, the parameter *TGI,*HE-LTF is already described in Table 26-3 (D0.4, P135L40). Therefore, *TGI,*HE-LTF1, *TGI,*HE-LTF2, and *TGI,*HE-LTF4 would be replaced as *TGI,*HE-LTF.

*TGI,*LegacyPreamble is declared in Table 26-13 and used for all guard interval duration on the legacy preamble, RL-SIG, HE-SIG-A and HE-SIG-B, but the value of *TGI,*LegacyPreamble is never defined in the specification. On the other hand, *TGI,*Pre-HE is defined in Table 26-3, but it is never used in the equations. Therefore, *TGI,*Pre-HE would be replaced to *TGI,*LegacyPreamble which corresponds to 0.8 us.

*TGI,*LegacyPreamble in equations (26-12) and (26-13) regarding L-LTF should be replaced to *TGI2,Data* (1.6 us). In addition, on equation (26-13), the set of 20MHz channels should be changed to {0,1,…,

The precise expression on the guard interval of HE-Data is represented as *TGI,Data* in Table 26-3. Therefore, change the guard interval description of HE-Data from “*TGI1,Data*(#2502), *TGI2,Data* or *TGI4,Data* ”to the representative *TGI,Data* for consistency.

**Proposed text change #4:**

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To TGax Editor: D0.4, P152L09 Section 26.3.9

Table 26-3 (Timing-related constants) defines the timing-related parameters for HE PPDU formats..

|  |  |  |
| --- | --- | --- |
| * Timing-related constants | | |
| Parameter | Values | Description |
|  | 312.5 kHz | Subcarrier frequency spacing for the pre-HE modulated fields(#279). |
|  | 78.125 kHz | Subcarrier frequency spacing for the HE modulated fields(#279). |
| *TDFT,*Pre-HE | 3.2 µs | IDFT/DFT period for the pre-HE modulated fields(#279). |
| *TDFT,*HE | 12.8 µs | IDFT/DFT period for the HE Data field(#279)(#Ed). |
| *TGI,*LegacyPreamble | 0.8 µs | Guard interval duration for the legacy preamble, RL-SIG, HE-SIG-A and HE-SIG-B |
| *TGI,*HE-LTF | *TGI1,Data*, *TGI2,Data* or *TGI4,Data* depending on the GI used for data | Guard interval duration for the HE-LTF field, same as *TGI,Data* |
| *TGI,Data* | *TGI1,Data*, *TGI2,Data* or *TGI4,Data* depending on the GI used for data | Guard interval duration for the HE-Data field |
| *TGI1,Data* | 0.8 µs | Base guard interval duration for the HE-Data field. |
| *TGI2,Data* | 1.6 µs | Double guard interval duration for the HE-Data field and L-LTF |
| *TGI4,Data* | 3.2 µs | Quadruple guard interval duration for the HE-Data field. |
| *TSYM1* | 13.6 µs = *TDFT,*HE + *TGI1,Data* = 1.0625 × *TDFT,HE* | OFDM symbol duration with base GI(#1108)(#279) |
| *TSYM2* | 14.4 µs = *TDFT,*HE + *TGI2,Data* = 1.125 × *TDFT,HE* | OFDM symbol duration with double GI(#1109) |
| *TSYM4* | 16 µs = *TDFT,*HE + *TGI4,Data* = 1.25 × *TDFT,*HE | OFDM symbol duration with quadruple GI(#1110) |
| *TSYM* | *TSYM1*, *TSYM2*, or *TSYM4* depending on the GI used (see Table 26-13 (Tone scaling factor and guard interval duration values for HE PPDU fields)(#2757)) | Symbol interval |
| *T*L-STF | 8 µs = 10 × *TDFT,*Pre-HE /4 | Non-HT Short Training field duration |
| *T*L-LTF(#1040) | 8 µs = 2 × *TDFT,*Pre-HE + *TGI2,Data* | Non-HT Long Training field duration |
| *T*L-SIG | 4 µs | Non-HT SIGNAL field duration |
| *T*RL-SIG | 4 µs | Repeated non-HT SIGNAL field duration |
| *T*HE-SIG-A | 8 µs = 2 × 4 µs | HE-SIG-A field duration in an HE SU PPDU, HE MU PPDU and HE trigger-based PPDU |
| *T*HE-SIG-A-R | 16 µs = 4 × 4 µs(#279) | HE-SIG-A field duration in an HE extended range SU PPDU |
| *T*HE-STF-T | 8 µs = 5 × 1.6 µs | HE-STF field duration for an HE trigger-based PPDU |
| *T*HE-STF-NT | 4 µs = 5 × 0.8 µs | HE-STF field duration for an HE SU PPDU, HE extended range SU PPDU and HE MU PPDU |
| *T*HE-LTF-1X | 3.2 µs | Duration of each 1x HE-LTF OFDM symbol without GI |
| *T*HE-LTF-2X | 6.4 µs | Duration of each 2x HE-LTF OFDM symbol without GI |
| *T*HE-LTF-4X | 12.8 µs | Duration of each 4x HE-LTF OFDM symbol without GI |
| *T*HE-LTF | *T*HE-LTF-1X, *T*HE-LTF-2X or *T*HE-LTF-4X depending upon the LTF duration used | Duration of each OFDM symbol without GI in the HE-LTF field (#279) |
| *T*HE-LTF-SYM | sum of *T*HE-LTF and *TGI,*HE-LTF | Duration of each OFDM symbol including GI in the HE-LTF field |
| *T*HE-SIG-B | 4 µs = *TDFT,*Pre-HE + *TGI,*LegacyPreamble | Duration of each OFDM symbol in the HE-SIG-B field(#Ed) |
| *Nservice* | 16 | Number of bits in the SERVICE field |
| *Ntail* | 6 | Number of tail bits per BCC encoder |
| *TSYML* | 4 µs | Symbol duration including GI prior to the HE-STF field |
| *TPE* | 0, 4 µs, 8 µs, 12 µs or 16 µs depending on the actual extension duration used | Duration of the Packet Extension field(#279) |

To TGax Editor: D0.4, P152L48 Section 26.3.9

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| * Tone scaling factor and guard interval duration values for HE PPDU fields | | | | | |
| Field | as a function of bandwidth, and RU size per frequency segment | | | | Guard interval duration |
| 20 MHz | 40 MHz | 80 MHz | 160 MHz |
| L-STF | 12 | 24 | 48 | 96 | - |
| L-LTF | 52 | 104 | 208 | 416 | *TGI2,Data* |
| L-SIG in an HE PPDU | 56 | 112 | 224 | 448 | *TGI,*LegacyPreamble |
| L-SIG in a non-HT duplicate PPDU(#1988) | - | 104 | 208 | 416 |
| RL-SIG | 56 | 112 | 224 | 448 | *TGI,*LegacyPreamble |
| HE-SIG-A | 56 | 112 | 224 | 448 | *TGI,*LegacyPreamble |
| HE-SIG-B | 56 | 112 | 224 | 448 | *TGI,*LegacyPreamble |
| HE-STF not in an HE trigger-based PPDU | 14 | 30 | 62 | 126 | - |
| HE-STF in an HE trigger-based PPDU | 30 | 60 | 124 | 248 | - |
| HE-LTF 1x Duration | 60 | 122 | 250 | 500 | *TGI,*HE-LTF |
| HE-LTF 2x Duration | 122 | 242 | 498 | 996 | *TGI,*HE-LTF |
| HE-LTF 4x Duration | 242 | 484 | 996 | 1992 | *TGI,*HE-LTF |
| HE-Data | 242 | 484 | 996 | 1992 | *TGI,Data* |
| NON\_HT\_DUP\_OFDM-Data(#1988) | - | 104 | 208 | 416 | *TGI,*LegacyPreamble |
| NOTE—in the case of an HE OFDMA PPDU, the  value of HE-STF, HE-LTF and HE-Data fields is variable, and is determined by which RUs of the current full bandwidth are transmitted in the PPDU. | | | | | |

To TGax Editor: Eq (26-12), D0.4, P157L54, Section 26.3.10.4



To TGax Editor: Eq (26-13), D0.4, P158L19, Section 26.3.10.4

 (26-13)

(#1050)where

 represents the cyclic shift for space time stream *m* as defined in 26.3.10.2.2 (Cyclic shift for HE modulated fields)(#1052)

 is defined in 26.3.9 (Mathematical description of signals)(#1094)

 is defined in Equation (26-58)

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**Discussion #5** (D0.4, P156L01, P156L23, Section 26.3.10.2.1):

Table index is wrong. Change from Table 22-10 to Table 21-10 (TGmc D8.0) and change from Table 22-11 to Table 21-11 (TGmc D8.0).

**Proposed text c\’’’’’’’’’’’’’’’[]**

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To TGax Editor: D0.4, P156L01, Section 26.3.10.2.1

When the TXVECTOR parameter BEAM\_CHANGE is 1(#Ed), the cyclic shift value  for the L-STF, L-LTF, L-SIG, RL-SIG, HE-SIG-A and HE-SIG-B fields of the PPDU for transmit chain *iTX* out of a total of *NTX* are defined in Table 21-10 (Cyclic shift values for L-STF, L-LTF, L-SIG, and VHT-SIG-A fields of the PPDU). In UL MU transmission the cyclic shift value  is based on the transmit chain index of each STA.

To TGax Editor: D0.4, P156L23, Section 26.3.10.2.1

Throughout the HE modulated fields of the preamble, cyclic shifts are applied to prevent unintended beamforming when correlated signals are transmitted in multiple space-time streams. The same cyclic shift is also applied to these streams during the transmission of the Data field of the HE PPDU. The cyclic shift value  for the HE modulated fields for space-time stream *n* out of *NSTS,total* total space-time streams is shown in Table 21-11 (Cyclic shift values for the VHT modulated fields of a PPDU).

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**Discussion #6** (D0.4, P162L30, Section 26.3.10.7.2):

For HE EXT SU PPDU, HE-SIG-A2 should be changed to HE-SIG-A3 in Table 26-15 based on HE-SIG-A symbol number definitino. In addition, it is desired to avoid the conditional statement for a given PPDU format (HE\_SU or HE\_EXT\_SU) on the description field. Therefore, it is recommended to separate Table 26-15 into an independent HE SU PPDU and HE EXT SU PPDU field tables.

In addition, the number of bits for GI+LTF Size field in Table 26-15 is wrong. It should be 2 bits instead of 3 bits.

**Proposed text change #6:**

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To TGax Editor: D0.4, P162L30, Section 26.3.10.7.2

The HE-SIG-A field for an HE SU PPDU contains the fields listed in Table 26-15 (HE-SIG-A field of an HE SU PPDU).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| * HE-SIG-A field of an HE SU PPDU | | | | |
| Two Parts of HE-SIG-A | Bit | Field | Number of bits | Description |
| HE-SIG-A1 | B0 | Format | 1 | Differentiate an HE SU PPDU from an HE trigger-based PPDU:(#1685)  Set to 0 for HE trigger-based PPDU  Set to 1 for HE SU PPDU |
|  | B1 | Beam Change | 1 | Set to 1 indicates that the pre-HE-STF portion of the SU PPDU is spatially mapped differently from HE-LTF1.  Set to 0 indicates that the pre-HE-STF portion of the SU PPDU is spatially mapped the same way as HE-LTF1 on each tone. |
|  | B2 | UL/DL | 1 | Indicates whether the PPDU is sent UL or DL:  Set to 0 for DL  Set to 1 for UL(#2002)  This field indicates DL for TDLS.  NOTE—The TDLS peer can identify the TDLS frame by To DS and From DS fields in the MAC header of the MPDU. |
|  | B3-B6 | MCS | 4 | Set to *n* for MCS*n*, where *n* = 0, 1, 2, …., 11  Values 12-15 are reserved |
|  | B7 | DCM | 1 | Indicates whether or not DCM is applied to the Data field for the MCS indicated.  Set to 1 to indicate that DCM is applied to the Data field  Set to 0 to indicate that DCM is not applied to the Data field.  DCM is only applied for MCS0, MCS1, MCS3 and MCS4.  DCM is only applied for 1 and 2 spatial streams.  DCM is not applied when STBC is used.(#2007) |
|  | B8-B13 | BSS Color | 6 | The BSS Color field is an identifier of the BSS |
|  | B14 | Reserved | 1 | Reserved and set to 1(PHY Motion #162) |
|  | B15-B18 | Spatial Reuse | 4 | "SR\_allowed" signaling indicates whether SR operation is allowed or not. Set to 0 to indicate SR is disallowed. The conditions to disallow SR are TBD. Other details are TBD.  Notes: this part needs further development.(#2169) |
|  | B19-B20 | Bandwidth | 2 | Set to 0 for 20 MHz  Set to 1 for 40 MHz  Set to 2 for 80 MHz  Set to 3 for 160 MHz and 80+80 MHz(#Ed) |
|  | B21-B22 | GI+LTF Size(#1420) | 2 | Indicates the GI duration(#1420) and HE-LTF size.  Set to 0 to indicate a 1x HE-LTF and 0.8 µs GI  Set to 1 to indicate a 2x HE-LTF and 0.8 µs GI  Set to 2 to indicate a 2x HE-LTF and 1.6 µs GI  Set to 3 to indicate a 4x HE-LTF and 3.2 µs GI(#2005) |
|  | B23-B25 | Nsts | 3 | Indicates the number of space time streams.(#1457)  Set to the number of space time streams minus 1 |
| HE-SIG-A2 | B0-B6 | TXOP Duration | 7 | Set to 127 to indicate no duration information. Set to value other than 127 to indicate duration information for NAV setting and protection of the TXOP.  NOTE—The encoding of TXOP Duration field is the same as the TXOP\_DURATION parameter(#Ed) in Table 26-1 (TXVECTOR and RXVECTOR parameters(#1780)).(#783) |
|  | B7 | Coding | 1 | Indicates whether BCC or LDPC is used:  Set to 0 to indicate BCC  Set to 1 to indicate LDPC(#1197) |
|  | B8 | LDPC Extra Symbol | 1 | Indicates the presence of the extra OFDM symbol for LDPC.(#1197)  Set to 1 if an extra OFDM symbol for LDPC is present  Set to 0 if an extra OFDM symbol for LDPC is present  Reserved and set to 1 when the Coding field is 0. |
|  | B9 | STBC | 1 | Set to 1 if space time block coding is used  Set to 0 otherwise |
|  | B10 | TxBF | 1 | Set to 1 if a Beamforming steering matrix is applied to the waveform in an SU transmission  Set to 0 otherwise |
|  | B11-B12 | A-factor | 2 | Indicate the "a-factor" value as defined in Table 26-37 (a-factor subfield encoding).(#2534) |
|  | B13 | PE Disambiguity | 1 | Indicate PE Disambiguity as defined in 26.3.12 (Packet extension(#1781)).(#2534) |
|  | B14 | Reserved | 1 | Reserved and set to 1 |
|  | B15 | Doppler | 1 | Set to 0 if Doppler mode is not used  Set to 1 if Doppler mode is used(#2167) |
|  | B16-B19 | CRC | 4 | CRC for bits 0-41 of the HE-SIG-A field (see 26.3.10.7.3 (CRC computation)). The first bit to be transmitted is bit *c7* as explained in 26.3.10.7.3 (CRC computation)).(#2535) |
|  | B20-B25 | Tail | 6 | Used to terminate the trellis of the convolutional decoder.  Set to 0. |
| NOTE—Integer fields are transmitted in unsigned binary format, LSB first, where the LSB is in the lowest numbered bit position. | | | | |

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| --- | --- | --- | --- | --- |
| The HE-SIG-A field for an HE extended range SU PPDU contains the fields listed in Table 26-X (HE-SIG-A field of an HE extended range SU PPDU).Table 26-X HE-SIG-A field of an HE extended range SU PPDU | | | | |
| Two Parts of HE-SIG-A | Bit | Field | Number of bits | Description |
| HE-SIG-A1 | B0 | Format | 1 | This field is reserved and set to 1 for an HE extended range SU PPDU.(#1196) |
|  | B1 | Beam Change | 1 | Set to 1 indicates that the pre-HE-STF portion of the SU PPDU is spatially mapped differently from HE-LTF1.  Set to 0 indicates that the pre-HE-STF portion of the SU PPDU is spatially mapped the same way as HE-LTF1 on each tone. |
|  | B2 | UL/DL | 1 | Indicates whether the PPDU is sent UL or DL:  Set to 0 for DL  Set to 1 for UL(#2002)  This field indicates DL for TDLS.  NOTE—The TDLS peer can identify the TDLS frame by To DS and From DS fields in the MAC header of the MPDU. |
|  | B3-B6 | MCS | 4 | When Bandwidth field set to 0 (242-tone RU):  Set to *n* for MCS*n*, where *n* = 0, 1, 2  Values 3-15 are reserved  When Bandwidth field set to 1 (right 106-tone RU in P20):  Set to 0 for MCS 0  Values 1-15 are reserved |
|  | B7 | DCM | 1 | Indicates whether or not DCM is applied to the Data field for the MCS indicated.  Set to 1 to indicate that DCM is applied to the Data field  Set to 0 to indicate that DCM is not applied to the Data field.  DCM is only applied for MCS0, MCS1, MCS3 and MCS4.  DCM is only applied for 1 and 2 spatial streams.  DCM is not applied when STBC is used.(#2007) |
|  | B8-B13 | BSS Color | 6 | The BSS Color field is an identifier of the BSS |
|  | B14 | Reserved | 1 | Reserved and set to 1(PHY Motion #162) |
|  | B15-B18 | Spatial Reuse | 4 | "SR\_allowed" signaling indicates whether SR operation is allowed or not. Set to 0 to indicate SR is disallowed. The conditions to disallow SR are TBD. Other details are TBD.  Notes: this part needs further development.(#2169) |
|  | B19-B20 | Bandwidth | 2 | Set to 0 for 242-tone RU  Set to 1 for right 106-tone RU within the primary 20 MHz  Values 2-3 are reserved |
|  | B21-B22 | GI+LTF Size(#1420) | 2 | Indicates the GI duration(#1420) and HE-LTF size.  Set to 0 to indicate a 1x HE-LTF and 0.8 µs GI  Set to 1 to indicate a 2x HE-LTF and 0.8 µs GI  Set to 2 to indicate a 2x HE-LTF and 1.6 µs GI  Set to 3 to indicate a 4x HE-LTF and 3.2 µs GI(#2005) |
|  | B23-B25 | Nsts | 3 | Indicates the number of space time streams.(#1457)  Set to 0 for 1 space time stream  Value 1 is TBD  Values 2-7 are reserved |
| HE-SIG-A3 | B0-B6 | TXOP Duration | 7 | Set to 127 to indicate no duration information. Set to value other than 127 to indicate duration information for NAV setting and protection of the TXOP.  NOTE—The encoding of TXOP Duration field is the same as the TXOP\_DURATION parameter(#Ed) in Table 26-1 (TXVECTOR and RXVECTOR parameters(#1780)).(#783) |
|  | B7 | Coding | 1 | Indicates whether BCC or LDPC is used:  Set to 0 to indicate BCC  Set to 1 to indicate LDPC(#1197) |
|  | B8 | LDPC Extra Symbol | 1 | Indicates the presence of the extra OFDM symbol for LDPC.(#1197)  Set to 1 if an extra OFDM symbol for LDPC is present  Set to 0 if an extra OFDM symbol for LDPC is present  Reserved and set to 1 when the Coding field is 0. |
|  | B9 | STBC | 1 | Set to 1 if space time block coding is used  Set to 0 otherwise |
|  | B10 | TxBF | 1 | Set to 1 if a Beamforming steering matrix is applied to the waveform in an SU transmission  Set to 0 otherwise |
|  | B11-B12 | A-factor | 2 | Indicate the "a-factor" value as defined in Table 26-37 (a-factor subfield encoding).(#2534) |
|  | B13 | PE Disambiguity | 1 | Indicate PE Disambiguity as defined in 26.3.12 (Packet extension(#1781)).(#2534) |
|  | B14 | Reserved | 1 | Reserved and set to 1 |
|  | B15 | Doppler | 1 | Set to 0 if Doppler mode is not used  Set to 1 if Doppler mode is used(#2167) |
|  | B16-B19 | CRC | 4 | CRC for bits 0-41 of the HE-SIG-A field (see 26.3.10.7.3 (CRC computation)). The first bit to be transmitted is bit *c7* as explained in 26.3.10.7.3 (CRC computation)).(#2535) |
|  | B20-B25 | Tail | 6 | Used to terminate the trellis of the convolutional decoder.  Set to 0. |
| NOTE—Integer fields are transmitted in unsigned binary format, LSB first, where the LSB is in the lowest numbered bit position. | | | | |

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**Discussion #7 (**D0.4, P170L48, P171L19, Section 26.3.10.7.4)

Equation (26-19) regarding BEAM\_CHANGE = 0 is wrongly modified from D0.3, which does not consider beamforming at all, and should be used in the equation. In addition, in Equation (26-21), the set of 20MHz channels is {0,1,…, , and *m* parameter range should be {1, …,}. Therefore, the equations should be changed as follows:

**Proposed text change #7:**

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To TGax Editor: (26-19), D0.4, P170L48, Section 26.3.10.7.4

If the TXVECTOR parameter BEAM\_CHANGE is 0, the time domain waveform of the HE-SIG-A field shall be as given by Equation (26-19).



To TGax Editor: (26-21), D0.4, P171L19, Section 26.3.10.7.4

If the TXVECTOR parameter BEAM\_CHANGE is 0, the time domain waveform for the HE-SIG-A field in an HE extended range SU PPDU, shall be as specified in Equation (26-21).(#2290)





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**Discussion #8 (**D0.4, P179L41, Section 26.3.10.8.5):

RU allocation subfield value in the example is wrong. The current value 01000011 describes four MU-MIMO STAs. It should be 01000y2y1y0 = 01000010 to indicate three MU-MIMO users, so please change Figure 26-25 as follows (Visio inserted object):

**Proposed text change #8:**

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To TGax Editor: D0.4, P179L41, Section 26.3.10.8.5



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**Discussion #9** (D0.4, P220L16, P222L21, Section 26.3.12)

Section number is wrong, Change from 8.4.2.1 to 9.4.2.1, and equation (26 113) is not a valid number. Update to (26-119).

**Proposed text change #9:**

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To TGax Editor: D0.4, P220L16, Section 26.3.12

For an(#2829) HE PPDU, the maximum PE durations as defined by the Maximum PE capabilities in HE capabilities (9.4.2.1 (HE Capabilities Element)) are 0 µs, 8 µs and 16 µs.

To TGax Editor: D0.4, P222L21, Section 26.3.12

The PE Disambiguity(#1049) subfield of the Packet Extension field shall be set to 1 if the condition in Equation (26-119) is met, otherwise it shall be set to 0.

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**References**

**[1] IEEE P802.11ax™/D0.4**