Update the text in 135.5.7.2 as follows…

135.5.7.2 Precoding for PAM4 encoded lanes

For PMA lanes ~~encoded as PAM4~~adjacent to a 50GBASE-CR PMD, 50GBASE-KR PMD, 100GBASE-CR2 PMD, 100GBASE-KR2 PMD, 50GAUI-1 C2C, or 100GAUI-2 C2C, the PMA shall provide 1/(1+D) mod 4 precoding capability on each ~~transmit~~ output lane and may optionally provide 1/(1+D) mod 4 decoding capability on each ~~receive~~ input lane.

On each ~~transmit~~ output lane, for each Gray-coded symbol G(j), a precoded symbol P(j) shall be determined by the following algorithm, where j is an index indicating the symbol number:

   (0–1)P(j) = (G(j) – P(j-1)) mod 4

On each ~~receive~~ input lane, for each precoded symbol P(j), a Gray-code symbol G(j) shall be determined by the following algorithm:

   (0–2)G(j) = (P(j) + P(j-1)) mod 4

The precoder is enabled independently for the input and output in each direction (Tx direction toward the PMD and Rx direction toward the MAC) and on each lane (0 and 1). Precoding is enabled and disabled using variables precoder_tx_out_enable_i, precoder_rx_in_enable_i, precoder_rx_out_enable_i, and precoder_tx_in_enable_i (where i is 0 or 1). If a Clause 45 MDIO is implemented, the variables precoder_tx_out_enable_i, precoder_rx_in_enable_i, precoder_rx_out_enable_i, and precoder_tx_in_enable_i are accessible through registers 1.600, 1.601, 1.602, and 1.603 (see 45.2.1.116h through 45.2.1.116k).

~~The variables precoder_rx_out_enable_*i* and precoder_tx_in_enable_*i* are always set to 0 in a PMA that does not have a physical instantiation of its service interface towards the MAC. The variables precoder_tx_out_enable_*i* and precoder_rx_in_enable_*i* are always set to 0 in a PMA that does not have a physical instantiation of its service interface towards the PMD and is not adjacent to a PMD.~~

~~In a PMA that is~~For PMA lanes adjacent to a 50GBASE-CR PMD, 50GBASE-KR PMD, 100GBASE-CR2 PMD, or 100GBASE-KR2 PMD, precoder_tx_out_enable_i and precoder_rx_in_enable_i shall be set as determined by the PMD control function on lane i (see 136.8.11.7.5). The method by which the PMD control function affects these variables is implementation dependent. ~~In a PMA that is adjacent to any other PMD, precoder_tx_out_enable_*i* and precoder_rx_in_enable_*i* are always set to 0.~~

For PMA lanes adjacent to a 50GAUI-1 C2C or a 100GAUI-2 C2C, precoder_tx_out_enable_i, precoder_rx_in_enable_i, precoder_tx_in_enable_i, and precoder_rx_out_enable_i are set as required by the implementation. The implementation may use the method described in 135F.3.2.1.

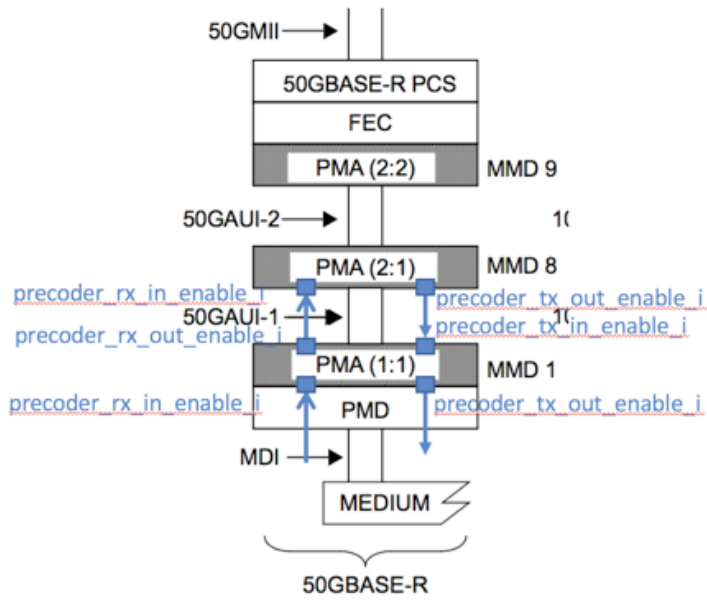Add the following diagrams to 135.5.7.2

Figure 135-x: Example precoder variable locations for a PHY with 50GAUI-1

Update the text in 120.5.7.2 as follows…

120.5.7.2 Precoding for PAM4 encoded lanes

~~A~~ For PMA lanes adjacent to a 200GBASE-CR4 PMD or 200GBASE-KR4 PMD, the PMA shall provide 1/(1+D) mod 4 precoding capability on all transmit lanes and may optionally provide 1/(1+D) mod 4 decoding capability on all receive lanes on the PMD service interface. Precoding is implemented as specified in 135.5.7.2.

The precoder is enabled independently on the Tx output (toward the PMD) and the Rx input (from the PMD) on each lane (0, 1, 2, and 3). Precoding is enabled and disabled using variables precoder_tx_out_enable_i and precoder_rx_in_enable_i (where i is 0, 1, 2, or 3).

If a Clause 45 MDIO is implemented, the variables precoder_tx_out_enable_i and precoder_rx_in_enable_i are accessible through register 1.600 and 1.601 (see 45.2.1.116h and 45.2.1.116i).

~~The variables precoder_tx_out_enable_i and precoder_rx_in_enable_i are always set to 0 in a PMA that is not adjacent to a 200GBASE-CR4 or 200GBASE-KR4 PMD.~~

The variables precoder_tx_out_enable_i and precoder_rx_in_enable_i shall be set as determined by the PMD control function on lane i (see 136.8.11.7.5). The method by which the PMD control function affects these variables is implementation dependent.