142.4 Nx25G-EPON Physical Medium Attachment (PMA) sublayer

142.4.1 Service Interface

The PMA provides a Service Interface to the PCS. These services are described in an abstract manner and do not imply any particular implementation. The PMA Service Interface supports the exchange of 257-bit single data-unit vectors between PCS entities. The PMA converts 257-bit single data-unit vectors into bits and passes these to the PMD, and vice versa.

The following primitives are defined:

PMA_UNITDATA[i].request(*tx_code_group<256:0>*)

PMA_UNITDATA[i].indication(*rx_code_group<256:0>*)

PMA_SIGNAL[i].request(*tx_enable*)

PMA_SIGNA[i].indication(SIGNAL_OK)

where "[i]" represents the PMA Channel: 0 or 1.

142.4.1.1 PMA_UNITDATA[i].request

This primitive defines the transfer of data (in the form of 257-bit single data-unit vectors) from the PCS to the PMA by the PCS Transmit process, see 142.2.

142.4.1.1.1 Semantics of the service primitive

PMA_UNITDATA[i].request(*tx_code_group<256:0>*)

Data is conveyed to PMA_UNITDATA[i].request() as described in the PCS Transmit State Diagram via the *PassToPMA(v)* function, see Figure 142-12.

Editor: for function: PassToPMA(v): Page 124, line 22 change: "This function passes a 257-bit block v to the PMA." to "This function transfer the 257-bit block v to the PMA using PMA_UNITDATA[i].request(v)."

142.4.1.1.2 When generated

The PCS continuously sends *tx_code_group<256:0>* single data-unit vectors to the PMA according to the PMA transmit clock at either 25.78125 / 257 GHz or 10.3125 / 257 GHz as defined in 142.4.3.

142.1.1.3 Effect of receipt

Upon receipt of this primitive, the PMA generates a serial bit stream for conveying data to the PMD, see 141.3.1.1.

142.4.2.1 PMA_UNITDATA[i].indication

This primitive defines the transfer of data (in the form of 257-bit single data-unit vectors) from the PMA to the PCS. PMA_UNITDATA[i].indication is used by the PCS receive path processes, see 142.3.5.

142.4.1.2.1 Semantics of the service primitive

PMA_UNITDATA[i].indication(*rx_code_group<256:0>*)

The data conveyed by PMA_UNITDATA[i].indication is the *rx_code_group<256:0>* parameter that is used in the *Shift* function (see 142.3.5.3). *Shift* is used in the OLT Synchronizer Process, see Figure 142-15, and in the ONU Synchronizer Process, see Figure 142-16.

142.4.1.2.2 When generated

The PMA continuously sends *rx_code_group<256:0>* single data-unit vectors to the PCS according to the PMA transmit clock at either 25.78125 / 257 GHz or 10.3125 / 257 GHz as defined in 142.4.3.

142.1.2.3 Effect of receipt

The effect of receipt of this primitive by the client is unspecified by the PMA sublayer.

142.4.3 PMA_SIGNAL[i].request

This primitive is used to turn the laser on and off at the PMD sublayer. In the OLT, this primitive shall always take the value ON. In the ONU, the value of this variable is controlled by the PCS Transmit function, see Figure 142-12.

142.4.4 PMA_SIGNAL[i].indication

PMA_SIGNAL[i].indication is generated by the PMA receive process to propagate the detection of severe error conditions (e.g. no valid signal being received from the PMD sublayer) to the PMA client.

142.4.4.1 Semantics of the service primitive

PMA_SIGNAL[i].indication (SIGNAL_OK)

The SIGNAL_OK can take one of two values: OK or FAIL. A value of FAIL denotes that invalid data is being presented to the PMA client. A value of OK does not guarantee valid data is being presented to the PMA client.

142.4.4.2 When generated

The PMA generates a PMA_SIGNAL[i].indication primitive to the PMA client whenever there is change in the value of the SIGNAL_OK parameter.

142.4.4.3 Effect of receipt

The effect of receipt of this primitive by the client is unspecified by the PMA sublayer.