IEEE P802.11
Wireless LANs

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| 11be lb266 CR for Clause 36.3.11 Mathematical description of signals |
| Date: 2022-07-11 |
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Abstract: This document contains proposed resolutions for comments in *Clauses 36.3.11* from 11be D2.0 with 7 CIDs below.

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| ***Clause 36.3.11***10742, 10829, 12130, 12148, 12149, 13952, 13953 |  |
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| 10742 | 36.3.11.4 | 636.38 | Having implementation dependent parameters in the air interface is not appropriate. | Please clarify "implementation dependent" and revise to show valid air interface specification. Suggest using one of the examples. | **Rejected.**Depending on whether transmitted EHT 320MHz PPDU is non-punctured or punctured, and varying puncturing patterns, , and can be set dynamically in order to minimize PAPR of the transmitted signal. Optimizing the values of , and at the transmitter side is implementation dependent as long as low PAPR is achieved. For example, the transmitter PHY layer may set these values based on the punctured channel pattern values set in U-SIG. These parameters are transparent to receiver. Hence there is no need to define air interface to pass those parameters.  |

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| 10829 | 36.3.11.4 | 633.30 | Change T\_SYML with T\_U-SIG | As in the comment. | **Rejected.**In equation (36-9) and (36-10), Tsubfield is the duration of each OFDM symbol for a given field. For U-SIG field, each OFDM symbol duration is 4us = TSYML, and TU-SIG = 8us which is the entire duration of the U-SIG field.  |

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| 12130 | 36.3.11.2 | 628.50 | There are 4 EHT PPDU types for an 80MHz EHT PPDU transmission in the previous paragraph: nonpunctured non-OFDMA EHT PPDU that is not in EHT DUP mode, nonpunctured non-OFDMA EHT PPDU in EHT DUP mode, OFDMA EHT PPDU and punctured non-OFDMA EHT PPDU transmission. But nonpunctured non-OFDMA in EHT DUP mode is only used in 80MHz EHT PPDU. So for a 160/320 MHz EHT PPDU transmission, nonpunctured non-OFDMA 'that is not in EHT DUP mode' is the right expression. | In line 50 and line 56, modify '~ depending on whether it is nonpunctured non-OFDMA,~' to '~ depending on whether it is nonpunctured non-OFDMA that is not in EHT DUP mode,~'. | **Revised.**Agree with the commentor that nonpunctured non-OFDMA transmission covers both DUP mode and non-DUP mode. Since the two modes have different sets of subcarriers for the transmit signal, it is necessary to separate these two modes for 160MHz and 320MHz PPDU.TGbe editor: Incorporate the changes in <https://mentor.ieee.org/802.11/dcn/22/11-22-1164-00-00be-11be-lb266-CR-for-Clause-36-3-11-mathematical-description-of-signals.docx>. |
| 12148 | 36.3.11.2 | 628.53 | Subcarrier locations for a 320 MHz EHT PPDU transmission should be based on single or multiple RUs/MRUs allocation and puncturing or nonpuncturing in each 80 MHz frequency subblcok, rather than in each 160 MHz bandwidth. | change the paragraph at P628L53 to "For a 320 MHz EHT PPDU transmission, each of four 80 MHz frequency subblocks is divided into 1024 subcarriers for EHT modulated fields, and the subcarriers on which the signal is transmitted in each 80 MHz frequency subblock is identical to a 80 MHz EHT PPDU transmission, depending on whether it is nonpunctured non-OFDMA, punctured non-OFDMA, or OFDMA transmission within the corresponding 80 MHz." | **Revised.**Agree with the commentor that the subcarrier locations of a 320MHz PPDU transmission is essentially linked to subcarrier locations within each 80MHz subblock. In the current text, subcarrier locations within each half 160MHz bandwidth are referred as components which are essentially derived from 80MHz subblock subcarrier locations.TGbe editor: Incorporate the changes in <https://mentor.ieee.org/802.11/dcn/22/11-22-1164-00-00be-11be-lb266-CR-for-Clause-36-3-11-mathematical-description-of-signals.docx>. |

be editor: please make the following changes in D2.0 *Clause 36.3.11.2*:

* On P628L50 (CID #12130):

For a 160 MHz EHT PPDU transmission that is not in EHT DUP mode, each half 80 MHz bandwidth is divided into 1024 subcarriers for EHT modulated fields, and the subcarriers on which the signal is transmitted in each 80 MHz bandwidth is identical to an 80 MHz EHT PPDU transmission, depending on whether it is nonpunctured non-OFDMA that is not in EHT DUP mode, punctured non-OFDMA, or OFDMA transmission within the corresponding 80 MHz.

For a 160 MHz EHT PPDU transmission in EHT DUP mode, each half 80 MHz bandwidth is divided into 1024 subcarriers for EHT modulated fields, and the subcarriers on which the signal is transmitted in each 80 MHz bandwidth is identical to an 80 MHz EHT PPDU transmission in EHT DUP mode.

For a 320 MHz EHT PPDU transmission that is not in EHT DUP mode, each quarter 80 MHz bandwidth is divided into 1024 subcarriers for EHT modulated fields, and the subcarriers on which the signal is transmitted in each 80 MHz bandwidth is identical to an 80 MHz EHT PPDU transmission, depending on whether it is nonpunctured non-OFDMA that is not in EHT DUP mode, punctured non-OFDMA, or OFDMA transmission within the corresponding 80 MHz.

For a 320 MHz EHT PPDU transmission in EHT DUP mode, each half 160 MHz bandwidth is divided into 2048 subcarriers for EHT modulated fields, and the subcarriers on which the signal is transmitted in each 160 MHz bandwidth is identical to a 160 MHz EHT PPDU transmission in EHT DUP mode.

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| 12149 | 36.3.11.3 | 629.08 | "dot11ChannelStartingFactor denotes channel starting frequency."This description is incorrect.Change it to "dot11ChannelStartingFactor x 500 kHz denotes channel starting frequency." | As in comment. | **Revised.**dot11ChannelStartingFactor is the MIB value used to define channel starting frequency. The current text is not incorrect. It means that dot11ChannelStartingFactor indicates channel starting frequency while dot11ChannelStartingFactor x 500 kHz defines channel starting frequency. We already have defined in (36-3) as the channel starting frequency, the suggested change by the commentor is redundant. TGbe editor: Incorporate the changes in <https://mentor.ieee.org/802.11/dcn/22/11-22-1164-00-00be-11be-lb266-CR-for-Clause-36-3-11-mathematical-description-of-signals.docx>. |

be editor: please make the following changes in D2.0 *Clause 36.3.11.3*:

* On P629L08 (CID #12149):

where dot11EHTCurrentChannelCenterFrequencyIndex0 and dot11CurrentPrimaryChannel are defined in Table 36-24 (Fields to specify EHT channels), and dot11ChannelStartingFactor is used to define channel starting frequency, .

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| 13952 | 36.3.11.1 | 628.10 | The use of "matrix" is vague. Instead, it should mean the matrix Q. The variables N\_row and N\_col should be defined in the same sentence where they are first used. | Merge the first two bullets into one bullet as follows:- [Q]\_{m, n} indicates the element in row m and column n of the matrix Q, where 1<=m<=N\_row and 1<=n<=N\_col with N\_row and N\_col being the number of rows and columns, respectively, of the matrix Q." | **Accepted.**Agree with the commentor that the first two bullets should be merged into one bulletTGbe editor: Incorporate the changes in <https://mentor.ieee.org/802.11/dcn/22/11-22-1164-00-00be-11be-lb266-CR-for-Clause-36-3-11-mathematical-description-of-signals.docx>. |

be editor: please make the following changes in D2.0 *Clause 36.3.11.1*:

* On P628L10(CID #4846):

 indicates the element in row and column of the matrix , where and , with and being the number of rows and columns, respectively, of the matrix .

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| 13953 | 36.3.11.4 | 631.57 | Since Equation (36-8) clearly defines the complex baseband signal, the phrase "The signal" at the beginning of the sentence should be more specific. | Change "The signal" to "The complex baseband signal" | **Accepted.**Agree with the commentor that is the complex baseband signal. On P630L39 it is explicitly stated that represents the complex baseband signal of transmit chain . The suggested change is accepted for further clarity.TGbe editor: Incorporate the changes in <https://mentor.ieee.org/802.11/dcn/22/11-22-1164-00-00be-11be-lb266-CR-for-Clause-36-3-11-mathematical-description-of-signals.docx>. |

be editor: please make the following changes in D2.0 *Clause 36.3.11.1*:

* On P628L10(CID #4846):

The complex baseband signal transmitted on transmit chain shall be as shown in Equation (36-8).

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