Interpretation Number:	6-03/03 (10Mb/s and 100Mb/s Repeaters)
Topic:	10Mb/s and 100Mb/s Repeaters
Relevant Clause:	Clause 9 and 27
Classification:	Not a request for Interpretation

Interpretation Request

Ethernet Repeater Questions

Those clause refers to a repeater set, my questions result from difficulties to distinguish between the repeater unit functionality to its physical part. Our design is an implementation of repeater unit with MII interface.

Clause 9 (10Mbs repeater)

General questions:

1. The clause describes the repeater as a serial bit operation, what about a nibble bits operation as in MII interface, how this affects the repeater operation? Is it correct to convert all the limit values to nibble times from bit times?

2. Is the input data to the repeater is an encoded data? Is it the repeater unit responsibility to decode the input data and only then to forward it?

Repeater unit state diagram (figure 9-2):

I understand that the state diagram handle the input data as a serial bit, is it still true to use the same state diagram with input data as nibble bit (with MII interface)?

1. State diagram notation (9.6.1):

   DataIn(x) – is it right that *input_idle* refer to MII_RXDV OFF ?

   And *activity* refers to MII_RADV ON? Or the MII_CRS status shall be multiply this condition as well?

2. SEND TWO ONES state – in this state it is written that "the repeater is sourcing two consecutive Manchester-encoded ones on port X" – Is it a right conclusion that the repeater has to decode the input data?

3. What if the input packet has no SFD? Who handle this? Is it the repeater unit responsibility?

Preamble regeneration (9.6.3):

My question refer to the sentence “when the repeater unit must send more than 56 bits, the maximum length preamble pattern it shall send is the number received plus 6” – what is the meaning of this, when a case like this can occurred??’

MAU Jabber Lockup Protection (9.6.5):

Is it a mandatory operation of the repeater unit? Is it the repeater unit responsibility?

Clause 27 (100Mbs repeater)

Received code violations (27.3.1.2.2):

This clause refers to the repeater set, is it the repeater unit functionality to forward or replace the code violations by *bad_code* or this is done by the PHY? If it done by the PHY how the repeater unit act in this case?

Received event handling (27.3.1.3.1):

My question refers to the sentence “Upon detection of scarier_present from one port … “, Is it true that scarier_present is the MII_CRS signal and is it right that MII_CRS in 100Mbs is active only upon reception?

Preamble regeneration (27.3.1.3.2):

Is it possible that an input frame to the repeater unit shall be without preamble pattern? If so, there is any special treatment by the repeater unit for this case?

Error Handling (27.3.1.3.5):

1. It is written that the “repeater PMA interface shall contain self-interrupt…” Is it true that this is the PHY responsibility to handle the false carrier events?

2. And what the meaning of “A repeater unit shall transmit the Jam message to all of the PMAs to which it is connected for the duration of the false carrier event or until the duration of the event exceeds the time specified by the false_carrier_timer..”

3. How the repeater unit identifies the end of the false carrier event?

4. Figure 27-9 and/or 27-10: does the repeater unit shall implement one of them?

5. LINK UNSTABLE – is it the repeater unit responsibility? Or is it done by the PHY?

Receive jabber (27.3.1.7):

Is it correct that the repeater unit does this?

Receive state diagram (figure 27-3):

Does the repeater unit shall implement this state?

If so, how the repeater unit can have the information of the *link_status* while the only interface to the PHY is the MII interface? The same question about the *source_type* signal

Transmit state diagram (figure 27-4 / figure 27-5):

Is the repeater unit shall implement those transmit diagrams?

If so, how the repeater unit treats all the codes appears in the diagram?

Again, is it true that all codes issue are treatment by the PHY?

Interpretation for IEEE std 802.3-2002

This request is being returned to you because it does not constitute a request for interpretation but rather a request for consulting advice. Generally, an interpretation request is submitted when the wording of a specific Clause or portion of a standard is ambiguous or incomplete. The request should state the two or more possible interpretations or the lack of completeness of the text.

While you refer to Clauses 9 and 27, you have not indicated any ambiguity nor lack of completeness of the text but rather have asked a number of questions in relation to a particular implementation. The standard clearly states in '1.2.1 State diagram conventions' that 'It is the functional behavior of any unit that must match the standard, not its internal structure. The internal details of the model are useful only to the extent that they specify the external behavior clearly and precisely.' As such Clause 9 specifies the external behavior of a 10Mb/s Repeater Unit and Clause 27 specifies the external behavior of a 100Mb/s Repeater Set. A careful study of these Clauses, including their State Diagrams, will provide the answers to your questions. Please understand that it is beyond the scope of this working group to provide consulting advice on how to implement this behavior.

In respect to question in relation to a 10Mb/s repeater unit implementation that utilizes a MII, you will note that in Figure 9-1 that the repeater unit is specified only in terms of the AUI. A 10Mb/s repeater unit implementation that utilizes a MII is outside the scope of the standard.

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