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Wireless LANs

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| 11be PDT: EHT transmit procedure |
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Abstract

This contribution proposes the draft text on transmit procedure for TGbe D0.1.

R0:

36.3.20 EHT transmit procedure

There are three paths for the transmit PHY procedure.

The first two paths, for which typical transmit procedures are shown in Figure 36-MU (PHY transmit procedure for an EHT MU PPDU) and Figure 36-TB (PHY transmit procedure for an EHT TB PPDU), are selected if the FORMAT field of the PHY-TXSTART.request(TXVECTOR) primitive is equal to EHT\_MU or EHT\_TB respectively.



Figure 36-MU. PHY transmit procedure for an EHT MU PPDU



Figure 36-TB. PHY transmit procedure for an EHT TB PPDU

The third path is to follow the transmit procedure in Clause 17 (Orthogonal frequency division multiplexing (OFDM) PHY specification) if the FORMAT parameter of the PHYTXSTART.request(TXVECTOR) primitive is NON\_HT and the NON\_HT\_MODULATION parameter is NON\_HT\_DUP\_OFDM, except that the signal is generated simultaneously on each of the 20 MHz channels identified by the CH\_BANDWIDTH parameter as defined in 36.3.11 (EHT preamble) and 36.3.14 (Non-HT duplicate transmission).

NOTE 1—For an EHT MU PPDU the A-MPDU is per user in the MAC sublayer and the EHT Training Symbols, and Data are per user in the PHY in Figure 36-MU (PHY transmit procedure for an EHT MU PPDU).

NOTE 2—The transmit procedure for NON\_HT, HT\_MF, HT\_GF, VHT and HE format are specified in 36.2.6 (Support for non-HT, HT, VHT and HE formats).

In all options, in order to transmit data, the MAC generates a PHY-TXSTART.request primitive, which causes the PHY entity to enter the transmit state. Further, the PHY is set to operate at the appropriate frequency through station management via the PLME, as specified in 36.4 (EHT PLME). Other transmit parameters, such as EHT -MCS, Coding types and transmit power, are set via the PHY-SAP using the PHYTXSTART.request(TXVECTOR) primitive, as described in 36.2.2 (TXVECTOR and RXVECTOR parameters). After transmitting a PPDU that carries a Trigger frame, the MAC sublayer issues a PHY-TRIGGER.request with a TRIGVECTOR parameter that provides the PHY entity with the information needed to demodulate the expected EHT TB PPDU response. The remainder of the clause applies to the first two paths.

The PHY indicates the state of the primary channel and other channels (if any) via the PHY-CCA.indication primitive (see 36.3.18.5 (CCA sensitivity) and 8.3.5.12 (PHY-CCA.indication)). Transmission of the PPDU shall be initiated by the PHY after receiving the PHY-TXSTART.request(TXVECTOR) primitive. The TXVECTOR parameters(#22215) for the PHY-TXSTART.request primitive are specified in Table 36-1 (TXVECTOR and RXVECTOR parameters).

After the PHY preamble transmission is started, the PHY entity immediately initiates data scrambling and data encoding. The encoding method for the Data field is based on the FEC\_CODING, CH\_BANDWIDTH, NUM\_NSS, MCS, and NUM\_USERS parameters of the TXVECTOR, as described in 36.3.4 (EHT PPDU formats).

The SERVICE field and PSDU are encoded as described in 36.3.5 (Transmitter block diagram). The data shall be exchanged between the MAC and the PHY through a series of PHY-DATA.request(DATA) primitives issued by the MAC, and PHY-DATA.confirm primitives issued by the PHY. PHY padding bits are appended to the PSDU to make the number of bits in the coded PSDU an integral multiple of the number of coded bits per OFDM symbol.

Transmission can be prematurely terminated by the MAC through the PHY-TXEND.request primitive. PSDU transmission is terminated by receiving a PHY-TXEND.request primitive. Each PHY-TXEND.request primitive is acknowledged with a PHY-TXEND.confirm primitive from the PHY.

A packet extension and/or a signal extension may be present in the PPDU. The PHY-TXEND.confirm primitive is generated at the latest of the actual ending time of the PPDU, the end of the packet extension if present, and the end of the signal extension if present.

In the PHY, the GI with GI duration indicated in GI\_TYPE parameter of the TXVECTOR is inserted in every data OFDM symbol as a countermeasure against delay spread.

Once the PPDU transmission is completed the PHY entity enters the receive state.

A typical state machine implementation for the transmission of an EHT PPDU is shown in Figure 36-Flow (PHY transmit state machine for an EHT PPDU). Request (.request) and confirmation (.confirm) primitives are issued once per state as shown.



Figure 36-Flow (PHY transmit state machine for an EHT PPDU)