Interpretation Number: 2-11/02 - Item 1 (10Mb/s Carrier Detect)
Topic: 10Mb/s Carrier Detect
Relevant Clause: Figure 7-6 and Figure 24-14.
Classification: Unambiguous

Interpretation Request

Clause: 7. Physical Signaling (PLS) and Attachment Unit Interface (AUI) specifications

Specific subsection: Figure 7-6 -PLS Input and Data_Valid function

In the above mentioned figure,

1. In most of the states DATA_VALID_STATUS takes value DATA_NOT_VALID only and no where it takes DATA_VALID value. Please clarify in which states it has to be assigned to DATA_NOT_VALID and in which states DATA_VALID value.

2. In DISCARD TRASH state the action mentioned is to " Discard the first 15 bits received ". Is this 15 bits corresponds to Preamble bits?? How MAC will interprete about this discarding. Please clarify why it is so?

Interpretation for IEEE std 802.3-2002

1. DATA_VALID_STATUS

The standard states in subclause 7.2.2.1.6 DATA_VALID_STATUS 'The PLS sublayer sends the MAC sublayer DATA_VALID_STATUS whenever the PLS sublayer detects a change in receive data status. The PLS sublayer sends DATA_VALID when it receives an *input* message from the PMA and the previous DATA_VALID_STATUS that the PLS sublayer sent to the MAC sublayer was DATA_NOT_VALID. The PLS sublayer sends DATA_NOT_VALID when it is not receiving an input message from the PMA and the previous DATA_VALID_STATUS that the PLS sublayer sent to the MAC sublayer was DATA_VALID.' This text provides the description of where DATA_VALID_STATUS takes the DATA_VALID value.

2. DISCARD TRASH

The first 15 data bits received after CARRIER_ON are discarded in order to protect the DTE device from the effect of unreliable symbols immediately following the detection of the carrier. In normal operation these 15 bits will be part of the preamble which may be ignored and discarded.

The standard states in subclause 3.2.1 Preamble field 'The preamble field is a 7-octet field that is used to allow the PLS circuitry to reach its steady-state synchronization with the received frame's timing (see 4.2.5). The standard further states in subclause 4.1.2.1.2 Reception without contention 'At each receiving station, the arrival of a frame is first detected by the Physical Layer, which responds by synchronizing with the incoming

preamble, and by turning on the receiveDataValid signal. As the encoded bits arrive from the medium, they are decoded and translated back into binary data. The Physical Layer passes subsequent bits up to the MAC sublayer, where the leading bits are discarded, up to and including the end of the preamble and Start Frame Delimiter.'

Interpretation Number:	2-11/02 - Item 2 (100Mb/s Carrier Detect)
Topic:	100Mb/s Carrier Detect
Relevant Clause:	Figure 7-6 and Figure 24-14.
Classification:	Unambiguous

Clause: 24. Physical Coding Sublayer (PCS) and Physical Medium Attachment (PMA) sublayer, type 100BASE-X Specific subsection: Figure 24-14 - Carrier Detect state diagram, Entry condition for CARRIER DETECT state

The condition specified in the above standard for entering into CARRIER DETECT state is given below

(carrier_status = OFF) * (r_bits [0] = 0) * (r_bits [9:2] /= 11111111)

Bec'z of this condition (r_bits [9:2] /= 11111111) check, the entry to the CARRIER DETECT state is not possible . In real time the symbol sequence is I-I-I-I-J-K i.e. when the node starts receiving symbol, the condition (r_bits [9:2] = 11111111) only allows the entry to the CARRIER DETECTstate.

Among the condition checks for r_bits[9:2] = "11111111", r_bits[9:2] /= "11111111" which one is correct ??? Please clarify.

Interpretation for IEEE std 802.3-2002

This has been reviewed and there is no error present.

Attention is drawn to subclause 24.3.4.3 ‘Carrier detect’ which explains the operation of the Carrier Detect State Diagram in Figure 24-14. As this subclause states ‘A carrier event is defined as receipt of two non-contiguous ZEROS within any 10 rx_code-bits.’. The r_bits are a 10-bit sliding window of the rx_code-bits, newly received code-bits are placed in r_bits[0]. Once r_bit[0] is equal to zero, and any other bit in the range r_bit[2] to r_bit[9] is also zero, the requirement for two non-contiguous zeros is met. Hence the condition (r_bit[0] = 0) * (r_bits[9:2] 11111111) on the transition to the CARRIER DETECT state.