

Clock Recovery Text in Clause 201

G. Zimmerman, CME Consulting

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Comment:

Clock Recovery is actually a function within PMA Receive. Loop timing is accomplished when we generate a transmit clock. This has been a long-standing error in 802.3 standards, since clause 40. Asymmetric functionality has added new functionality to clock recovery, and requires we fix this.

Suggested Remedy:

General/ Block Diagrams and Description:

Change name of CLOCK RECOVERY function to TX CLOCK GENERATION function in block diagrams – this effects both the block diagrams and the text descriptions, as follows:

Change Block label (clock recovery to tx clock generation) in Figures 201-3 & 201-4 (P61 & 62), and 201-25 (P108)

Change Figures 201-3, 201-4, and 201-25 (PHY functional block diagrams and PMA block diagram) (all figures):

Change label of signal going from PMA RECEIVE to TX CLOCK GENERATION from “received_clock” to “recovered_rx_clock”, (and in Figure 201-4, change the bidirectional arrow to a one-way arrow from PMA RECEIVE to TX CLOCK GENERATION).

Change label of signal going from TX CLOCK GENERATION to PMA TRANSMIT from “recovered_clock” to “tx_symbol_clock”.

Change NOTE on Figures 201-3, 201-4, and 201-25 to read “The tx_symbol_clock is derived from the recovered_rx_clock when the PHY is loop timed, otherwise it is derived from a local clock source.”

Change “clock recovery” to “tx clock generation” (block diagram description and block name in text) at: P59 L39 & 45 text (201.1.3), P70 L48 (201.2.2.2.3), and P108 L42 (201.5.2)

In 201.2.2.4 PMA_UNITDATA.indication:

Change text in 201.2.2.4.1 (P71 L49) from: “during each cycle of the recovered clock.”
to: “during each cycle of the clock recovered from the received signal by the PMA Receive function (recovered_rx_clock).”

Change text in 201.2.2.4.2 (P72 L6 and P72 L7) from “as governed by the recovered clock.”
to: “as governed by rx_recovered_clock.”

In PMA Transmit function

Change text in 201.5.2.2 PMA Transmit function (P109 L24) from “recovered clock of 201.5.2.9” to “tx_symbol_clock of 201.5.2.9”

In 201.5.2.9 Clock Recovery function:

(P127 L1) Change header of 201.5.2.9 (Clock Recovery function) to “Tx Clock Generation function”.

Change text from:

“The Clock Recovery function shall provide a clock suitable for signal sampling so that the RFER indicated in 201.5.2.3 for the HS_PATH and in 201.5.2.5 for the LS_PATH is achieved. The received clock signal is expected to be stable and ready for use when training has been completed. The received clock signal is supplied to the PMA Transmit function by received_clock.”

To:

“The Tx Clock Generation function provides a clock for use by PMA Transmit, labeled tx_symbol_clock in Figure 201-25. The clock is derived from a local clock source when the parameter config is LEADER, and is derived from the clock recovered from the received signal by PMA Receive when config is FOLLOWER. Derivation of the transmit clock generally involves clock multiplication or division. For the LEADER, the tx_symbol_clock signal is expected to be stable and ready for use whenever the transmitter is enabled. For the FOLLOWER, the tx_symbol_clock signal is expected to be stable and ready to use when PHY Control has proceeded to the entry to the TRAINING state.”