201.5.2.4 PMA Receive function

The PMA Receive function includes a receiver for PAM4 and PAM2 for HS_RX and DME for LS_RX on the single balanced pair of conductors for -T1 or the single coax for -V1. PMA Receive contains the circuits necessary to both detect symbol sequences from the signals received at the MDI and to present these sequences to the PCS Receive function. The PMA translates the signals received at the MDI into the PMA_UNITDATA.indication parameter rx_symb. The quality of these symbols shall allow RFER of less than 2×10^{-10} after RS-FEC decoding, over a channel meeting the requirements of 201.9 for -T1 and of 201.10 for -V1.

The PMA Receive function uses the parameters pcs_status and scr_status, along with other applicable receiver status, and generates the loc_rcvr_status variable accordingly. The loc_rcvr_status variable is expected to become NOT_OK when the link partner's tx_mode changes to SEND_Z from any other value (see the PHY Control state diagram in Figure 201‑22). The precise algorithm for generation of loc_rcvr_status is implementation dependent.

The receiver uses the sequence of symbols during the training sequence to detect and correct for pair polarity swaps.

The PMA Receive fault function is optional. The PMA Receive fault function is the logical OR of the link_status = FAIL and any implementation specific fault. If the MDIO interface is implemented, then this function shall contribute to the receive fault bit specified in 45.2.1.7.5 and 45.2.1.250.7.