IEEE P802.11  
Wireless LANs

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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Proposed Draft Text EHT PLME | | | | | | Date: 2020-09-10 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Youhan Kim | Qualcomm |  |  | youhank@qti.qualcomm.com | |

Abstract

This document contains proposed draft text for EHT PLME.

**Revision History:**

R0: Initial version.

R1: Changed 27.4.2 to 33.X1.2

R2: Changed clause 33 to clause 34.

R3: Updated PPDU names to EHT MU and TB PPDUs.  
Removed as much TBDs as possible by cross-referencing to other PDT documents that are ready now.  
Addressed comments from Editor (Edward Au).  
All changes in R3 relative to R2 can be found be enabling Track Changes in Microsoft Word.

R4: Updated Nsym to Nsym,RX in Equation (34-X5).

34.X1 EHT PLME

34.X1.1 PLME\_SAP sublayer management primitives

Table 34-X1 (EHT PHY MIB attributes) lists the MIB attributes that may be accessed by the PHY entities and the intralayer of higher level LMEs. These attributes are accessed via the PLME-GET, PLME-SET, PLME-RESET, and PLME-CHARACTERISTICS primitives defined in 6.5 (PLME SAP interface).

34.X1.2 PHY MIB

EHT PHY MIB attributes are defined in Annex C with specific values defined in Table 34-X1 (EHT PHY MIB attributes). The “Operational semantics” column in Table 34-X1 (EHT PHY MIB attributes) contains two types: static and dynamic.

* Static MIB attributes are fixed and cannot be modified for a given PHY implementation.
* Dynamic MIB attributes are interpreted according to the MAX-ACCESS field of the MIB attribute. If MAX-ACCESS is equal to read-only, the MIB attribute value may be updated by the PLME and read from the MIB attribute by management entities. if MAX-ACCESS is equal to read-write, the MIB attribute may be read and written by management entities.

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| Table 34-X1 - EHT PHY MIB attributes | | |
| Managed object | Default value/range | Operational semantics |
| **dot11PHYOperationTable** | | |
| dot11PHYType | eht | Static |
| **dot11PHYTxPowerTable** | | |
| dot11NumberSupportedPowerLevelsImplemented | Implementation dependent | Static |
| dot11TxPowerLevel1 | Implementation dependent | Static |
| dot11TxPowerLevel2 | Implementation dependent | Static |
| dot11TxPowerLevel3 | Implementation dependent | Static |
| dot11TxPowerLevel4 | Implementation dependent | Static |
| dot11TxPowerLevel5 | Implementation dependent | Static |
| dot11TxPowerLevel6 | Implementation dependent | Static |
| dot11TxPowerLevel7 | Implementation dependent | Static |
| dot11TxPowerLevel8 | Implementation dependent | Static |
| dot11CurrentTxPowerLevel | Implementation dependent | Static |
| dot11TxPowerLevelExtended | Implementation dependent | Static |
| dot11CurrentTxPowerLevelExtended | Implementation dependent | Static |
| **dot11PHYOFDMTable** | | |
| dot11TwentyMHzOperationImplemented | false/Boolean | Static |
| dot11ChannelStartingFactor | Implementation dependent | Dynamic |
| **dot11PHYHTTable** | | |
| dot11CurrentPrimaryChannel | Implementation dependent | Dynamic |
| dot11CurrentSecondaryChannel | Implementation dependent | Dynamic |
| dot11FortyMHzOperationImplemented | false/Boolean | Static |
| dot11FortyMHzOperationActivated | false/Boolean | Dynamic |
| dot11NumberOfSpatialStreamsImplemented | Implementation dependent | Static |
| dot11NumberOfSpatialStreamsActivated | Implementation dependent | Dynamic |
| dot11HTGreenfieldOptionImplemented | false/Boolean | Static |
| dot11HTGreenfieldOptionActivated | false/Boolean | Dynamic |
| dot11ShortGIOptionInTwentyImplemented | false/Boolean | Static |
| dot11ShortGIOptionInTwentyActivated | false/Boolean | Dynamic |
| dot11ShortGIOptionInFortyImplemented | false/Boolean | Static |
| dot11ShortGIOptionInFortyActivated | false/Boolean | Dynamic |
| dot11LDPCCodingOptionImplemented | false/Boolean | Static |
| dot11LDPCCodingOptionActivated | false/Boolean | Dynamic |
| dot11TxSTBCOptionImplemented | false/Boolean | Static |
| dot11TxSTBCOptionActivated | false/Boolean | Dynamic |
| dot11RxSTBCOptionImplemented | false/Boolean | Static |
| dot11RxSTBCOptionActivated | false/Boolean | Dynamic |
| dot11BeamFormingOptionImplemented | false/Boolean | Static |
| dot11BeamFormingOptionActivated | false/Boolean | Dynamic |
| **dot11PHYVHTTable** | | |
| dot11CurrentChannelWidth | Implementation dependent | Dynamic |
| dot11CurrentChannelCenterFrequencyIndex0 | Implementation dependent | Dynamic |
| dot11CurrentChannelCenterFrequencyIndex1 | Implementation dependent | Dynamic |
| dot11VHTChannelWidthOptionImplemented | Implementation dependent | Static |
| dot11EightyMHzOperationImplemented | false/Boolean | Static |
| dot11EightyMHzOperationActivated | false/Boolean | Dynamic |
| dot11VHTShortGIOptionIn80Implemented | false/Boolean | Static |
| dot11VHTShortGIOptionIn80Activated | false/Boolean | Dynamic |
| dot11VHTShortGIOptionIn160and80p80Implemented | false/Boolean | Static |
| dot11VHTShortGIOptionIn160and80p80Activated | false/Boolean | Dynamic |
| dot11VHTLDPCCodingOptionImplemented | false/Boolean | Static |
| dot11VHTLDPCCodingOptionActivated | false/Boolean | Dynamic |
| dot11VHTTxSTBCOptionImplemented | false/Boolean | Static |
| dot11VHTTxSTBCOptionActivated | false/Boolean | Dynamic |
| dot11VHTRxSTBCOptionImplemented | false/Boolean | Static |
| dot11VHTRxSTBCOptionActivated | false/Boolean | Dynamic |
| dot11VHTMaxNTxChainsImplemented | Implementation dependent | Static |
| dot11VHTMaxNTxChainsActivated | Implementation dependent | Dynamic |
| **dot11TransmitBeamformingConfigTable** | | |
| dot11ReceiveStaggerSoundingOptionImplemented | false/Boolean | Static |
| dot11TransmitStaggerSoundingOptionImplemented | false/Boolean | Static |
| dot11ReceiveNDPOptionImplemented | false/Boolean | Static |
| dot11TransmitNDPOptionImplemented | false/Boolean | Static |
| dot11ImplicitTransmitBeamformingOptionImplemented | false/Boolean | Static |
| dot11CalibrationOptionImplemented | Implementation dependent | Static |
| dot11ExplicitCSITransmitBeamformingOptionImplemented | false/Boolean | Static |
| dot11ExplicitNonCompressedBeamformingMatrixOptionImplemented | false/Boolean | Static |
| dot11ExplicitTransmitBeamformingCSIFeedbackOptionImplemented | Implementation dependent | Static |
| dot11ExplicitNoncompressedBeamformingFeedbackOptionImplemented | Implementation dependent | Static |
| dot11ExplicitCompressedBeamformingFeedbackOptionImplemented | Implementation dependent | Static |
| dot11NumberBeamFormingCSISupportAntenna | Implementation dependent | Static |
| dot11NumberNonCompressedBeamformingMatrixSupportAntenna | Implementation dependent | Static |
| dot11NumberCompressedBeamformingMatrixSupportAntenna | Implementation dependent | Static |
| **dot11VHTTransmitBeamformingConfigTable** | | |
| dot11VHTSUBeamformeeOptionImplemented | false/Boolean | Static |
| dot11VHTSUBeamformerOptionImplemented | false/Boolean | Static |
| dot11VHTMUBeamformeeOptionImplemented | false/Boolean | Static |
| dot11VHTMUBeamformerOptionImplemented | false/Boolean | Static |
| dot11VHTNumberSoundingDimensions | Implementation dependent | Static |
| dot11VHTBeamformeeNTxSupport | Implementation dependent | Static |
| **dot11PHYHETable** | | |
| dot11HECurrentChannelWidthSet | Implementation dependent | Dynamic |
| dot11HEPuncturedPreambleRxImplemented | Implementation dependent | Static |
| dot11HEPuncturedSoundingOptionImplemented | Implementation dependent | Static |
| dot11HEDeviceClass | Implementation dependent | Static |
| dot11HELDPCCodingInPayloadImplemented | false/Boolean | Static |
| dot11HESUPPDUwith1xHELTFand0point8GIlmplemented | false/Boolean | Static |
| dot11HESUPPDUandHEMUPPDUwith4xHELTFand0point8GIlmplemented | false/Boolean | Static |
| dot11HEERSUPPDUwith4xHELTFand0point8GIImplemented | false/Boolean | Static |
| dot11HEERSUPPDUwith1xHELTFand0point8GIImplemented | false/Boolean | Static |
| dot11HEMidambleRxMaxNSTS | false/Boolean | Dynamic |
| dot11HENDPwith4xHELTFand3point2GIImplemented | false/Boolean | Static |
| dot11HESTBCTxLessThanOrEqualTo80Implemented | false/Boolean | Static |
| dot11HESTBCRxLessThanOrEqualTo80Implemented | false/Boolean | Static |
| dot11HESTBCTxGreaterThan80Implemented | false/Boolean | Static |
| dot11HESTBCRxGreaterThan80Implemented | false/Boolean | Static |
| dot11HEDopplerTxImplemented | false/Boolean | Static |
| dot11HEDopplerRxImplemented | false/Boolean | Static |
| dot11HEDCMImplemented | Implementation dependent | Static |
| dot11HEFullBWULMUMIMOImplemented | false/Boolean | Static |
| dot11HEPartialBWULMUMIMOImplemented | false/Boolean | Static |
| dot11HEPartialBWDLMUMIMOImplemented | false/Boolean | Static |
| dot11HEULMUPayloadImplemented | false/Boolean | Static |
| dot11HEPSRbasedSRSupportImplemented | false/Boolean | Static |
| dot11HEPowerBoostFactorImplemented | false/Boolean | Static |
| dot11HEPartialBWERSUPayloadImplemented | false/Boolean | Static |
| **dot11HETransmitBeamformingConfigTable** | | |
| dot11HESUBeamformerOptionImplemented | false/Boolean | Static |
| dot11HESUBeamformeeOptionImplemented | false/Boolean | Static |
| dot11HEMUBeamformerOptionImplemented | false/Boolean | Static |
| dot11HEBeamformeeSTSSupportLessThanOrEqualTo80 | Implementation dependent | Static |
| dot11HEBeamformeeSTSSupportGreaterThan80 | Implementation dependent | Static |
| dot11HENumberSoundingDimensionsLessThanOrEqualTo80 | Implementation dependent | Static |
| dot11HENumberSoundingDimensionsGreaterThan80 | Implementation dependent | Static |
| dot11HENG16SUFeedbackSupport | false/Boolean | Static |
| dot11HENG16MUFeedbackSupport | false/Boolean | Static |
| dot11HECodebookSizePhi4Psi2SUFeedbackSupport | false/Boolean | Static |
| dot11HECodebookSizePhi7Psi5MUFeedbackSupport | false/Boolean | Static |
| dot11HETriggeredSUBeamformingFeedbackImplemented | false/Boolean | Static |
| dot11HETriggeredMUBeamformingFeedbackImplemented | false/Boolean | Static |
| dot11HETriggeredCQIFeedbackSupportImplemented | false/Boolean | Static |
| **dot11PHYEHTTable** | | |
| dot11EHTCurrentChannelWidthSet | Implementation dependent | Dynamic |
| **dot11EHTTransmitBeamformingConfigTable** | | |
|  |  |  |

34.X1.3 TXTIME and PSDU\_LENGTH calculation

The value of the TXTIME parameter returned by the PLME-TXTIME.confirm primitive shall be calculated for an EHT PPDU using Equation (34-X1).

 (34-X1)

where

 is defined as in Equation (34-3.12-9) and *SignalExtension* takes the value of aSignalExtension as defined in Table 27-55 (HE PHY characteristics).

For an EHT MU PPDU, the total number of data OFDM symbols, *NSYM*, is given in 34.3.11.5.4 (Encoding process for an EHT MU PPDU).

For an EHT TB PPDU, the total number of data OFDM symbols, *NSYM*, is given in 34.3.11.5.5 (Encoding process for an EHT TB PPDU).

*TPE* is given in 34.X2 (Packet extension).

The value of the PSDU\_LENGTH parameter returned in the PLME-TXTIME.confirm primitive for an EHT TB PPDU is calculated using Equation (34-X2).

 (34-X2)

where

*NSYM,init* is given in 34.3.11.5.5 (Encoding process for an EHT TB PPDU)

*NDBPS* is given in 34.X3 (Parameters for EHT-MCSs)

*NDBPS,last,init* is given by TBD

The value of the PSDU\_LENGTH parameter for user *u* returned in the PLME-TXTIME.confirm primitive for an EHT MU PPDU is calculated using Equation (34-X3) and Equation (34-X4) for users using BCC and LDPC, respectively.

 (34-X3)

 (34-X4)

*NSYM,init* is given by Equation (34-3.11.5-5)

*NDBPS,u* is given in Table 34-X3 (Frequently used parameters)

*NDBPS,last,u* is given by Equation (34-3.11.5-16) for users using BCC and Equation (34-3.11.5-15) for users using LDPC

*NDBPS,last,init,u* is given by Equation (34-3.11.5-6)

For an EHT TB PPDU, the value of the PSDU\_LENGTH parameter returned in the RXVECTOR is calculated using Equation (34-X5).

 (34-X5)

where

*NSYM,RX* is given by Equation (34-X6)

*NDBPS,last,RX*  is given by Equation (34-X7)

*NDBPS* is defined in Table 34-X3 (Frequently used parameters)

*Nservice* and *Ntail* are defined in Table 34-X4 (Timing-related constants)

 (34-X6)

*Editor’s Note: Field names/locations in Equation (34-X6) needs to be updated once the preamble design is finalized.*

where

*NSYM* is given by TBD

 (34-X7)

where

*aRX* is given by Equation (34-X8)

*NSD,short* is defined in Table 34-X5 (NSD,short values)

*NSS*, *NBPSCS*, *R* are defined in Table 34-X3 (Frequently used parameters)

 (34-X8)

*Editor’s Note: Field names/locations in Equation (34-X8) needs to be updated once the preamble design is finalized.*

where

*a* is the pre-FEC padding factor (ranging from 1 to 4) indicated in U-SIG or EHT-SIG.

For an EHT MU PPDU, the value of the RXVECTOR parameter PSDU\_LENGTH returned for user *u* is calculated using Equation (34-X9).

 (34-X9)

where

*NSYM,RX,u* is given by Equation (34-X10)

*NDBPS,last,RX,u* is given by Equation (34-X11)

*NDBPS,u* is defined in Table 34-X3 (Frequently used parameters)

*Nservice* and *Ntail,u* are defined in Table 34-X4 (Timing-related constants)

 (34-X10)

*Editor’s Note: Field names/locations in Equation (34-X10) needs to be updated once the preamble design is finalized.*

where

*NSYM* is given by Equation (34-3.12-7)

 (34-X11)

*Editor’s Note: Field names/locations in Equation (34-X11) needs to be updated once the preamble design is finalized.*

where

*aRX,u* is given by Equation (34-X12)

*NSD,short,u* is *NSD,short* defined in Table 34-X5 (NSD,short values) for user *u*

*NSS,u*, *NBPSCS,u*, *Ru* are defined in Table 34-X3 (Frequently used parameters)

 (34-X12)

*Editor’s Note: Field names/locations in Equation (34-X12) needs to be updated once the preamble design is finalized.*

where

*a* is the pre-FEC padding factor (ranging from 1 to 4) indicated in U-SIG or EHT-SIG

34.X1.4 EHT PHY

The static EHT PHY characteristics is provided through the PLME-CHARACTERISTICS service primitive. If listed in Table 34-X2 (EHT PHY characteristics), then the static EHT PHY characteristics shall be as shown in Table 34-X2 (EHT-PHY characteristics). Otherwise, if listed in Table 27-55 (HE PHY characteristics), then the static EHT PHY characteristics shall be as shown in Table 27-55 (HE PHY characteristics). Otherwise, the static EHT PHY characteristics shall be as shown in Table 19-25 (HT PHY characteristics). The definitions for these characteristics are given in 6.5 (PLME SAP interface).

|  |  |
| --- | --- |
| Table 34-X2 - EHT PHY characteristics | |
| Characteristic | Value |
| aPSDUMaxLength | [TBD] |
| aRxPHYStartDelay | [TBD] |

[End of File]