

IEEE Standards Interpretation for IEEE Std 802.3ab™-1999 IEEE Standard for Local and Metropolitan Area Networks - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method and Physical Layer Specifications - Physical Layer Parameters and Specifications for 1000 Mb/s Operation over 4 pair of Category 5 Balanced Copper Cabling, Type 1000BASE-T

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Interpretation Request #1

Topic: Generation of quinary symbols TAn, TBn, TCn, and TDn. **Relevant Clause:** 40.3.1.3.5 **Classification:** Unambiguous

In looking at the description of "Encoding of End-of-Stream delimiter" in 40.3.1.3.5, the second paragraph, beginning "If carrier extend error is indicated during ESD, . . ., two conditions upon which this may occur are . . ."

The two conditions given are redundant. To see this, note that the second condition contains all of the terms of the first, but with one additional condition, (tx_error<n-3). Any time the second condition holds, the first necessarily does as well!

Logically, it is sufficient to test for only the first condition. Is there some error in one of the stated conditions?

Interpretation Response #1

NOTE: All of the contents of IEEE Std 802.3ab-1999, IEEE Std 802.3ac-1998, and IEEE Std 802.3ad-2000 are included in IEEE Std 802.3, 2000 Edition.

Subclause 40.3.1.3, PCS transmit function, clearly states that "The PCS transmit function shall conform to the PCS transmit state diagram in Figure 40-9."

With reference to Figure 40-9 it can be seen that ESD_Ext_Err can be present at 2 separate symbol times; in one case, 3 symbols after the end of frame and in the other, 4 symbols after the end of frame. These correspond to the states "ESD1 VECTOR with Extension" and "ESD2 VECTOR with Extension" when tx_error is asserted and TXD!=0xOF in Figure 40-9.

Hence what this text is describing is not combinational logic but the two separate states in the state machine that result in the transmission of ESD_Ext_Err.

Interpretation Request #2

Topic: Aperiodic operation of MDC **Relevant Clause:** 22.2.2.11 **Classification:** Unambiguous

Clause 22.2.2.11 states "MDC is an aperiodic signal that has no maximum high or low times." This implies that MDC can be turned off. However, the resulting MMD behavior is unclear. For example, would an MDIO interface be compliant with the spec. if it were to require 2 additional MDC cycles, following a register write, before the MMD acted on the new data?

Interpretation Response #2

NOTE: All of the contents of IEEE Std 802.3ab-1999, IEEE Std 802.3ac-1998, and IEEE Std 802.3ad-2000 are included in IEEE Std 802.3, 2000 Edition.

The standard clearly states in subclause 22.2.2.11 that the MDC has no maximum high or low times and hence the MDC can be halted, if desired, at any time.

There is no requirement for an STA to send additional cycles following the last bit of a management frame on the MDIO, so a PHY may not get any additional cycles until the next MDIO operation is performed.

An MDIO interface that required 2 additional cycles before acting on the new data would not be compliant.