802.3cd REVISION REQUEST

DATE: November 9, 2020
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REQUESTED REVISION:
STANDARD: 802.3cd
CLAUSE NUMBER: 120.5.7.2, 135.5.7.2
CLAUSE TITLE: Precoding for PAM4 encoded lanes

PROPOSED REVISION TEXT:
Replace the fourth paragraph (added by 802.3cd), which reads:

"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."

With the following two paragraphs:
"If the PMA is connected to the service interface of a PMD that uses the PMD control function (136.8.11), then precoder_tx_out_enable_i and precoder_rx_in_enable_i shall be set as determined by the PMD control function on lane i. The method by which the PMD control function affects these variables is implementation dependent.

If the PMA is connected to the service interface of a PMD that supports the PMD control function but training is disabled by the management variable mr_training_enable (see 136.7), or if the PMA is part of a 200GAUI-4 C2C link, then 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 method described in 135F.3.2.1 may be used for 200GAUI-4 C2C."

In 135.5.7.2, replace the fifth and sixth paragraph, which read:

"For PMA input and output lanes connected to the PMD service interface of 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.

For PMA input and output lanes that are part of a 50GAUI-1 C2C or a 100GAUI-2 C2C link, 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."

With the following two paragraphs:
"If the PMA is connected to the service interface of a PMD that uses the PMD control function (136.8.11), then precoder_tx_out_enable_i and precoder_rx_in_enable_i shall be set as determined by the PMD control function on lane i. The method by which the PMD control function affects these variables is implementation dependent.
If the PMA is connected to the service interface of a PMD that supports the PMD control function but training is disabled by the management variable mr_training_enable (see 136.7), or if the PMA is part of a 50GAUI-1 C2C or a 100GAUI-2 C2C link, then 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 method described in 135F.3.2.1 may be used for 50GBASE-1 C2C or 100GAUI-2 C2C."

RATIONALE FOR REVISION:

This change was suggested in comment #221 against D1.0 of P802.3ck. Since this change is in existing text, it was considered out of scope for the project. Therefore a maintenance request is submitted.

The existing text in Clause 120 was added by 802.3cd to enable setting the precoding in each direction based on the results of the startup (training) protocol for 200GBASE-R PHYs that include the PMD control function. The text in Clause 135 uses similar language for 50GBASE-R and 100GBASE-R PHYs.

However, in both places there is no addressing of the possible case where the training protocol is disabled, and the Clause 120 text does not address 200GAUI-4 C2C where a training protocol is not defined. In these cases, the precoding in each direction and on each side of the link must be set correctly by management instead.

The revision text suggested above is an attempt to address all PMDs which use training without creating an explicit list. It also addresses setting the precoding controls by management in the AUI-C2C cases.

IMPACT ON EXISTING NETWORKS:

None. This change is practically stating explicitly that correct setting by management is required.