Cl **55** *SC* **55.4.6.5** *P* **217** *L* **34** # 1

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **A**

Comment 9 against D 2.3 was not fully implemented

SuggestedRemedy

In the editing instruction "Insert a new subclause 55.4.6.5, containing Figure 55-27b, after subclause 55.3.6.4, , as shown below" there is a double comma and the last subclause number is wrong.
Change "subclause 55.3.6.4, , as" to "subclause 55.4.6.4, as"

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1** *P* **256** *L* **15** # 2

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **R**

It should be stated clearly that EEE does not support optical PHYs.

SuggestedRemedy

Add a sentence after second paragraph with the following text: 'EEE does not support operation over multimode or signlemode optical cabling'.

Response *Response Status* **C**

REJECT.

It is not necessary to specify what is not supported.

Cl **78** *SC* **78.1.1** *P* **246** *L* **33** # 3

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **A**

'LPI signaling also informs the LPI Client that the link partner' > 'LPI signaling also informs the LPI Client when the link partner' - it is better to focus on the time aspect of the signallign rather than the fact that signalling was sent. In this way, you emphasize the timelyexchange of such information. This additionally goes well with the statements in 78.1.1.2

SuggestedRemedy

per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.2.1.3** *P* **248** *L* **18** # 4

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **A**

'When this primitive should be generated by the LPI client is unspecified.' > 'Specification of the time, when this primitive is generated by the LPI client, is out of scope of the standard.'

SuggestedRemedy

Better language offered per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:
'Specification of the time when this primitive is generated by the LPI client is out of the scope of this standard.'

Cl **78** *SC* **78.1.2.2.1** *P* **248** *L* **28** # 5

Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **R**

Strike 'has' from this sentence. Other sentences are written in past simple tense.

SuggestedRemedy

Per comment

Response *Response Status* **C**

REJECT.

Removing the "has" reduces clarity

Cl **78** *SC* **78.1.3** *P* **249** *L* **30** # 6

Hajduczenia, Marek ZTE Corporation

Comment Type **TR** *Comment Status* **A**

xMII is used as 'any of the family of medium independent interfaces' yet Figure 78-2 makes assumptions on the number of transmit/receive lanes. Suggest to indicate that the number of lanes might be different.

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Put in an ellipsis between the lanes to indicate that the number may be different than the number shown

Cl **78** *SC* **78.1.4** *P* **251** *L* **21** # 7
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **A**

Table 78-1 caption should be changed to read '802.3 PHY optionally supporting EEE'. Table does not specify anything

SuggestedRemedy

per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change caption to:
Clauses associated with each EEE PHY type

Cl **78** *SC* **78.2** *P* **251** *L* **41** # 8
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **A**

'Duration PHY ...' > 'Period during which PHY ...'<CR>'Transmitter shrinkage time. Defined as the absolute time difference between the following two timing parameters:' > 'Transmitter shrinkage time is defined as the absolute time difference between the following two timing parameters:'<CR>'Receiver shrinkage time. Defined as the absolute time difference between the following two timing parameters:' > 'Receiver shrinkage time is defined as the absolute time difference between the following two timing parameters:'

SuggestedRemedy

Language improvements offered per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.2** *P* **252** *L* **4** # 9
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **R**

'Parameter employed by the system which corresponds to the behavior of the PHY. It is' suggest to remove these words. The following words are sufficient to describe what the parameter is and what does <CR><CR>Likewise, remove 'Parameter employed by the system which corresponds to its requirements. It is' in lines 8 and 11.

SuggestedRemedy

Per comment

Response *Response Status* **C**

REJECT.

This sentence it used to distinguish these from Tw_sys_rx, which is a system level requirement as opposed to something deriving from the PHY

Cl **78** *SC* **78.3** *P* **252** *L* **37** # 10
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **A**

remove the word 'visually' - the following 'illustrates' says it all

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.4.2.2** *P* **255** *L* **6** # 11
Hajduczenia, Marek ZTE Corporation

Comment Type **TR** *Comment Status* **A**

'Integer (2 octets wide)' - other integers in 78.4.2.3 Variables do not have identifier whether they are 1 or 2 bytes wide. Either specifically mark each Integer type variable in terms of length or it is assumed that all of them have the same length. At this time, it is not clear how many bits you assume an Integer to have (16, 8, or 32 or more)

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a statement at the top of that section that says "Unless otherwise specified, all integers are assumed to be 2 octets wide"

Cl **78** *SC* **78.4.2.3** *P* **252** *L* **50** # 12

Hajduczenia, Marek ZTE Corporation

Comment Type **TR** *Comment Status* **A**

What is a 'Temporary integer' ? Can't you just say 'Integer used to temporarily store the value of ...' or is it something altogether different?

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to "Integer used to temporarily store the value of" for TempTxVar and TempRxVar

Cl **78** *SC* **78.4.2.3** *P* **255** *L* **10** # 13

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **A**

For readability reasons, each variable should have one line separation from the previous / next definitions. Otherwise it becomes hard to read. Please fix it

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.4.2.3** *P* **256** *L* **15** # 14

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **R**

In Table 78-3, the column 'mapping' is not described and there are different options for mapping indicated i.e. left to right or right to left. What is their meaning?

SuggestedRemedy

Per comment

Response *Response Status* **C**

REJECT.

The direction of the mapping is introduced above the table in the introduction text. This is consistant with how we did the PoE/P L2 also.

Cl **78** *SC* **78.4.2.4** *P* **256** *L* **54** # 15

Hajduczenia, Marek ZTE Corporation

Comment Type **TR** *Comment Status* **A**

'NEW_RX_VALUE' is located at the very bottom of the page and defined as 'Integer that indicates the value of Tw_sys_tx that the local system wants the remote system to support. ' - seems like a variable rather than function. Why is it part of the Functions subclause then ?

SuggestedRemedy

Either change the definition to what the 'NEW_RX_VALUE' needs to represent or move to the proper location in the draft. The current location does not seem to be correct.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The definition was embedded within the function examine_RX_change. Move out of the function area to the variable area.

Same for NEW_TX_VALUE

Cl **78** *SC* **78.4.2.5** *P* **257** *L* **6** # 16

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **R**

'Control for placing data on the medium rests with the transmitting side, hence Tw_sys_tx is enforced by the transmitter.'
Strange language, Suggest to rewrite to read:
'Transmitter is responsible for controlling placement of data on the medium, hence, Tw_sys_tx is enforced by the transmitter.'

SuggestedRemedy

Per comment

Response *Response Status* **C**

REJECT.

It is not clear that the rewrite changes the technical content of the paragraph. The current text has been in place for multiple review cycles

Cl **78** *SC* **78.5** *P* **261** *L* **3** # 17
Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **A**

line 3: 'In full duplex mode, predictable operation of the MAC ControlPAUSE operation' > 'In the full duplex mode, predictable operation of the MAC Control PAUSE operation'<CR>line 11: 'Following IDLE code reception on the MAC interface' > 'Following the reception of an IDLE code on the MAC interface'

SuggestedRemedy

per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.5.1** *P* **262** *L* **54** # 18
Hajduczenia, Marek ZTE Corporation

Comment Type **TR** *Comment Status* **A**

Where are PICS for Clause 78? There is a number of shall statements which do not have associated PICS.

SuggestedRemedy

Either add PICs or provide a clear statement why these are not available.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #20

Cl **79** *SC* **79.3.a.3** *P* **264** *L* **20** # 19
Hajduczenia, Marek ZTE Corporation

Comment Type **E** *Comment Status* **A**

Font becomes much smaller after the first line of the paragraph. Please fix it.

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78** *P* **262** *L* # 20
Diab, Wael Broadcom Corporation

Comment Type **TR** *Comment Status* **A**

Clause 78 is missing PICS

SuggestedRemedy

Please add PICS

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Clause 78 provides an overview of EEE operation. PICS for the optional EEE capability for each specific PHY type are specified in the respective PHY clauses. Clause 78.4 contains the normative requirements for the datalink layer capabilities and PICs for these will be added to clause 78. In addition, the following list of changes will be made.
----------PICS added for 78.4--
Item Feature Subclause Value/Comment Status Support
| 10G | Support 10G or higher operation operation | 78.4 | 10Gb/s
| operation | O | Yes [] No []
Then:
| DLL1 | DLL | 78.4 | DLL | 10G:M | Yes [] N/A []
| DLL2 | DLL | 78.4 | DLL | !10G:O | Yes [] No []
Add this under the table:
In addition, the following predicate name is defined for use when different implementations from the set above have common parameters:
DLL = DLL1 OR DLL 2

Then for DLL requirments:
| DLR1 | 78.4.1 | DLL Timing | Timing Requirements | DLL:M | Yes [] N/A
| []
| DLR2 | 78.4.2 | DLL Control State Diagrams | State Machines for TX and
| RX | DLL:M | Yes [] N/A []

Page 246, line 27:
Add the following sentence to the end of the line:
Clause 78 provides an overview of EEE operation. PICS for the optional EEE capability for each specific PHY type are specified in the respective PHY clauses. 78.4 contains the normative requirements for the Data Link Layer capabilities.

Page 251, line 19:
Add the following sentence at the end of the line:
Normative requirements for the EEE capability for each PHY type are in the associated clauses.

Page 261, paragraph starting line 17:

Change:
"Table 78–4 summarizes critical timing parameters for supported PHYs. This should assist the system designer in assessing the effect of LPI mode on the overall operation of the PHY."
To:
"Table 78–4 summarizes critical timing parameters for supported PHYs. These are listed here to assist the system designer in assessing the impact of EEE on the operation of the link."

Page 262, line 8, Change:
"If the DTE XS XAUI stop enable bit is asserted, the RS shall defer sending data following deassertion…"

To:
"If the DTE XS XAUI stop enable bit is asserted, the RS defers sending data following deassertion…"

Page 262, line 13, change:
"The receiver should negotiate an additional time for the remote…"
To:
The receiver negotiates an additional time for the remote …"

Page 246, line 32, replace "may" with "can"

On page 252, line 49, replace "may" with "can"

In addition to the above changes:
A) Each PHY clause will be checked to see if there is either a "shall" and associated PICS for the Tw_phy or if the Tw_phy can be derived from other normative items.
B) Each RS clause will add in a "shall" statement and associated PICS to call out the Tw_sys_tx(min) value for that RS and will put a pointer to 78.2 and 78.4 for the definition of Tw_syst_tx. See below for specific text.
46.3a.2.1 - change the definition for tw_timer

A timer that counts the time expired since the de-assertion of LPI. The terminal count of the timer shall be the value of the resolved Tw_sys_tx as defined in 78.2 and 78.4. The minimum value of Tw_sys_tx shall be 7.36us for 10GBASE-T (case 1); 4.48us for 10GBASE-T (case 2); 12.38us for 10GBASE-KX4; 15.38us for 10GBASE-KR (case 1); and 17.38us for 10GBASE-KR (case 2). If DTE XS XAUI stop enable bit is asserted (5.0.9), the terminal count of the timer is the value of the resolved Tw_sys_tx as defined in 78.2 plus an additional 9.5 us (equal to Tw_sys_tx - Tw_sys_rx for the XGXS as shown in Table 78-4). Signal tw_timer_done is asserted on reaching its terminal count.

46.3a.3.1 - add the following

If the PHY XS XAUI stop enable bit (4.0.9) is asserted, the PHY XS may stop signaling on the XAUI in the receive direction to conserve energy. The receiver should negotiate an additional 9.5 us for the remote Tw_sys (equal to Tw_sys_tx - Tw_sys_rx for the XGXS as shown in Table 78-4) before setting the PHY XS XAUI stop enable bit.

35.3a.2.2 - change the definition for tw_timer

A timer that counts the time expired since the de-assertion of LPI. The terminal count of the timer shall be the value of the resolved Tw_sys_tx as defined in 78.2 and 78.4. The minimum value of Tw_sys_tx shall be 16.5 us for 1000BASE-T and 13.26 us for 1000BASE-KX. Signal tw_timer_done is asserted on reaching its terminal count.

22.6a.2.2 - change the definition for tw_timer

A timer that counts the time expired since the de-assertion of LPI. The terminal count of the timer shall be the value of the resolved Tw_sys_tx as defined in 78.2 and 78.4. The minimum value of Tw_sys_tx shall be 30 us for 100BASE-TX. Signal tw_timer_done is asserted on reaching its terminal count.

Add PICS items for each clause.

Cl **78** *SC* **78.3** *P* **252** *L* **42** # 21

Diab, Wael Broadcom Corporation

Comment Type **ER** *Comment Status* **A**

The requirement for EEE capability to be exchanged during Auto Neg always points back to 78.3 (e.g. 28C.12 and 28D.7). The language in 78.3 can be improved to include a shall.

SuggestedRemedy

Rewrite "The EEE capability is advertised during the Auto-Negotiation stage" to "The EEE capability shall be advertised during the Auto-Negotiation stage"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Follow suggested remedy and also put in a PICS entry for the new "shall"

Cl **00** *SC* **0** *P* **15** *L* # 22

Byrd, William PRIVACOM VENTUR

Comment Type **G** *Comment Status* **A**

The page numbers do not agree with the Table of Contents. For example: Scope is shown in the table of contents as Page 16. It is actually shown on page 15 of the document. The authors are looking at the computer programs page numbering instead of the actual page numbers they have on the bottom of each page.

SuggestedRemedy

Re-page number document to match the table of contents.

Response *Response Status* **C**

ACCEPT.

Renumber the page numbers in the TOC to match the document

Cl **79** *SC* **79.3.a** *P* **263** *L* **33** # 23
Diab, Wael Broadcom Corporation

Comment Type **ER** *Comment Status* **A**
Please change the TBA in Figure 79-1a--EEE TLV format to the value in the Table 79-1

SuggestedRemedy
Change TBA to 5

Response *Response Status* **C**
ACCEPT.

Cl **22** *SC* **22.6a.2.2** *P* **29** *L* **31** # 24
Turner, Edward J Gnodal Ltd

Comment Type **ER** *Comment Status* **A**
The phrase 'time expired since' is confusing.

SuggestedRemedy
Change to 'time since'

Response *Response Status* **C**
ACCEPT.

Cl **24** *SC* **24.2.2** *P* **35** *L* **13** # 25
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner before 'PCS'

SuggestedRemedy
Add 'the' before 'PCS'.

Response *Response Status* **C**
ACCEPT.

Cl **24** *SC* **24.2.2** *P* **35** *L* **13** # 26
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing something between 'period' and 'upon'.

SuggestedRemedy
Add 'begun'

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

By combining the response to comments # 25, 26, and 27, rephrase the statement

"The Receive process may support the LPI function by deactivating all or part of receive functional blocks of PCS, PMA, and PMD to conserve energy during the low link utilization period upon receiving proper codegroups via rx_code_bits from the link partner as described in 24.2.2.1.5, and generate proper commands sending through MII as described in 22.2.2.7."

to
"Upon receiving proper codegroups via rx_code_bits from the link partner as described in 24.2.2.1.5, the Receive process may support the LPI function by deactivating all or part of receive functional blocks of the PCS, PMA, and PMD to conserve energy during the low link utilization period, and generate commands through the MII as described in 22.2.2.7."

Cl **24** *SC* **24.2.2** *P* **35** *L* **14** # 27
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Confusing wording in 'and generate proper commands sending through MII as described in 22.2.2.7'

SuggestedRemedy
Change to 'and generate commands through the MII as described in 22.2.2.7'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.2** P **35** L **15** # 28
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'Link Monitor' and PMA.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.2** P **35** L **26** # 29
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before PCS.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.2** P **35** L **28** # 30
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'remote receiver'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.2** P **36** L **48** # 31
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'PMA'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.2** P **37** L **1** # 32
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'PMA'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.2** P **37** L **3** # 33
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'PMA'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.2** P **37** L **10** # 34
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'PMA_RXQUIET.request'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.2** P **37** L **17** # 35
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'PMA_TXQUIET.request'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **36** # 36
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner

SuggestedRemedy
Add 'the' before 'PHY'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **38** # 37
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Definition of timer period.

SuggestedRemedy
Change 'to' to 'and'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **41** # 38
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'Idle state'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **43** # 39
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'Sleep state' and 'the' before 'Quiet state'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **45** # 40
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Definition of timer period.

SuggestedRemedy
Change 'to' to 'and'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **50** # 41
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'PHY' and 'the' before 'Quiet'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **37** L **53** # 42
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Definition of timer period.

SuggestedRemedy
Change 'to' to 'and'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **3** # 43
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'PHY' and 'the' before 'Sleep'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **4** # 44
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Definition of timer period.

SuggestedRemedy
Change 'to' to 'and'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **7** # 45
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'Quiet'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **8** # 46
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'PHY' and 'the' before 'Refresh'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **9** # 47
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'Wake'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **15** # 48
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'PHY'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **16** # 49
Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**
The statement '.. before it must wake for refresh signal.' is not a clear description of how the state machine uses the timer.

SuggestedRemedy
Change to '.. before it must wake to signal refresh'

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change to '.. before it must wake to send a refresh signal'

Cl **24** SC **24.2.3.4** P **38** L **17** # 50
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Definition of timer period.

SuggestedRemedy
Change 'to' to 'and'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **20** # 51
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'PHY', add 'the' before 'Sleep state', and add 'the' before 'Quiet state'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.2.3.4** P **38** L **21** # 52
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Definition of timer period.

SuggestedRemedy
Change 'to' to 'and'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.3.2.3** P **43** L **22** # 53
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners throughout this paragraph.

SuggestedRemedy
Add 'the' before the following: 'PMA_RXLPI.request' (line 22), 'PMA' (line 22), 'Far-End' (line 23), 'PMA_LPILINKFAIL.request' (line 24), 'PMA' (line 25).

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.3.3.2** P **43** L **37** # 54
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'PCS'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.3.3.2** P **43** L **45** # 55
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'PCS'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.4.1.4** P **46** L **31** # 56
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Misplaced 'the'.

SuggestedRemedy
Change 'Process of PCS only if the EEE' to 'Process of the PCS only if EEE'

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.4.1.4** P **46** L **32** # 57
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'Quiet'.

Response *Response Status* **C**
ACCEPT.

Cl **24** SC **24.4.1.5.1** P **47** L **6** # 58
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Add 'the' before 'Quiet'.

Response *Response Status* **C**
ACCEPT.

Cl **25** SC **25.4a.1.1.2** P **52** L **11** # 59
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Lower case NRZ.

SuggestedRemedy
Change to capitals.

Response *Response Status* **C**
ACCEPT.

Cl **25** SC **25.4a.2.1.2** P **53** L **37** # 60
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Lower case NRZ.

SuggestedRemedy
Change to capitals.

Response *Response Status* **C**
ACCEPT.

Cl **25** SC **25.4a.8** P **55** L **14** # 61
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Signal_Detect is all lower case here, whereas elsewhere there is a capital S and D.

SuggestedRemedy
Change to 'Signal_Detect'.

Response *Response Status* **C**
ACCEPT.

Cl **25** SC **25.5.4.4** P **56** L **35** # 62
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Lower case 'mv'.

SuggestedRemedy
Change to 'mV'

Response *Response Status* **C**
ACCEPT.

Cl **25** SC **25.5.4.4** P **56** L **37** # 63
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Lower case 'mv'.

SuggestedRemedy
Change to 'mV'

Response *Response Status* **C**
ACCEPT.

Cl **35** SC **35.3a.2.2** P **71** L **34** # 64
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Unnecessary word.

SuggestedRemedy
Delete 'expired'.

Response *Response Status* **C**
ACCEPT.

Cl **40** SC **40.4.2.4** P **102** L **11** # 65
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing an 'a'.

SuggestedRemedy
Add 'a' before 'period'.

Response *Response Status* **C**
ACCEPT.

Cl **00** SC **0** P **4** L **22** # 66
Mclendon, Jonathon Spirent Communicatio

Comment Type **E** *Comment Status* **A**
TLV is misspelled

SuggestedRemedy

Response *Response Status* **C**
ACCEPT.

Cl **22** *SC* **22.2.1** *P* **23** *L* **10** # 67
Mclendon, Jonathon Spirent Communicatio

Comment Type **G** *Comment Status* **R**

The document has many phrases of the form "If the EEE capability is supported, ..." Although I do not see a way to administratively disable EEE, I suspect that network designers will demand such a capability. If so, then nearly all of the clauses of the above form will need to be changed to ...

SuggestedRemedy

"If the EEE capability is supported and administratively enabled, ..." or "If the EEE capability is enabled, ..."

Response *Response Status* **C**

REJECT.

Considered "Technical" by editor.

There is no necessity to "enable" the EEE capability. There is negotiation to control the use of LPI, if LPI is not in use then the LPI client does not assert LPI. There is no requirement to change behavior depending on whether LPI is "in use" or not when LPI is not asserted.

Cl **40** *SC* **40.4.2.4** *P* **102** *L* **15** # 68
Turner, Edward J Gnodal Ltd

Comment Type **ER** *Comment Status* **A**

Missing underscore within 'lpi_posupdate timer'

SuggestedRemedy

Insert underscore before 'timer'.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.2.4** *P* **102** *L* **27** # 69
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Missing 'the' before 'period'.

SuggestedRemedy

Insert 'the' before 'period'.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.2.4** *P* **102** *L* **35** # 70
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Missing words before 'transmitter circuits'.

SuggestedRemedy

Insert 'that the' before 'transmitter circuits'.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.2.4** *P* **102** *L* **45** # 71
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Missing 'a' before 'time'.

SuggestedRemedy

Insert 'a' before 'time'.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.12.5** *P* **113** *L* **35** # 72
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Missing space after 'exceed'.

SuggestedRemedy

Insert space after 'exceed'.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4.1.3a** *P* **121** *L* **28** # 73
Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**

Incorrect reference to 'receive clock'. The PHY XS only has the capability to stop the transmit clock (as discussed in the previous sentence of this sub clause).

SuggestedRemedy

Change 'receive' to 'transmit'.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4.1.3b** *P* **121** *L* **34** # 74

Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**

Incorrect reference to 'receive clock'. This register bit controls stopping XAUI signalling, rather than clocks.

SuggestedRemedy

Change 'receive clock' to 'receive path XAUI signals'.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4.2.2a** *P* **122** *L* **39** # 75

Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**

The first sentence is unclear, and the second sentence related to PHY behavior which is not controlled through the MMD.

SuggestedRemedy

Delete second sentence completely and change first sentence to : 'If bit 4.1.6 is set to a one then the PHY XS is indicating that the attached PHY is permitted to stop the receive xMII clock whilst it is signalling LPI. If the bit is set to a zero then the PHY XS is indicating that the attached PHY is not permitted to stop the receive xMII clock whilst it is signalling LPI.' You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that an attached PHY device does not have it's stop clock enable bit (3.0.10) set if this bit is cleared'.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first sentence as proprosed, change "receive xMII clock" to "receive direction xMII clock".

Change the second sentence to:

If the attached PHY does not support EEE capability or is not able to stop the receive direction xMII clock then this bit has no effect.

Cl **45** *SC* **45.2.4.8a.2** *P* **123** *L* **28** # 76

Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**

The first sentence is unclear, and the second sentence discusses a receive clock.

SuggestedRemedy

Delete second sentence completely and change first sentence to : 'If bit 4.20.0 is set to a one then the PHY XS is indicating that the attached DTE XS is permitted to stop transmitting XAUI signals during LPI. If the bit is set to a zero then the PHY XS is indicating that the attached DTE XS is not permitted to stop transmitting XAUI signals during LPI.' You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that an attached DTE XS device does not have it's XAUI stop enable bit (5.0.9) set if this bit is cleared'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first sentence as proprosed.

Change the second sentence to:

If the DTE XS does not support EEE capability or is not able to stop the transmit direction XAUI then this bit has no effect.

Cl **45** *SC* **45.2.5.1.3b** *P* **125** *L* **34** # 77

Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**

Incorrect reference to 'receive clock'.

SuggestedRemedy

Change 'receive clock' to transmit path XAUI signals'.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.5.2** *P* **126** *L* **5** # 78

Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**

Incorrect table name and register numbers.

SuggestedRemedy

Change title to 'DTE XS status 1 register bit definitions' and change all register bit numbers from 4.1 to 5.1.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.5.2.2a** *P* **126** *L* **39** # 79

Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**

The first sentence is unclear, and the second sentence discusses MAC functionality.

SuggestedRemedy

Delete the second sentence and change the first sentence to : 'If bit 5.1.6 is set to a one then the DTE XS is indicating that the attached MAC is permitted to stop the transmit xMII clock whilst it is signalling LPI. If the bit is set to a zero then the DTE XS is indicating that the attached MAC is not permitted to stop the transmit xMII clock whilst it is signalling LPI.'. You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that the attached RS does not stop the transmit xMII clock if this bit is cleared'.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first sentence as proprosed, except that RS is substituted for MAC.

Change the second sentence to:

If the RS does not support EEE capability or is not able to stop the transmit direction xMII clock then this bit has no effect.

See comment #160

Cl **45** *SC* **45.2.5.8a.2** *P* **127** *L* **28** # 80

Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**

The first sentence is unclear, and the second sentence discusses a receive clock.

SuggestedRemedy

Delete second sentence completely, and change the first sentence to : 'If bit 5.20.0 is set to a one then the DTE XS is indicating that the attached PHY XS is permitted to stop the XAUI signalling in the receive direction during LPI. If the bit is set to a zero then the DTE XS is indicating that the attached PHY XS is not permitted to stop the XAUI signalling on the receive direction during LPI.' You may wish to consider an additional sentence: 'It is the responsibility of the management entity to ensure that an attached PHY XS device does not have it's XAUI stop enable bit (4.0.9) set if this bit is cleared.'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first sentence as proprosed.

Change the second sentence to:

If the PHY XS does not support EEE capability or is not able to stop the receive direction XAUI then this bit has no effect.

Cl **46** *SC* **46.3.1.5** *P* **136** *L* **25** # 81

Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**

The part of the sentence '..only if the stop clock capable bit is asserted (see 45.2.3.2.2a) only reference a PCS MMD. The device attached to the RS could be a DTE XS.

SuggestedRemedy

Change the end of the sentence to ' .. only if the clock stop capable bit of the attached sublayer is asserted (see 45.2.3.2.2a and 45.2.5.2.2a).

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.2.4** *P* **137** *L* **23** # 82
Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**

This sentence only discusses a PHY, but it could be a DTE XS that is stopping the RX_CLK.

SuggestedRemedy

Change start of sentence to 'The PHY or DTE XS may halt RX_CLK ..' and change the end to '(see 45.2.3.1.3a and 45.2.5.1.3a).

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a.2.1** *P* **139** *L* **36** # 83
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Unnecessary 'expired'.

SuggestedRemedy

Delete 'expired'.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a.2.1** *P* **139** *L* **43** # 84
Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**

Unclear when tw_timer_done is asserted.

SuggestedRemedy

Change to 'The signal tw_timer_done is asserted when tw_timer reaches its terminal count.'

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.6.10.1.3** *P* **227** *L* **16** # 85
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Missing determiners.

SuggestedRemedy

Add 'the' before 'PCS' and 'the' before 'local PMD'.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.7.1.5** *P* **227** *L* **53** # 86
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**

Missing space before units.

SuggestedRemedy

Add space before 'mV' and 'ns'.

Response *Response Status* **C**

ACCEPT.

Cl **71** *SC* **71.1** *P* **230** *L* **13** # 87
Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**

Unclear what is being deactivated in the expression : ' .. ceases transmission and deactivates transmit to conserve energy'.

SuggestedRemedy

Insert 'functions' after 'deactivates transmit'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will rewrite paragraph similar to that in proposed resolution to comment #129

Cl **71** *SC* **71.6.6** *P* **231** *L* **17** # 88
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Two occurances of 'specified in' one after another.

SuggestedRemedy
Delete one occurance.

Response *Response Status* **C**
ACCEPT.

Cl **71** *SC* **71.6.12** *P* **231** *L* **29** # 89
Turner, Edward J Gnodal Ltd

Comment Type **ER** *Comment Status* **A**
Incorrect reference to backplane auto-neg.

SuggestedRemedy
Change 'Clause 45' to 'Clause 73'

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change the sentence that currently reads:
"EEE capabilities and parameters will be advertised during the Backplane Auto-negotiation, as described in Clause 45."

To:
"EEE capabilities and parameters, as described in 45.2.7, will be advertised during the Backplane Auto-negotiation."

Cl **71** *SC* **71.6.12** *P* **231** *L* **31** # 90
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing apostrophe before 's' of 'link partners'.

SuggestedRemedy
Insert apostrophe.

Response *Response Status* **C**
ACCEPT.

Cl **71** *SC* **71.6.12.1.3** *P* **232** *L* **7** # 91
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Insert 'the' before 'PCS' and 'the' before 'local receiver'.

Response *Response Status* **C**
ACCEPT.

Cl **71** *SC* **71.7.1.4** *P* **232** *L* **41** # 92
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing spaces before units.

SuggestedRemedy
Insert spaces before 'mV' (two instances) and 'ns' (two instances).

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.6.2** *P* **236** *L* **10** # 93
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiner.

SuggestedRemedy
Insert 'the' before 'PMD'.

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.6.10.1** *P* **237** *L* **29** # 94
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing apostrophe before 's' of 'link partners'.

SuggestedRemedy
Insert apostrophe.

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.7.1.4** *P* **238** *L* **39** # 95
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing space before units.

SuggestedRemedy
Insert space before 'mV' and 'ns' (two instances).

Response *Response Status* **C**
ACCEPT.

Cl **74** *SC* **74.5.1.8** *P* **244** *L* **4** # 96
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Use of 'usec' rather than 'microseconds' or 'us'.

SuggestedRemedy
Change to 'us'. Also on line 17.

Response *Response Status* **C**
ACCEPT.

Cl **74** *SC* **74.5.1.8** *P* **244** *L* **10** # 97
Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**
The phrase 'FEC sub layer will precluded from asserting ..' is unclear.

SuggestedRemedy
Change to 'The FEC sublayer is prevented from asserting ..'

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Refer to comment 289

Cl **78** *SC* **78.2** *P* **251** *L* **41** # 98
Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**
The definition of Ts is ambiguous.

SuggestedRemedy
Change to 'The period of time that the PHY transmits sleep before turning all transmitters off.'

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change to 'The period of time that the PHY transmits the sleep signal before turning all transmitters off.'

Cl **78** *SC* **78.2** *P* **251** *L* **42** # 99
Turner, Edward J Gnodal Ltd

Comment Type **T** *Comment Status* **A**
The definition of Tq is unclear.

SuggestedRemedy
Change to 'The period of time that the PHY remains quiet before sending the refresh signal.'

Response *Response Status* **C**
ACCEPT.

Cl **78** *SC* **78.4.3.1** *P* **260** *L* **3** # 100
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing words.

SuggestedRemedy
Add 'the' before 'MIRROR UPDATE', add 'the' before 'SYSTEM', add 'state' after 'REALLOCATION', add 'the' before 'TX UPDATE', add 'the' before 'UPDATE MIRROR'

Response *Response Status* **C**
ACCEPT.

Cl **78** SC **78.4.3.2** P **260** L **16** # 101
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Need to change 'lesser than' to 'less than either'.

SuggestedRemedy
Apply change.

Response *Response Status* **C**
ACCEPT.

Cl **78** SC **78.4.3.2** P **260** L **17** # 102
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing determiners.

SuggestedRemedy
Add 'the' before 'SYSTEM', add 'the' before 'RX UPDATE', add 'the' before 'SYSTEM REALLOCATION', add 'the' before 'CHANGE'.

Response *Response Status* **C**
ACCEPT.

Cl **79** SC **79.3.a.2** P **264** L **16** # 103
Turner, Edward J Gnodal Ltd

Comment Type **E** *Comment Status* **A**
Missing 'a'.

SuggestedRemedy
Add 'a' before 'longer'.

Response *Response Status* **C**
ACCEPT.

Cl **00** SC **0** P **4** L **30** # 104
Law, David 3Com Corporation

Comment Type **E** *Comment Status* **A**
'IEEE Std 802.3-2008(TM)/Cor 1-200X' should read 'IEEE Std 802.3-2008(TM)/Cor 1-2009' now that the corrigendum has been published.

SuggestedRemedy
See comment.

Response *Response Status* **C**
ACCEPT.

Cl **46** SC **46.3.1.5** P **136** L **25** # 105
Turner, Edward J Gnodal Ltd

Comment Type **TR** *Comment Status* **A**
Additional qualification required regarding the halting of the TX_CLK (this is an extension of the comment regarding an additional reference to the DTE XS stop clock capable bit being required in this sub clause).

SuggestedRemedy
Add the sentence: 'It is the responsibility of the management entity to ensure that the RS does not halt the TX_CLK if the attached device does not have its stop clock capable bit set'.

Response *Response Status* **C**
ACCEPT.

Cl **45** *SC* **45.2.4.1.3a** *P* **121** *L* **26** # 106

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **A**

The text is a bit confusing. "If bit 4.0.10 is set to 1 then the PHY XS may stop the transmit xMII clock while it is signaling LPI otherwise it shall keep the clock "active. If the PHY XS does not support EEE capability or is not able to stop the receive clock then this bit has no effect". Is this to stop TX_CLK or RX_CLK @ XGMII interface?

SuggestedRemedy

Change the text for better clarity.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

The PHY XS only has control of the RX_CLK on its XGMII interface, however this is connected to the TX_CLK on the PHY. Hence causing confusion.

Change "transmit xMII clock" to "transmit direction xMII clock"

See also comment #73 - fixes incorrect reference to "receive clock"

Cl **45** *SC* **45.2.4.1.3b** *P* **121** *L* **32** # 107

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **A**

In the statement: "If bit 4.0.9 is set to 1 then the PHY XS may stop signaling on the XAUI in the receive direction during LPI
. . . ", is the bit 4.0.9 to stop XAUI signaling going out from the PHY? How would this correlates to XAMII clock? Disabling the interface clock does not gurantee that the low power mode is entered for all applications.

SuggestedRemedy

Suggest to remove the correlation between clock disable and data disable during LPI mode.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

There is confusion caused by incorrect wording in this and other subclauses. This control bit is only intended to control the XAUI signaling that goes out of the PHY XS.

See comments: 158, 75, 74, 73, 157, 156

Cl **45** *SC* **45.2.4.2.2a** *P* **122** *L* **39** # 108

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **A**

If bit 4.1.6 is set to 0, bit 4.0.10 and 4.0.9 have no effect?

SuggestedRemedy

This needs to be clearly stated if that is what is inteneded to be.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

These bits are orthogonal but the current definitions are incorrect - causing confusion.

See comments: 158, 75, 74, 73, 157, 156

Cl **49** *SC* **49.2.13.3.1** *P* **173** *L* # 109

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **A**

In Figure 49-17, Transition priority from RX_SLEEP state is ambiguous

SuggestedRemedy

The transition from RX_SLEEP to RX_SLEEP should be qualified with signal_ok. i.e. : ~rx_tq_timer_done * R_TYPE(rx_coded)=LI * signal_ok.
The transition from RX_SLEEP to RX_ACTIVE should also be based on signal_ok : i.e. rx_block_clock * ~rx_tq_timer_done * R_TYPE(rx_coded)=IDLE * signal_ok.

Response *Response Status* **W**

ACCEPT.

Cl **49** *SC* **49.2.13.3.1** *P* **173** *L* # 110

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **A**

In Figure 49-17, Transition from RX_WTF is ambiguous

SuggestedRemedy

The transition from RX_WTF to either RX_LINK_FAIL or RX_SLEEP or RX_ACTIVE should also be based on energy detect to give energy_detect highest priority.
The transition from RX_WTF to RX_SLEEP should be based on energy_detect. i.e. :
!rx_wf_timer_done * rx_block_lock * R_TYPE(rx_coded) = LI * energy_detect
The transition from RX_WTF to RX_ACTIVE should be based on energy_detect. i.e. :
!rx_wf_timer_done * rx_block_lock * R_TYPE(rx_coded) not equal LI * energy_detect
The transision from RX_WTF to RX_LINK_FAIL should be based on energy_detect. i.e. :
rx_wf_timer_done * energy_detect

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change by response to comment #123 eliminates the ambiguity.

Cl **49** *SC* **49.2.13.2.5** *P* **167** *L* **14** # 111

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **A** *timers*

one_us_timer is approximately 4.9 FEC frames long.

SuggestedRemedy

Change the one_us_timer value to be 32 * 5 66-bit blocks. This ensures reception of 4 FEC frames containing unscrambled data.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See response to comment #138

Cl **49** *SC* **49.2.6** *P* **162** *L* **33** # 112

Gustlin, Mark Cisco Systems, Inc.

Comment Type **E** *Comment Status* **A**

The scrambler equation does not show clearly in the pdf.

SuggestedRemedy

Fix it.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.8** *P* **163** *L* **3** # 113

Gustlin, Mark Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A**

Saying "The scrambler shall continue to advance normally." seems strange, it is really just advancing normally, though operating in bypass mode.

SuggestedRemedy

Change:The scrambler shall continue to operate normally.
To:The scrambler state shall continue to advance normally.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.2.3** *P* **163** *L* **33** # 114

Gustlin, Mark Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A**

Change:
one of the five or six types
To:one of six types
Doesn't make sense to say both...there are 6 types

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
one of the five or six types
To:one of the following types

Cl **49** *SC* **49.2.13.2.3** *P* **164** *L* **50** # 115

Gustlin, Mark Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A**

Change:one of the five types
To:one of the six types
There are six types now.

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:
"one of the following types"

Cl **78** SC **78.4.2.5** P **257** L **35** # 116
Gustlin, Mark Cisco Systems, Inc.

Comment Type **E** *Comment Status* **A**

New_TX_VALUE
should be:
NEW_TX_VALUE

SuggestedRemedy

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.2.4.4** P **161** L **22** # 117
Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A**

In Figure 49-4, the block diagram explicitly provides for a PMA, FEC, or WIS sublayer below the PCS. It also provides for the rx_lpi_active signal to be sent to that sublayer when it is a FEC sublayer. Therefore, it should also be stated FEC_SIGNAL.indication primitive is passed to the PCS when the sublayer below it is the FEC sublayer.

SuggestedRemedy

Update the block diagram accordingly.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the diagram to show signal_ok instead of xxx_SIGNAL.indication

---

Cl **49** SC **49.2.6** P **162** L **33** # 118
Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

Equation (49-1) appears to be cropped in the PDF.

SuggestedRemedy

Correct the issue.

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.2.13.2.3** P **165** L **1** # 119
Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

Figure 49-13 appear right in the middle of the definition of TX_BLOCK_TYPE.

SuggestedRemedy

More Figure 49-13 to a more logical location.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add white space to allow the diagram to appear in a better location.

Cl **49** SC **49.2.13.2.2** P **166** L **9** # 120
Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

This content of this note is already stated in 49.2.9 (page 163, line 16). It seems like this observation only needs to be stated once. In addition, this editorial instruction pertains to a subclause preceding 49.2.13.3 and should be placed there.

SuggestedRemedy

Remove redundant text. If the text pertaining to the new note is kept, relocate it so the change instructions are listed in clause order.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Keep the note, reorder the subclauses (see comment #333).

Cl **49** SC **49.2.13.2.5** P **167** L **15** # 121
Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A** *timers*

The value of one_us_timer should have a tolerance.

SuggestedRemedy

Define minimum and maximum values for the terminal count.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #138

Cl **22** *SC* **22.6a.3.1** *P* **30** *L* **8** # 122

Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

Extraneous period in the transition from LPI_DEASSERTED to LPI_ASSERTED.

SuggestedRemedy

Change to "LPI_REQUEST = ASSERT"

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.1** *P* **173** *L* **44** # 123

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

In Figure 49-17, there is a problem with the mechanism described to recover from a wake time fault. The variable energy_detect is used to determine if the transmitter has returned to the quiet state. This requires capabilities beyond what is otherwise assumed for 10GBASE-KR energy_detect. Per 72.6.4 (page 236, line 26), the value of PMD signal_detect is determined by the 10GBASE-KR training state diagram (in other words, it is set to TRUE) when rx_mode is DATA. Since rx_mode is set to DATA in the RX_WAKE state, and not changed upon a transition to the RX_WTF state, the branch to the RX_QUIET state can never be taken. Also note energy_detect has been defined as a mechanism to detect the transmitter's transition from TX_QUIET to TX_ALERT (it is only enabled during rx_mode = QUIET) and a special alert signal has been defined to facilitate this. The energy_detect variable should not be assumed to be a general indication of signal presence (or absence). If there is no robust means to distinguish between a quiet and an active line, then this transition has little value. It may be more reasonable to extend the refresh time to give the receiver a reasonable chance to recover before the line goes quiet again. If the receiver is unable to recover, then it is likely the link needs to fully retrained and therefore be taken down.

SuggestedRemedy

Remove the transition from RX_WTF to RX_QUIET. Consider extending the refresh time to give the receiver a longer opportunity to recover from a wake time fault during refresh.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove transition as suggested.

There is no need to extend refresh as multiple refresh intervals should be seen before the wf_timer expires.

Cl **49** *SC* **49.2.13.3.1** *P* **174** *L* **37** # 124

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A** *timers*

The values for TWR (for both scr_bypass_enable = FALSE are TRUE) are too large. The values significantly exceed minimum MAC transmit deferral time Tw_sys_tx defined in Table 78-4. This implies that the packet (or packets) transmitted immediately follow the minimum deferral time will disappear and no error will be recorded to account for their absence. Note that rx_lpi_active remains TRUE until the wake is successful (i.e. a transition to the RX_ACTIVE state). As long as rx_lpi_active is TRUE, the PCS receive state diagram cannot leave the RX_LI state which means any data received while the PHY is in the process of waking will be swallowed by the PHY and only LPI will be presented at the receive XGMII. Because of this, it is critical that the PHY count wake errors to account for any disappearance of packets. The times were initially extended to provide for the case of a WAKE directly from refresh. This is a non-issue when the FEC sublayer is not included in the PHY stack (the receiver will either transition to RX_ACTIVE directly or via RX_SLEEP and there will be no wake time fault) . When FEC is included, it may be an issue since entry into x_SCR_BYPASS may delayed which will in turn delay rx_block_lock. This issue is readily addressed by a simplification of the Transmit LPI state diagram where a refresh is rendered as the sequence TX_ALERT -> TX_WAKE -> [TX_SCR_BYPASS] -> TX_SLEEP. The existing transition from TX_SLEEP to TX_ACTIVE addresses "wake from refresh" events. Such a change greatly simplifies the state diagram, allows the definition of T_WR values that enable the correct counting of wake errors, and ensures that entry into TX_SCR_BYPASS occurs on a consistent schedule for any series of refresh, wake, or wake from refresh events.

SuggestedRemedy

A presentation will be submitted that proposed a new Transmit LPI state machine that addresses the core issue and revises the TWR values.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Adopt proposal in healey_02_0510.pdf, slides 4 and 14

Cl **49** *SC* **49.2.13.3.1** *P* **174** *L* **37** # 125

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

For the case where signal_ok is generated by the PMA sublayer (i.e. no FEC sublayer in the stack), it seems that more is being read into the meaning of this variable than what is actually defined. In the RX_SLEEP state, rx_mode is set to DATA which means that, per 72.6.4, signal_detect is determined by the 10GBASE-KR training state diagram (e.g. it is TRUE). Per 51.4.1, the PMA qualifies this signal with the optional PMA loopback signal (irrelevant) or the optional Sync_Err function. Even when implemented, the Sync_Err function is defined to report TRUE when there is a synchronization error but it is also stated that a value of FALSE does not guarantee synchronization. Therefore, the PMA signal_ok signal does not appear to be a sufficiently robust indicator of the absence of an input signal.

SuggestedRemedy

Change the condition for the transition from RX_SLEEP to RX_QUIET to be !rx_tq_timer_done * !rx_block_lock.

Since !signal_ok also forces rx_block_lock to be FALSE, the intended behavior is preserved if signal_ok behaves as assumed by the current state diagram. If signal_ok is not a robust indicator of the absence of the signal, then loss of block lock provides a fail-safe to ensure the receiver enters the RX_QUIET state. This works equally well when the FEC sublayer is included.

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1** *P* **242** *L* **11** # 126

Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A**

The editor's note indicates that Draft 2.3 of IEEE P802.3ba was used as the base document for the proposed changes. Update the changes to be consistent with the most recent draft of IEEE P802.3ba or the approved standard when available. Update the editor's note accordingly.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove "(using 802.3baD2.3 as the base)"

Check that the changes being made to Clause 74 are consistent with IEEE P802.3ba.

Also check that the changes being made to Clause 69 are consistent with IEEE P802.3ba.

Cl **74** *SC* **74.4.1** *P* **241** *L* **46** # 127

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The are multiple problems with this figure. Service interface primitives between the PCS and FEC sublayers should be labeled FEC_TX_MODE, FEC_RX_MODE, FEC_LPI_ACTIVE, and FEC_ENERGY respectively. Service interface primitives between the FEC and PMA sublayers should be labeled PMA_TX_MODE, PMA_RX_MODE, and PMA_ENERGY respectively. There is no FEC[PMA]_LPI_ACTIVE.request between the FEC and PMA sublayers.

SuggestedRemedy

Correct the figure per the comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Refer to comments # 281, 282 and 283

Cl **74** *SC* **74.5.1** *P* **242** *L* **22** # 128

Healey, Adam LSI Corporation

Comment Type **ER** *Comment Status* **A**

Editorial instructions are sparse and there appears to be numerous sections of changed (actually inserted) text that are not underlined. Erroneously marked items include page 242, line 22, (item f should be underlined), page 22, line 24, ("Items d, e, . . ." should be underlined), page 242, line 31 (entire paragraph should be underlined or preceded by an insert instruction), page 242 line 38 (the instruction is insert 74.5.1.4 so the inserted content should not be underlined), and page 244, line 27 (the whole sentence should be underlined as it is all changed text).

SuggestedRemedy

Scrub the clause to ensure that the guidelines for editiing instructions have been satisfied.

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.1** *P* **235** *L* **19** # 129

Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

It was decided that the "low power state" should be referred to as "low power idle (LPI) mode." The GMII signal is labeled "Assert LPI" and not "Assert Low Power Idle" or "Assert PMD_LPI". There is no clear definition of what "sleep symbols" are.

SuggestedRemedy

Change paragraph as follows. "A 10GBASE-KR PHY with the optional Energy Efficient Ethernet (EEE) capability may optionally enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization. The "Assert LPI" request at the XGMII is encoded in the transmitted symbols. Detection of LPI signaling in the received symbols is indicated as "Assert LPI" at the XGMII. Upon the detection of "Assert LPI" at the XGMII, an Energy Efficient 10GBASE-KR PHY continues transmitting for a pre-defined period, then ceases transmission and deactivates transmit functions to conserve energy. The PHY periodically transmits during this quiet period to allow the remote PHY to refresh its receiver state (e.g. timing recovery, adaptive filter coefficients) and thereby track long term variation in the timing of the link or the underlying channel characteristics. If, during the quiet or refresh periods, normal inter-frame is asserted at the XGMII, the PHY re-activates transmit functions and initiates transmission. This transmission will be detected by the remote PHY, causing it to also exit the LPI mode." In addition, scrub the rest of the clause for instances of "low power mode" and replace them with "LPI mode".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Using most of Suggested Remedy with a few minor corrections.

"A 10GBASE-KR PHY with the optional Energy Efficient Ethernet (EEE) capability may optionally enter the Low Power Idle (LPI) mode to conserve energy during periods of low link utilization. The "Assert LPI" request at the XGMII is encoded in the transmitted symbols. Detection of LPI signaling in the received symbols is indicated as "Assert LPI" at the XGMII. Upon the detection of "Assert LPI" at the XGMII, an Energy Efficient 10GBASE-KR PHY continues transmitting for a pre-defined period, then ceases transmission and deactivates transmit functions to conserve energy. The PHY periodically transmits during this quiet period to allow the remote PHY to refresh its receiver state (e.g. timing recovery, adaptive filter coefficients) and thereby track long term variations in the timing of the link or the underlying channel characteristics. If, during the quiet or refresh periods, normal inter-frames resume at the XGMII, the PHY re-activates transmit functions and initiates transmission. This transmission will be detected by the remote PHY, causing it to also exit the LPI mode."

Note to editor, also examine clause 70 & 71 to keep it consistant.

Will also replace inconsistancies with "LPI mode" where necessary in clauses 69-72 as suggested here and in comment #265.

Cl **72** *SC* **72.2** *P* **235** *L* **44** # 130

Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

Spelling: "conserver" shoud be "conserve". See also line 47.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.
See resolution in comment #131

Cl **72** *SC* **72.2** *P* **235** *L* **43** # 131

Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

Nomenclature: "tx_mode" and "rx_mode" are parameters and "PMD_TX_MODE.request" and "PMD_RX_MODE.request" are primitives that convey those parameters.

SuggestedRemedy

Update the paragraph to be consistent with this nomenclature.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #268

Cl **72** *SC* **72.6** *P* **236** *L* **11** # 132

Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A**

For the "PRESET" state, "preset" is not capitalized. In addition, a cross-reference to 72.6.10.2.3.1 would directly lead the reader to a better definition of the preset state than the currently referenced 72.6.10.3.4.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.7.1.4** *P* **238** *L* **39** # 133

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The definition of the transmitter wake signal is flawed. It specifies that the transmitter's differential peak-to-peak amplitude shall be greater than 90% of trained peak-to-peak value within 500 ns of tx_mode being set to ALERT. However, 72.6.2 specifies that the transmitter will be placed in the preset state (c(0) is maximum, c(-1) and c(+1) are zero) when tx_mode = ALERT. Referencing the amplitude of the preset waveform to the amplitude of the post-training waveform adds a degree of uncertainty with respect to what amplitude will actually be delivered to the receiver. Furthermore, a receiver will be required to accomodate the worst-case (lowest) amplitude that a link partner will deliver. In light of this, it makes sense to simply define an absolute minimum output voltage that must be acheived within 500 ns. Per Table 72-8, we know that the amplitude v2 must be within 400 to 600 mV ((zero-to-peak differential) for the preset condition. In this case 90% of the minimum value would be 360 mV. This is an equivalent yet unambiguous threshold.

SuggestedRemedy

Change the requirement as follows. "Furthermore, the transmitter's differential peak-to-peak output voltage shall be greater than 700 mV within 500 ns of tx_mode being set to ALERT." [Rounded down from 720 mV.] Include a row in Table 72-6 for this value and the transmitter partial activation time.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the requirement as follows. "Furthermore, the transmitter's differential peak-to-peak output voltage shall be greater than 720 mV within 500 ns of tx_mode being set to ALERT."

Cl **72** *SC* **72.7.1.4** *P* **238** *L* **39** # 134

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The requirements of 72.7.1.4 ensure that the transmitter will provide a signal with sufficient amplitude to alert the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

SuggestedRemedy

Define the maximum time the transmitter is allowed, following the assertion of tx_mode = ALERT, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 78-4 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 72-6 for this value.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Append to 72.7.1.5 the following sentence:

"The output shall be fully compliant within 5 us after tx_mode is set to DATA."

Cl **72** *SC* **72.6.4** *P* **236** *L* **20** # 135

Healey, Adam LSI Corporation

Comment Type **E** *Comment Status* **A**

This sentence would read better if broken into two separate sentences.

SuggestedRemedy

Change as follows. "PMD_SIGNAL.indication is used by 10GBASE-KR to indicate the successful completion of the start-up protocol. When the PHY supports the optional EEE capability, PMD_SIGNAL.indication is also used to indicate when the ALERT signal is detected which corresponds to the beginning of a refresh or a wake."

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.6.11** *P* **237** *L* **32** # 136

Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A**

The primitives should be defined as part of the PMD service interface (72.2).

SuggestedRemedy

Strike lines 32 through 36. Move 72.6.11.2 and 72.6.11.2 to 72.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #268

Cl **72** *SC* **72.6.4** *P* **236** *L* **27** # 137

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The behavior of the PMD signal detect function for the optional EEE capability is not completely defined. While the alert pattern and transmitter state are defined in 72.6.2, the electrical properties of the signal are not defined. The transmitter output properties of 72.7.1.4 should be combined with some notion of a channel in order to completely define the requirements. In addition, the signal detect activation and deactivation times are sequestered in Table 72-9. The cross-reference from Table 72-9 incorrectly points to 72.6.5 which pertains the PMD transmit disable function. There is no reference in 72.6.4 to Table 72-9. This information should be more closely associated with the definition of signal detect.

SuggestedRemedy

Change the paragraph as follows. "The value of the SIGNAL_DETECT is defined by the training state diagram shown in Figure 72--5. When the PHY supports the optional EEE capability, SIGNAL_DETECT is set to FAIL following a transition from rx_mode = DATA to rx_mode = QUIET. When rx_mode = QUIET, signal_detect shall be set to OK within 500 ns following the application of a square wave pattern with a period of 16 unit intervals and peak-to-peak differential output amplitude of TBD mV to the receiver input." A presentation will be provided with the proposed value for the square wave amplitude "TBD". Update Table 72-9 with the defined square wave amplitude and signal detect activation time, correcting the cross-reference to be 72.6.4. Remove the requirement for signal detect de-assertion time from Table 72-9 since as it is irrelevant.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the paragraph as follows:

"The value of SIGNAL_DETECT is defined by the training state diagram shown in Figure 72-5 when the PHY does not support the EEE capability or if the PHY supports the EEE capability and rx_mode is set to DATA. When the PHY supports the EEE capability, SIGNAL_DETECT is set to FAIL following a transition from rx_mode = DATA to rx_mode = QUIET. When rx_mode = QUIET, SIGNAL_DETECT shall be set to OK within 500 ns following the application of a signal at the receiver input that is the output of a channel that satisfies the requirements of all the parameters of both interference tolerance test channels defined in 72.7.2.1 when driven by a square wave pattern with a period of 16 unit intervals and peak-to-peak differential output amplitude of 720 mV. While rx_mode = QUIET, SIGNAL_DETECT changes from FAIL to OK only after a valid ALERT signal is applied to the channel."

Table 72-9 gets deleted from this draft as the changes originally proposed to it are being removed (see comment #278)

Cl **78** *SC* **78.2** *P* **252** *L* **27** # 138

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A** *timers*

The sleep (Ts), quiet (Tq), and refresh times (Tr) do not appear to be consistent with timers defined in Clause 49. For example, the sleep time is based on TSL (Table 49-2) is assigned a value 5 microseconds +/- 1%. Somehow this appears in Table 78-2 at 4.5 to 5.5 microseconds whereas it should be 4.95 to 5.05 microseconds.

SuggestedRemedy

Update the timers. A presentation will be provided that proposes the correct values.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Adopt the timer related changes from slides 12-15 of healey_02_0510.pdf
This also introduces changes to clauses 36, 48 and 49

Cl **45** *SC* **45.2.5.2** *P* **126** *L* **5** # 139

Parnaby, Gavin Solarflare Communicat

Comment Type **T** *Comment Status* **A**

I think the bits referred to in the first column of 45-125 are incorrect.
4.X should be 5.X

SuggestedRemedy

Change the first column of the table to refer to 5.X

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.2.2.11** *P* **188** *L* **10** # 140
Parnaby, Gavin Solarflare Communicat

Comment Type **GR** *Comment Status* **A** *presentation*

loc_lpi_en does not control the PHY as intended.
loc_lpi_en was intended to inhibit transitions to the transmit low power mode if the PHY had not reached the PCS data mode (i.e. during PCS Test).
In the PCS 64B/65B state machine, Figure 55-15, the loc_lpi_en variable is used to inhibit transitions to TX_LI. However, when lpi_loc_en is asserted the tx state machine will stay in the TX_C state, which still encodes the XGMII data into the transmit signal. Therefore LPI codewords will be sent to the link partner, which will interpret them as a SLEEP command, and begin the transition into low power signaling. Since the transmit side is prevented from entering the TX_L state until PCS_data, the low power signaling will not be sent and the link will likely fail.

SuggestedRemedy

Use a different mechanism to prevent transitions to LPI during PCS_Test e.g. hold the transmitter in TX_INIT until the PCS_Data state.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #361

Cl **55** *SC* **55.2.2.3.1** *P* **187** *L* **5** # 141
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

ALERT) should be ALERT

SuggestedRemedy

As comment

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.4a.3** *P* **195** *L* **35** # 142
Parnaby, Gavin Solarflare Communicat

Comment Type **T** *Comment Status* **A**

The text should clarify whether scrambler reinitialization can be used for fast retrain.

SuggestedRemedy

State that scrambler reinitialization is not used for fast retrain.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #366

Cl **55** *SC* **55.3.4a.1** *P* **194** *L* **12** # 143
Parnaby, Gavin Solarflare Communicat

Comment Type **T** *Comment Status* **A**

Add clarifying text to state that this synchronization also takes place during fast retrain.

SuggestedRemedy

'This synchronization shall also be performed at the transition to PCS_Test during a fast retrain '

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #364 which makes the same change.

Cl **55** *SC* **55.3.5.4** *P* **201** *L* **14** # 144
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

Arrow head is badly placed on transition from TX_INIT to TX_C

SuggestedRemedy

Fix arrow head

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **201** *L* **12** # 145
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

The note states 'Signals and functions shown with dashed lines are only required for the EEE capability'.
However, on this diagram (and on some others), there is a single transition inside the dashed lines, and I don't believe this is classified as a signal or a function.
Should the text be changed to say
'Signals, functions and transitions shown with dashed lines are only required for the EEE capability'

SuggestedRemedy

As comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the note in Figure 55-15 to read:
"Transitions inside dashed boxes are only required for EEE capability"

Cl **55** *SC* **55.3.5.4** *P* **200** *L* **3** # 146
Parnaby, Gavin Solarflare Communicat

Comment Type **G** *Comment Status* **A**

Add a note to this state diagram (or elsewhere) stating that rx_lpi_active and rx_lpi_wake are both set to FALSE if the EEE capability is not supported.

SuggestedRemedy

As comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add text to the description of rx_lpi_active in 55.3.5.2.2;
'when the EEE capability is not supported rx_lpi_active is set false'.
Add text to the description of rx_lpi_wake in 55.3.5.2.2;
'when the EEE capability is not supported rx_lpi_wake is set false'.

Cl **45** *SC* **45.2.1.76a** *P* **115** *L* **46** # 147
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

The description for bits 10 to 6 should come before the description for bit 0.

SuggestedRemedy

Move LD fast retrain count (1.147.10:6) description before the Fast retrain enable (1.147.0) description

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #149

Cl **45** *SC* **45.2.1.76a.1** *P* **115** *L* **42** # 148
Parnaby, Gavin Solarflare Communicat

Comment Type **TR** *Comment Status* **A**

Add text stating
'This bit shall be set high by the PHY upon successful negotiation of fast retrain ability with the link partner. See 45.2.7.10.5a'

SuggestedRemedy

As comment

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.76a** *P* **115** *L* **39** # 149
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

Further to my earlier comment on 45.2.1.65a.1 and 45.2.1.76a.2, 45.2.1.67a.3 is also out of order.
The three subclauses should be listed in the following order:
LP fast retrain count (1.147.15:11)
LD fast retrain count (1.147.10:6)
Fast retrain enable (1.147.0)

SuggestedRemedy

As comment

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.4** *P* **137** *L* **52** # 150
Parnaby, Gavin Solarflare Communicat

Comment Type **TR** *Comment Status* **A**

We made a modification on line 50, but the same modification needs to be made on line 52.

SuggestedRemedy

Change 'the RS stops sending MAC data' to 'the RS stops sending MAC data or LPI'

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.6** *P* **162** *L* **33** # 151
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

The scrambler polynomial is unreadable.

SuggestedRemedy

Fix the text.
[this is unchanged text from the base clause]

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.2.13.3.1** P **173** L **40** # 152
Parnaby, Gavin Solarflare Communicat

Comment Type **T** *Comment Status* **A**

The transitions from RX_WTF to RX_QUIET and RX_LINK_FAIL are not exclusive.

SuggestedRemedy

Add logic to make the transitions exclusive.
e.g. change the transition to RX_QUIET to
!energy_detect * !rx_wf_timer_done

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Transition has been removed by response to comment #123

Cl **55** SC **55.4.5.1** P **211** L **15** # 153
Parnaby, Gavin Solarflare Communicat

Comment Type **E** *Comment Status* **A**

The sentence says there are four variables.
There are 6 variables listed.

SuggestedRemedy

Change the text to say 'The following six variables...'.

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.6** P **213** L **46** # 154
Parnaby, Gavin Solarflare Communicat

Comment Type **T** *Comment Status* **A**

The transition from PCS_Data due to a fast retrain should be qualified with minwait_timer_done, in the same manner as a normal retrain.

SuggestedRemedy

Change the transition from PCS_Data to PMA_INIT_FR to
fast_retrain_flag * minwait_timer_done
Also note that in several places in Figure 55-24 minwait_timer_done is shown as minwait timer_done; this should be corrected.

Response *Response Status* **C**

ACCEPT.

Change the transition from PCS_Data to PMA_INIT_FR to fast_retrain_flag * minwait_timer_done
In Figure 55-24 change minwait timer_done to minwait_timer_done in 4 places

Cl **45** SC **45.2.3.1.3a** P **117** L **25** # 155
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Several references in Clause 45 to 46.3.2.4a, which should be 46.3.2.4.

SuggestedRemedy

Change all instances of 46.3.2.4a to 46.3.2.4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Instances on p.117 l.25; p.118 l.31; p.121 l.28; p.122 l.42; p.125 l.28; p.126 l.41

Also, change references to live links.

Cl **45** SC **45.2.3.2.2a** P **118** L **29** # 156
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

3.1.6 the xMII is driven by the RS layer not the MAC.

SuggestedRemedy

Change definition as follows... Change "the MAC may stop" to "the RS may stop". Change "the MAC does not support" to "the PHY does not support".

Response *Response Status* **C**

ACCEPT.

Cl **45** SC **45.2.4.1.3a** P **121** L **26** # 157
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

I assume that this is the PHY XS transmit clock (TX_CLK) which attaches to the PCS receive clock (RX_CLK). Make this clear.

SuggestedRemedy

Change "the PHY XS may stop the transmit xMII clock" to "the PHY XS may stop the PHY_XS transmit (or PCS receive) xMII clock from the attached PCS". Change "stop the receive clock" to "stop the PHY_XS transmit clock". Need statement in Clause 48.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The terminology in the proposed remedy is correct but adds to the confusion. Changing "transmit xMII clock" to "transmit direction xMII clock" makes the text clearer. See comment #106

See also comment #73 - fixes incorrect reference to "receive clock"

Cl **45** *SC* **45.2.4.2.2a** *P* **122** *L* **39** # 158

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

I assume that this is the PHY XS transmit clock (TX_CLK) which attaches to the PCS transmit clock (TX_CLK). Make this clear.

SuggestedRemedy

Change "the PHY XS is capable to allow the attached PHY to stop the recive xMII clock" to "the PHY XS is capable of stopping the PHY_XS transmit (or PCS receive) xMII clock". Change "stop the receive clock" to "stop the PHY_XS transmit clock". Need statement in Clause 48.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #75

Clauses 47 and 48 are already modified to describe this capability

Cl **45** *SC* **45.2.5.1.3a** *P* **125** *L* **26** # 159

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

I assume that this is the DTE XS transmit clock (TX_CLK) which attaches to the RS transmit clock (RX_CLK). Make this clear.

SuggestedRemedy

Change "the DTE XS may stop the transmit xMII clock" to "the DTE XS may stop the DTE transmit (or RS transmit) xMII clock". Change "stop the receive clock" to "stop the DTE XS transmit clock". Need statement in Clause 48.

Response *Response Status* **C**

REJECT.

The XGMII receive clock is an output of the XGXS, so the terminology and directions are correct in this subclause (unlike others!).

Clauses 47 & 48 are modified to indicate this function.

Cl **45** *SC* **45.2.4.2.2a** *P* **126** *L* **39** # 160

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

The DTE XS transmit xMII clock is driven by the RS not the MAC.

SuggestedRemedy

Change "the DTE XS is capable to allow the MAC to stop the transmit xMII clock" to "the DTE XS is capable of stopping the RS transmit xMII clock". Change "stop the transmit clock" to "stop the DTE XS transmit clock". Need statement in Clause 48.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change references from MAC to RS. The wording in comment #79 makes a better description of the function.

See comment #79

Cl **45** *SC* **45.2.5.2** *P* **126** *L* **43** # 161

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Table 45-125 refers to incorrect MDIO register 4.1; should be 5.1.

SuggestedRemedy

Change 4.1 to 5.1.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.7.14** *P* **132** *L* **23** # 162

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Sub-clauses for each of the link partner ability bits are missing.

SuggestedRemedy

Add sub-clauses for each of the link partner ability bits listed in table 44-157b. Suggest copying entire contents of 45.2.7.13 and restating as link partner abilities, etc.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

It would be redundant to repeat the definitions already in the ability register subclause.

Add the following text:

The definitions for the contents of the EEE LP ability register is given by the definition of the contents of the link partner's EEE advertisement register, 7.60 (see 45.2.7.13).

Cl **46** *SC* **46.1.7** *P* **135** *L* **24** # 163

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R** *frdata*

Receipt of local fault also causes override of transmitted signal. Receipt of local or remote fault should also result in asserting carrier_sense.

SuggestedRemedy

Append to last sentence of paragraph "or link is in a fault state."

Response *Response Status* **U**

REJECT.

Carrier deferral for loss of data during fast retrain is not being implemented - see response to comment #164.

Cl **46** *SC* **46.1.7.3** *P* **136** *L* **49** # 164

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A** *frdata*

Sub-clause 46.1.7.3 (from 802.3-2008) says that PLS_CARRIER is not used. 46.1.7.3 must be modified to reflect the usage of PLS_CARRIER.indication in LPI mode and link fault states on EEE capable PHYs.

SuggestedRemedy

Insert instruction to add the following text to 46.1.7.3. "On PHYs that support EEE, CARRIER_STATUS will be set to defer MAC data when transmit LPI is active or if the link is in a fault state. CARRIER_STATUS is set in response to LPI_INDICATION as shown in Figure 46-10a. Also, if LOCAL FAULT or REMOTE FAULT is detected on RXD/RXC CARRIER_STATUS is set to CARRIER_ON."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Add a change instruction.

Change the text in 46.1.7.3 from

"10 Gb/s operation supports full duplex operation only. The RS never generates this primitive."

to

"10 Gb/s operation supports full duplex operation only. The RS never generates this primitive for PHYs that do not support EEE.

For PHYs that support EEE, CARRIER_STATUS is set in response to LPI_INDICATION as shown in Figure 46-10a. If the EEE capability is not supported then CARRIER_STATUS is set false."

This change does not address the use of deferral for fast retrain.

Cl **46** SC **46.3.1.5** P **136** L **26** # 165
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Need to specify when the clock must be turned back on.

SuggestedRemedy

Add sentence: "If TX_CLK is halted during LPI mode, TX_CLK must be restarted when LPI mode ends."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add sentence: "The RS shall restart TX_CLK so that at least one positive transition occurs before it deasserts
LPI."

Adjust PICs if necessary.

Cl **46** SC **46.3.1.5** P **136** L **25** # 166
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

One if is enough.

SuggestedRemedy

Change "if and only if" to "if".

Response *Response Status* **C**

ACCEPT.

Cl **46** SC **46.3.2.4** P **136** L **21** # 167
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

Change IDLE to match value in table.

SuggestedRemedy

Change "IDLE" to "Idle".

Response *Response Status* **C**

ACCEPT.

Line 27

Cl **46** SC **46.3.1.6** P **137** L **26** # 168
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Need to specify when the clock must be turned back on.

SuggestedRemedy

Add sentence: "If RX_CLK is halted during LPI mode, RX_CLK must be restarted when LPI mode ends."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add sentence: "The PHY shall restart RX_CLK so that at least one positive transition occurs before it deasserts
LPI."

Adjust the PICs if necessary.

Cl **46** SC **46.3.1.6** P **137** L **25** # 169
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

One if is enough.

SuggestedRemedy

Change "if and only if" to "if".

Response *Response Status* **C**

ACCEPT.

Cl **46** SC **46.3a** P **138** L **42** # 170
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A** *frdata*

CRS is not a XGMII signal. Instead map LP_IDLE.request, local fault, and remote fault to PLS_CARRIER.indication.

SuggestedRemedy

Replace sentence with "PLS_CARRIER.indication(CARRIER_STATUS) will be set to CARRIER_ON when the link is in LPI mode or if the link is in a fault state. See sub-clause 47.1.7.3."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Replace sentence with "PLS_CARRIER.indication(CARRIER_STATUS) will be set to CARRIER_ON when the link is in LPI mode. See sub-clause 47.1.7.3."

Cl **46** *SC* **46.3a** *P* **138** *L* **13** # 171
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

XGMII not MII

SuggestedRemedy

Change "MII" to "XGMII"

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a.3.1** *P* **140** *L* **29** # 172
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

XGMII not MII

SuggestedRemedy

Change "MII" to "XGMII". Two instances.

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.1** *P* **142** *L* **13** # 173
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Clarification of the direction of receive/send would be helpful especially to separate sending from/to XGMII.

SuggestedRemedy

Change "When LPI is received" to "When LPI is received on the transmit XGMII ". Also, on line 19, change "asserted at the XGMII" to "asserted at the transmit XGMII".

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **00** *P* **145** *L* **13** # 174
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

A statement is required to to make it clear what is meant by EEE is supported. As I understand it, EEE is supported only if both local device and link partner advertise the EEE capability. This means that it is implemented on both devices and both devices have been programmed via ability bits to support EEE.

SuggestedRemedy

Add the following sentence... "EEE is supported only if during auto-negotiation both the local device and link partner advertise the EEE capability. If EEE is not supported all EEE functionality, if implemented, will be disabled. For instance, LPI control characters will not be sent and LPI control characters received will be treated as errors."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the paragraph starting on line 47 of 78.3 to read:

"During the link establishment process, both link partners indicate their EEE capabilities. EEE is supported only if during auto-negotiation both the local device and link partner advertise the EEE capability for the resolved PHY type. If EEE is not supported, all EEE functionality is disabled and the LPI client shall not assert LPI."

All EEE PHY clauses need to add a reference to 78.3 where EEE support is first mentioned.

Cl **48** *SC* **48.2.4.2** *P* **148** *L* **19** # 175
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

||LPIDLE|| and ||I|| are mutually exclusive, ||LPIDLE|| is not a special case of ||I||.

SuggestedRemedy

Change the first sentence as follows: ||LPIDLE|| is coded in the same manner as ||I|| except that the /20.5/ code group replaces one code group in each ||K|| and ||R|| (not ||A||) column with a random uniform distribution across the lanes.

Response *Response Status* **C**

ACCEPT.

Cl **48** SC **48.2.6.1.5a** P **150** L **46** # 176
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

The terminal count description wording makes it unclear of the intent and is written differently than for other timers.

SuggestedRemedy

Change "shall not exceed the maximum value of TWR" with "shall be set to a value no larger than the maximum value given for TWR".

Response *Response Status* **C**

ACCEPT.

Cl **48** SC **48.2.6.1.5a** P **150** L **52** # 177
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

A quiescent state is not defined.

SuggestedRemedy

Change "quiescent" to "QUIET".

Response *Response Status* **C**

ACCEPT.

Cl **48** SC **48.2.6.2.5** P **157** L **5** # 178
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A** *timers*

Table 48-9. Tolerance on TSL and TUL are too tight (100 ns) and will preclude implementations that control EEE through firmware.

SuggestedRemedy

Change tolerance to +/- 1 us.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #138

Cl **48** SC **48.2.6.2.5** P **157** L **18** # 179
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

Table 48-10. Tolerance on TWTF has same value for minimum and maximum. Minimum is not required.

SuggestedRemedy

Delete minimum value.

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.1.5** P **161** L **31** # 180
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

A statement is required to to make it clear what is meant by EEE is supported. As I understand it, EEE is supported only if both local device and link partner advertise the EEE capability. This means that it is implemented on both devices and both devices have been programmed via ability bits to support EEE.

SuggestedRemedy

Add the following sentence... "EEE is supported only if during auto-negotiation both the local device and link partner advertise the EEE capability. If EEE is not supported all EEE functionality, if implemented, will be disabled. For instance, LPI control characters will not be sent and LPI control characters received will be treated as errors."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to Comment #174

Cl **49** SC **49.2.4.4** P **161** L **40** # 181
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

EEE is an option not LPI. If a PHY supports EEE it must support LPI. Note: There is a general problem that it is unclear in this section what is always required if implemented (whether or not resolved by AN) vs what is required if supported (AN resolves EEE). Language needs to be precise.

SuggestedRemedy

Change sentence to "The ability to transmit or receive Low Power Idle is required for PHYs that support EEE."

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.2.4.4** P **161** L **41** # 182
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Let's be clear as to what is or is not supported. In this case, the intent is to say that if EEE is not supported (whether because its not implemented or because it was not resolved during AN) that LPI shall not be transmitted. In other words, PHY without EEE support treat LPI control characters are errors.

SuggestedRemedy

Change "If this option is not supported..." to "If EEE is not supported..."

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.2.13.2.3** P **163** L **54** # 183
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

For PHYs that do not support EEE, LI characters are always treated as errors. Make this clear.

SuggestedRemedy

Add sentence, "A PCS that does not support EEE, will classify vectors containing one or more /LI/ control characters as type E."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following at the end of the paragraph:

"Note: A PCS that does not support EEE, classifies vectors containing one or more /LI/ control characters as type E."

Cl **49** SC **49.2.9** P **163** L **16** # 184
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Refer to "EEE support" rather than "LPI implementation".

SuggestedRemedy

Change "optional LPI function is implemented" to "EEE is supported".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "optional LPI function is not implemented" to "EEE is not supported".

Cl **49** SC **49.2.13.2.3** P **166** L **3** # 185
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

For PHYs that do not support EEE, LI characters are always treated as errors. Make this clear.

SuggestedRemedy

Add sentence, "A PCS that does not support EEE, will classify vectors containing one or more /LI/ control characters as type E."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following at the end of the paragraph:

"Note: A PCS that does not support EEE, classifies vectors containing one or more /LI/ control characters as type E."

Cl **49** SC **49.2.13.2.5** P **167** L **23** # 186
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

The terminal count description wording makes intent unclear and is written differently than for other timers.

SuggestedRemedy

Change "shall not exceed the maximum value of TWR" with "shall be set to a value no larger than the maximum value given for TWR".

Response *Response Status* **C**

ACCEPT.

Cl **49** SC **49.2.13.2.5** P **167** L **29** # 187
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

A "quiescent" state is not defined.

SuggestedRemedy

Change "quiescent" to "QUIET".

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.3.1** *P* **171** *L* **7** # 188
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

What does "synchronizes the receive state diagram with the end of LPI" mean?

SuggestedRemedy

Clarify.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "synchronizes the receive state diagram with the end of LPI"

to "signals the end of LPI to the receive state diagram"

Cl **49** *SC* **49.2.13.3.1** *P* **173** *L* **45** # 189
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

In RX_LINK_FAIL, assignment of rx_mode is redundant since it always gets set in the next state.

SuggestedRemedy

In RX_LINK_FAIL, delete "rx_mode = DATA".

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.3.1** *P* **173** *L* **45** # 190
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

In RX_LINK_FAIL, assignment to block lock is somewhat ambiguous since the se states are timeless and block_lock takes on the value of rx_block_lock in the following state.

SuggestedRemedy

A clarification of the intended behavior is requested.

Response *Response Status* **C**

REJECT.

Assigning block_lock to FALSE in this state forces the Receive state diagram to go through the RX_INIT state - effectively re-initializing the receiver following a wake fault.

Cl **49** *SC* **49.2.13.3.1** *P* **174** *L* **18** # 191
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A** *timers*

Table 49-2. 1% tolerance on TSL, TUL, and TWL precludes firmware implementation.

SuggestedRemedy

Change tolerance to +/- 1us.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #138

Cl **51** *SC* **51.2.4.3** *P* **178** *L* **26** # 192
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Only the receiver is affected.

SuggestedRemedy

Chage the "PMA is" to "the PMA receive is".

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.2.5** *P* **178** *L* **32** # 193
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Generated by PCS transmit.

SuggestedRemedy

Change "PCS receive process" to "PCS transmit process".

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.2.5** *P* **178** *L* **33** # 194
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

If talking about the PMD must also talk about ALERT signalling. Suggest leaving details to to subsequent sub-clauses.

SuggestedRemedy

Change "to indicate ... see 49.3.6.6" to "to invoke the appropriate PMA and PMD transmit EEE states".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:

"to invoke the appropriate PMA and PMD transmit EEE states, see 49.2.13.3.1"

Cl **51** *SC* **51.2.5.3** *P* **178** *L* **48** # 195
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Only the transmitter is affected.

SuggestedRemedy

Change "the PMA is" to "the PMA transmit is".

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.2.5.3** *P* **178** *L* **49** # 196
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

spelling

SuggestedRemedy

Change "nomally" to "normally".

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.2.6.1** *P* **179** *L* **11** # 197
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Use full name name.

SuggestedRemedy

Change SIGNAL_OK to PMD_SIGNAL.indication(SIGNAL_OK)

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.2.6.1** *P* **179** *L* **15** # 198
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

energy_detect reflects changes in SIGNAL_OK

SuggestedRemedy

Change "of the energy detect parameter" to "of the SIGNAL_OK parameter".

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.8a** *P* **179** *L* **41** # 199
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Sub-clause 51.8a is redundant and obsolete.

SuggestedRemedy

Delete 51.8a.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55** *P* **182** *L* **1** # 200

Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

Consistent terminology throughout Clause 55 for LPI control characters.Use either "/LI/" or "LPI control characters".

SuggestedRemedy

As a minimum change the following (Page 184 / line 36) replace "LP_IDLE characters" with "LPI control characters"; (191/8) replace title with "LPI (/LI/)"; (191/10) replace "Low power idle control" with "Low power idle (LPI) control"; (191/11) replace "LPI characters" with "LPI control characters"; (191/41) replace "LP_IDLE characters" with "LPI control characters"; (192/12) replace "LP_IDLE codewords" with "LPI control characters"; (192/19) replace "LP_IDLE" with "LPI"; (193/15) replace "LP_IDLE" with "LPI control". Consider generally replacing "LPI control characters" globally and above with "/LI/" or "/LI/ characters".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Follow the specific changes identified (by page/line numbers) in the suggested remedy;

No global change beyond these will be made; commenter can provide more specific changes for consideration in the next cycle.

Cl **55** *SC* **55** *P* **182** *L* **0** # 201

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Use consistent terminology for EEE capability support through clause. Phrases currently include: "EEE capability", "LPI-capable", "EEE function", "LPI function", etc. My assumption is that all of these are the same, but I can't be sure.

SuggestedRemedy

A comprehensive list of proposed amendments will be provided.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Page/line:
(189/45) change “LPI-capable PHYs” to “EEE capable PHYs”

(194/3) change “LPI capable PHYs” to “EEE capable PHYs”

Ensure that EEE capability is used consistently.

Cl **55** *SC* **55.1** *P* **182** *L* **11** # 202

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

Last sentence of paragraph implies that fast retrain is available only if EEE capability is supported, whereas subsequent sub-clauses implies that support for fast retrain is independent. I believe that the intent that EEE and fast retrain support are independent. In other words, either or both may be implemented and if both are implemented then neither, either, or both may be resolved through AN.

SuggestedRemedy

Clarify which is the case: (a) fast retrain may be supported only if EEE is supported or (b) fast retrain may be supported indepedent of EEE.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Fast retrain may be supported indepedent of EEE.

See #353.

There is no reason to prevent fast retrain if EEE is not supported.

Cl **49** *SC* **49.1.5** *P* **182** *L* **47** # 203

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

A statement is required to to make it clear what is meant by EEE is supported. As I understand it, EEE is supported only if both local device and link partner advertise the EEE capability. This means that it is implemented on both devices and both devices have been programmed via ability bits to support EEE.

SuggestedRemedy

Add the following sentence... "EEE is supported only if during auto-negotiation both the local device and link partner advertise the EEE capability. If EEE is not supported all EEE functionality, if implemented, will be disabled. For instance, LPI control characters will not be sent and LPI control characters received will be treated as errors."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #174

Cl **55** *SC* **55.1.3** *P* **183** *L* **24** # 204
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A** *presentation*

Line for loc_lpi_en should be dashed to indicate that it is intend for EEE only.

SuggestedRemedy

Change loc_lpi_en line to dashed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #361. This variable has been deleted.

Cl **55** *SC* **55.1.3.3** *P* **184** *L* **54** # 205
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Incorrect figure #.

SuggestedRemedy

Change Figure 55-16 to Figure 55-16b.

Response *Response Status* **C**

ACCEPT.

This seems to be a framemaker issue. The editors will resolve it.

Cl **55** *SC* **55.1.4** *P* **185** *L* **33** # 206
Brown, Matthew Applied Micro (AMCC)

Comment Type **G** *Comment Status* **R**

Some primitive names use underscore to separate joined words while others are not. For readability modify all new (EEE) primtives names to include underscores.

SuggestedRemedy

Change PMA_ALERTDETECT to PMA_ALERT_DETECT. Change "PMA_LOCLPIEN" to "PMA_LOC_LPI_EN". Make changes through Clause 55.

Response *Response Status* **C**

REJECT.

This seems unnecessary.

As noted in the comment, the names from the original version of clause 55 are not consistent.

Cl **45** *SC* **45** *P* **189** *L* **45** # 207
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

EEE terminology.

SuggestedRemedy

Change "LPI-capable PHYs" to "EEE-capable PHYs".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.2.2.21** *P* **191** *L* **36** # 208
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

proper term

SuggestedRemedy

Change "65B" to "64B/65B".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.2.2.21** *P* **191** *L* **49** # 209
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

spelling

SuggestedRemedy

Change "lpi_tx_mode" variables" to "lpi_tx_mode variable".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.2.2.9** *P* **191** *L* **1** # 210
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
consistent (with clause 48) terminology

SuggestedRemedy
Replace "idle and lp_idle ordered sets" with either "||I|| and ||LPIDLE||" or "idle and LPI ordered sets."

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Replace "idle and lp_idle ordered sets" with "idle and LPI ordered sets."

Cl **55** *SC* **55.3.2.2.9a** *P* **191** *L* **10** # 211
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
LPI is requested by the LPI client not the MAC.

SuggestedRemedy
Replace "MAC" with "LPI client"

Response *Response Status* **C**
ACCEPT.

Cl **55** *SC* **55.3.2.2.21** *P* **192** *L* **9** # 212
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
spelling

SuggestedRemedy
Change "lpi_tx_mode" variables" to "lpi_tx_mode variable".

Response *Response Status* **C**
ACCEPT.

Cl **55** *SC* **55.3.2.2.21** *P* **192** *L* **13** # 213
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
Which characters is referred to by "These characters".

SuggestedRemedy
Change "LP_IDLE codewords are no longer detected" to "codewords other than LP_IDLE are detect". Change "These characters" to "These codewords".

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change "LP_IDLE codewords are no longer detected" to "codewords other than LP_IDLE are detected". Change "These characters" to "These codewords"

Cl **55** *SC* **55.3.2.2.21** *P* **192** *L* **24** # 214
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
This paragraph is really clumsy. Please modify last to sentences to state the point more clearly.

SuggestedRemedy
Suggestion: "The maximum PHY wake time when wake is requested before sleep has been transmitted is 7.36 us (lpi_wake_timer=Tw_phy as defined by Clause 78). The maximum PHY wake time when wake is requested after sleep has been transmitted is 4.48 us."

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change to: "The maximum PHY wake time when wake is requested before sleep has been completely transmitted is 7.36 us (lpi_wake_timer=Tw_phy as defined by Clause 78). The maximum PHY wake time when wake is requested after sleep has been completely transmitted is 4.48 us."

Cl **55** *SC* **55.3.2.2.21** *P* **192** *L* **32** # 215
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

Refer to reference in Clause 78. It seems redundant to have the wake times specified in three locations. Consider consolidating.

SuggestedRemedy

To title of columns 3 and 4 add "10GBASE-T Case-1 in Table 78.4". To title in columns 4 and 5 add "10GBASE-T Case-2 in Table 78-4".

Response *Response Status* **C**

REJECT.

This is unnecessary.

Cl **55** *SC* **55.3.4a.1** *P* **194** *L* **21** # 216
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

"Low power mode" specifically refers to "low power idle mode" or "LPI mode". Note that a "low power" mode is defined for all 802.3 PHYs and is invoked by setting MDIO bit 1.0.11 to 1.

SuggestedRemedy

Replace "low power mode" with "LPI mode".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.4a.1** *P* **194** *L* **14** # 217
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

By definition, in order for a PHY to support EEE the other must as well. No need for new terminology here.

SuggestedRemedy

Change "When both PHYs support the EEE capability, the slave" to "A EEE-capable PHY in slave mode" or "A SLAVE PHY with EEE capability".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"A EEE capable PHY in slave mode is responsible for synchronizing its PMA training frame to the master's PMA training frame during the transition to PMA_Training_Init_S'

Cl **55** *SC* **55.3.4a.1** *P* **194** *L* **37** # 218
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

Table 55-1b and 55-1c. When are tx_refresh_active and rx_refresh_active set FALSE?

SuggestedRemedy

Add sentence on page 194 line 30 stating "rx_refresh_active and tx_refresh_active are set FALSE except where set true in the tables."

Response *Response Status* **C**

REJECT.

This is clear from the description.

Cl **55** *SC* **55.3.4a.3** *P* **195** *L* **46** # 219
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Need to specify ALERT precedence for SLAVE PHY as well.

SuggestedRemedy

Change "If lpi_tx_mode=REFRESH_A" to "If lpi_tx_mode=REFRESH_A on a MASTER PHY or lpi_tx_mode=REFRESH_C on a SLAVE PHY",

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.4a.3** *P* **196** *L* **49** # 220
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

!tx_lpi_active should be !tx_lpi_qr_active.

SuggestedRemedy

Change !tx_lpi_active to !tx_lpi_qr_active.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the text as follows:
Change
'The variable is set to NORMAL when (!tx_lpi_active), indicating that the PCS is in the normal mode of operation and will encode code-groups from the XGMII as described in Figures 55-15 and 55-15a'
to
'The variable is set to NORMAL when (!tx_lpi_qr_active*!tx_lpi_alert_active), indicating that the PCS is in the normal mode of operation and will encode code-groups as described in Figures 55-15 and 55-15a'

Cl **55** *SC* **55.3.4a.3** *P* **197** *L* **10** # 221
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **R**

Indicate that tx_refresh_active is to FALSE outside of period indicated in tables.

SuggestedRemedy

Append the sentence with "and is set FALSE otherwise"

Response *Response Status* **C**

REJECT.

This is unnecessary.

Cl **55** *SC* **55.3.5.2.4** *P* **197** *L* **50** # 222
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

EEE terminology.

SuggestedRemedy

Change the "EEE function" to "EEE capability". Two instances.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **198** *L* **16** # 223
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

EEE terminology.

SuggestedRemedy

For I, LI, and LII, change "the optional LPI function is supported" and "the optional EEE function is supported" to "the EEE capability is supported".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **198** *L* **35** # 224
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

EEE terminology.

SuggestedRemedy

Change the "EEE function" to "EEE capability". Two instances.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **198** *L* **52** # 225
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

EEE terminology.

SuggestedRemedy

For I, LI, and LII, change "the optional LPI function is supported" and "the optional EEE function is supported" to "the EEE capability is supported".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.5** *P* **199** *L* **22** # 226
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

The tx_ldpc_frame_cnt counter must be reset after every training event, normal or fast retrain, not just the first one.

SuggestedRemedy

Change "initial training" to "normal training or fast retraining".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.5** *P* **199** *L* **28** # 227

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

The rx_ldpc_frame_cnt counter must be reset after every training event, normal or fast retrain, not just the first one.

SuggestedRemedy

Change "initial training" to "normal training or fast retraining".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **199** *L* **46** # 228

Brown, Matthew Applied Micro (AMCC)

Comment Type **G** *Comment Status* **R**

It would be more definitive to use variables to delineate the period during which LFER may not be updated.

SuggestedRemedy

Change end of sentence to "during LPI receive operation while (!rx_lpi_active * !rx_lpi_wake)."

Response *Response Status* **C**

REJECT.

This does not improve the draft.

Cl **55** *SC* **55.3.6.1** *P* **199** *L* **54** # 229

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Status definitions for MDIO 3.1.8 and 3.1.9 not defined.

SuggestedRemedy

Add section 55.3.6.1 along with instructions to include the following text. Use the text from Cluase 49.2.14.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add the following text as new text within subclause 55.3.6.1

Rx LPI indication: For EEE capability, this variable indicates the current state of the receive LPI function. This flag is set to TRUE (register bit set to one) when the PCS 64B/65B Receive state diagram (55-16a) is in the RX_L or RX_W states. This status is reflected in MDIO register 3.1.8. A latch high view of this status is reflected in MDIO register 3.1.10 (Rx LPI received).

Tx LPI indication: For EEE capability, this variable indicates the current state of the transmit LPI function. This flag is set to TRUE (register bit set to one) when the PCS 64B/65B Transmit state diagram (55-15a) is in the TX_L or TX_WN states. This status is reflected in MDIO register 3.1.9. A latch high view of this status is reflected in MDIO register 3.1.11 (Tx LPI received).

Cl **55** *SC* **55.4.5.4** *P* **201** *L* **14** # 230

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

Figure 55-15.

SuggestedRemedy

Three arrow ends need to be fixed.

Response *Response Status* **C**

ACCEPT.

See #144

Cl **55** SC **55.4.5.4** P **205** L **18** # 231
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Figure 55-16b. Initialization of tx_lpi_initial_quiet is not required in SEND_SLEEP since this variable is only effective when tx_lpi_qr_active is TRUE.

SuggestedRemedy

Delete "tx_lpi_initial_quiet=TRUE" in SEND_SLEEP state.

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.5.4** P **205** L **47** # 232
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

missing underscore

SuggestedRemedy

change "lpi_wake_timer done" to "lpi_wake_timer_done".

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.1** P **206** L **23** # 233
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

Figure 55-17. missing connection of scr_status/pcs_status signal to LINK MONITOR block. This is an error in the base specification that 802.3az already corrected in Figure 55.3.

SuggestedRemedy

Add line from scr_status/pcs_status line to LINK MONITOR block.

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.2.2.1** P **207** L **35** # 234
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

xPR_Master and xPR_Master used with mixed case and lower case (55.4.2.4) only in Clause 55. No need for fancy-dancy mixed case. :)

SuggestedRemedy

Change all to lower case.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change all occurances to:
xpr_master
xpr_slave

Cl **55** SC **55.4.2.5.14** P **209** L **32** # 235
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

spelling

SuggestedRemedy

change "start" to "starts"

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.25.14** P **209** L **37** # 236
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **D**

The receive is under control of link partner and transmit is under control of local LPI client.

SuggestedRemedy

Change sentence to "After reaching the PCS_Data state, PHYs with the EEE capability can transition the receiver to LPI mode under control of the link parnter and can transition the transmitter to LPI mode under control of the local LPI client."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

The extra text is not necessary. The mechanism is clearly described elsewhere.

Cl **55** *SC* **55.4.2.6a** *P* **210** *L* **20** # 237
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

Editorial instruction for 55.4.2.6a is in wrong place.

SuggestedRemedy

Move editorial instruction to above sub-clause 55.4.2.6a title.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.5.1** *P* **211** *L* **22** # 238
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

Since fast retrain is initiated both locally and remotely, keep local and remote entities clear.

SuggestedRemedy

Change "the receiver" to "the local receiver".

Response *Response Status* **C**

REJECT.

The distinction is not necessary. The variable is contained within the local receiver.

Cl **55** *SC* **55.4.5.1** *P* **211** *L* **26** # 239
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

Since fast retrain is initiated both locally and remotely, keep local and remote entities clear.

SuggestedRemedy

Change "the receiver" to "the local receiver".

Response *Response Status* **C**

REJECT.

The distinction is not necessary. The variable is contained within the local receiver.

Cl **55** *SC* **55.4.5.1** *P* **211** *L* **38** # 240
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Clarify that flag is set after not during sending/receiving of signal. Also, signal is elsewhere referred to as link failure signal not fast_retrain signal.

SuggestedRemedy

Change definition of fast_retrain_flag to "Set TRUE after the PHY generates or detects a link failure signal and set FALSE otherwise."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.5.4** *P* **212** *L* **16** # 241
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Indicate that counter is reflected in register...

SuggestedRemedy

Add "This counter is reflected in MDIO register 1.147.10:6 specified in sub-clause 45.2.76a.2."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.5.4** *P* **212** *L* **21** # 242
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Indicate that counter is reflected in register...

SuggestedRemedy

Add "This counter is reflected in MDIO register 1.147.15:11 specified in sub-clause 45.2.76a.3."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.6.1** *P* **213** *L* **37** # 243

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **R**

During a fast retrain, a new PBO is not exchange so PBO_next is not explicitly defined. Statement is required to indicate the intended value for PBO_next for fast retrain.

SuggestedRemedy

In sub-clause 55.4.5.1 modify the definition for PBO_next by adding the following statement. "When fast retrain is invoked PBO_next will have the same value as resolved during normal training."

Response *Response Status* **C**

REJECT.

The variable was not reassigned and therefore the value persists. The assignment to is defined in the description of the variable in the base standard therefore a change is not necessary.

Cl **55** *SC* **55.4.6.1** *P* **213** *L* **36** # 244

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A** *THP*

State of THP coefficients is for a fast re-train. Coincidentally, they are not specified for normal retrain in the 802.3-2008, either. The generally accepted THP coefficient state for normal re-train is zeros. For fast retrain specify that initialization to zeros is required for robust adaptation. A separate comment is submitted to request THP initial state for normal training.

SuggestedRemedy

Specify that THP coefficients, THP_tx are set to zero at the beginning of fast. In PMA_INIT_FR states add "THP_tx = zeros". Add the following in 55.4.2.5.14. During fast retrain, prior to entering the PMA_Coeff_Exch state, the THP coefficients will be set to zero." or similar text.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See response to comment #365

Cl **55** *SC* **55.4.6.1** *P* **213** *L* **36** # 245

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A** *THP*

State of THP coefficients is not specified for normal retrain in the 802.3-2008. The generally accepted THP coefficient state for normal re-train is zeros. For normal training initialization to zeros is required for consistent adaptation.

SuggestedRemedy

Specify that THP coefficients, THP_tx are set to zero at the beginning of normal training. In SILENT states add "THP_tx = zeros". Add the following in 55.4.2.5.14. During normal training, prior to enabling the tranmitter, the THP coefficients will be set to zero." or similar text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Figure 55-24 add "THP_tx = zeros" to the SILENT state. Add the following after the second paragraph of 55.4.2.5.14. 'During normal training, prior to enabling the transmitter, the THP coefficients are set to zero.

Cl **55** *SC* **55.4.6.2** *P* **215** *L* **15** # 246

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

Figure 55-25. Value for transition count initialization should be better defined. For normal retrain a value of 2^9 should always be used and for fast retrain a value of 2^5 should always be used. The note at the bottom says that if fast retrain is enable the value should be 2^5, however a normal train can occur with fast retrain enabled. The intent is that the counter should be set to 2^5 if fast retrain is occurring.

SuggestedRemedy

Change "transition_count <= 2^9" to "transition_count<=mtc" in three states. In section 55.4.5.1 specify a new variable mtc defined as: "mtc is the transition count for a MASTER PHY during normal training and fast retraining. mtc shall be equal to 2^9 for normal training and 2^5 for fast retrain."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.6.2** *P* **215** *L* **15** # 247

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

Figure 55-26. Target value for transition count should be better defined. For normal retrain a value of 2^6 should always be used and for fast retrain a value of 2^4 should always be used. The note at the bottom says that if fast retrain is enable the value should be 2^4, however a normal train can occur with fast retrain enabled. The intent is that the counter should be set to 2^4 if fast retrain is occurring.

SuggestedRemedy

Change "master_transition_count > 2^6" to "master_transition_count > stc" in two state transitions. In section 55.4.5.1 specify a new variable stc defined as: "stc is the target transition count for a SLAVE PHY during normal training and fast retraining. stc shall be equal to 2^6 for normal training and 2^4 for fast retrain."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.6.5** *P* **218** *L* **22** # 248

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

Figure 55-27b and Figure 55-24, For consistency all timers should be in figure 55-24. Starting of the fr_maxwait_timer should be placed in the PHY control state machine Figure 55-24.

SuggestedRemedy

In figure 55-27b delete "start fr_maxwait_timer" in FR_START_TIMER state. Rename FR_START_TIMER state to FR_START. In figure 55-24, add "start fr_maxwait_timer" to PMA_INIT_FR state.

Response *Response Status* **C**

REJECT.

This change is not necessary and does not improve the draft.

Cl **55** *SC* **55.6.1** *P* **219** *L* **9** # 249

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Definition of next page attributes is WRT local PHY.

SuggestedRemedy

Change "link partner is advertising" to "Advertising". change "link partner is not advertising" to "Not advertising.".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "link partner is advertising.." to "Advertise..' for bits U24-U22.

Also fix the typo on line 14, which mentions 10000BASE-T.
Change '10000BASE-T' to '1000BASE-T'.
Change the references to
'45.2.7.13.4', '45.2.7.13.5' and '45.2.7.13.6'.

Cl **55** *SC* **55.6.1** *P* **219** *L* **28** # 250

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **R**

Consistent terminology.

SuggestedRemedy

change "advertise phy as supporting fast retrain" to "Advertise fast retrain capability."
change "advertise phy as not supporting fast retrain" to "Not advertise fast retrain."

Response *Response Status* **C**

REJECT.

This change does not seem to improve the text.

Cl **69** *SC* **69.2.3** *P* **223** *L* **31** # 251
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
Table 69-1. Clause 78 not listed.

SuggestedRemedy
Add clause 78 to Table 69-1.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Replace Table 69-1 with the table on slide 5 of dambrosia_01_0510.pdf

Frame source for this is in dambrosia_02_0510.fm

Cl **70** *SC* **70.2** *P* **225** *L* **40** # 252
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
"PMD receive" used elsewhere

SuggestedRemedy
change PMD's to PMD.

Response *Response Status* **C**
ACCEPT.

Cl **70** *SC* **70.6.4** *P* **226** *L* **3** # 253
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
Consistent EEE support terms.

SuggestedRemedy
Replace "EEE is not implemented" with "EEE is not supported".

Response *Response Status* **C**
ACCEPT.

Cl **70** *SC* **70.6.4** *P* **226** *L* **12** # 254
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
Reference to signal detect assert/de-assert times is missing.

SuggestedRemedy
Add sentence: "The signal detection process shall meet the assert and de-assert times specified in Table 70-6.".

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Delete the LPI timing from the Table 70-6. 70.7.2, including Table 70-6, will no longer be needed in this project. Append the following text to the end of 70.6.4:

"If EEE is supported, the signal energy from a compliant transmitter shall set SIGNAL_DETECT to OK within 750ns when transitioning from LPI quiet to active and set SIGNAL_DETECT to FAIL within 750ns when transitioning from active to LPI quiet.

Also, Add the following PIC to 70.10.4.1

Item: FS5c
Feature: Signal Detect for EEE
Subclause: 70.6.4
Value: Transition timing to set SIGNAL_DETECT.
Status: LPI:M
Supported: Yes[ ], N/A [ ]

Cl **70** *SC* **70.6.10.1** *P* **227** *L* **1** # 255
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
Consistent EEE support terms.

SuggestedRemedy
"LPI mode is not implemented" with "EEE is not supported"

Response *Response Status* **C**
ACCEPT.

Cl **70** *SC* **70.6.10.2** *P* **227** *L* **24** # 256
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
Consistent EEE support terms.

SuggestedRemedy
"LPI mode is not implemented" with "EEE is not supported"

Response *Response Status* **C**
ACCEPT.

Cl **70** *SC* **70.6.10.2.2** *P* **227** *L* **35** # 257
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
clarify sentence

SuggestedRemedy
replace "quiet state of low power transmit state" with "LPI QUIET state".

Response *Response Status* **C**
ACCEPT.

Cl **70** *SC* **70.6.10.2.3** *P* **227** *L* **40** # 258
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
spelling

SuggestedRemedy
replace "block" with "blocks".

Response *Response Status* **C**
ACCEPT.

Cl **70** *SC* **70.10.4.1** *P* **229** *L* **35** # 259
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
PICS for receive signal detect assert and de-assert times from 70.7.2 and 70.6.4 is missing.

SuggestedRemedy
Add PICS for signal detect assert and de-assert times.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

See resolution to comment # 254

Cl **70** *SC* **70.10.4.1** *P* **229** *L* **35** # 260
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
PICS for tranmit enable/disable times/amplitudes from 70.7.1.5 is missing.

SuggestedRemedy
Add PICS for transmit enable/disable times.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Add the following 2 rows to the PICS table in 70.10.4.4

Item: TC8a
Feature: Output Amplitude LPI voltage
Subclause: 70.7.1.5
Value/Comment: Less than 30mv within 500ns of tx_quiet
Status: LPI:M
Support: Yes[ ], N/A [ ]

Item: TC8b
Feature: Output Amplitude ON voltage
Subclause: 70.7.1.5
Value/Comment: Greater than 800mV within 500ns of tx_quiet de-asserted
Status: LPI:M
Support: Yes[ ], N/A [ ]

Cl **70** *SC* **70.6.10** *P* **231** *L* **45** # 261

Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

service primitives are listed in the wrong section. move to 70.2.

SuggestedRemedy

On page 225 line 48, delete sentence starting with "These messages...". Move primitives (page 226 line 45 to page 227 line 41) to the end of section 70.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Not adding shall to section 70.2 as no other PMD Interface definition has a PICS.

Move section 70.6.10.1 on to 70.2 as follows and replace 70.2 as follows:

70.2 Physical Medium Dependent (PMD) service interface

Insert the following text at the end of section 70.2:
The PMD provides the following service interface signals if EEE is supported:

□PMD_RXQUIET.request(rx_quiet)
□PMD_TXQUIET.request(tx_quiet)

These messages are define for the PCS in 36.2.5.1.6.

70.2.1 PMD_RXQUIET.request

This primitive is generated by the PCS Receive Process when EEE is supported to indicate that the input signal is quiet and the PMA and PMD receiver may go into a low power mode. When EEE is not supported, the primitive is never invoked and the PMD behaves as if rx_quiet = FALSE.

70.2.1.1 Semantics of the service primitive

□PMD_RXQUIET.request (rx_quiet)

The rx_quiet parameter takes on one of two values: TRUE or FALSE.

70.2.1.2 When generated

The PCS generates this primitive to indicate the LPI quiet state.

70.2.1.3 Effect of receipt

This variable is from the receive process of PCS to control the power saving function of local PMD receiver. The 1000BASE-KX PHY receiver should put unused functional blocks into a low power state to save energy.

70.2.2 PMD_TXQUIET.request

This primitive is generated by the PCS Transmit Process when EEE is supported to indicate that the PMA and PMD transmit functions may go into a low power mode and to disable the PMD transmitter. See Clause 70.6.5. When EEE is not supported, the primitive is never invoked and the PMD behaves as if tx_quiet = FALSE.

70.2.2.1 Semantics of the service primitive

□PMD_TXQUIET.request (tx_quiet)

The tx_quiet parameter takes on one of two values: TRUE or FALSE.

70.2.2.2 When generated

The PCS generates this primitive to request the appropriate PMD transmit LPI state.

70.2.2.3 Effect of receipt

This primitive affects operation of the PMD Transmit disable function as described in 70.6.5. The 1000BASE-KX PHY transmitter should put unused functional blocks into a lower power state to save energy.

Also, append the following paragraph to 70.6.10

If EEE is supported, the PMD transmit function enters into a low power mode when tx_quiet is set to TRUE and exits when tx_quiet is set to FALSE. While tx_quiet is TRUE the PMD transmitter functional blocks should be deactivated to conserve energy. The PMD receive function enters into a low power mode when rx_quiet is set to TRUE and exits when rx_quiet is set to FALSE. While rx_quiet is TRUE the PMD receiver functional blocks should be deactivated to conserve energy.

Cl **71** *SC* **71.6.12** *P* **231** *L* **37** # 262

Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

service primitives are listed in the wrong section. move to 71.2.

SuggestedRemedy

Move primitives (page 231 line 37 to page 232 line 31) to the end of section 71.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Move section 71.6.12. primitive definitions to 71.2 as follows and replace 71.2 as follows:

71.2 Physical Medium Dependent (PMD) service interface

Insert the following text at the end of section 71.2:

The following primitives are defined on the PMD Service Interface when EEE is supported:

PMD_RXQUIET.request
PMD_TXQUIET.request

These messages are defined for the PCS in 48.2.6.1.6.

71.2.1 PMD_RXQUIET.request

This primitive is generated by the PCS Receive Process when EEE is supported to indicate that the input signal is quiet and the PMA and PMD receiver may go into a low power mode. When LPI mode is not supported, the primitive is never invoked and the PMD behaves as if rx_quiet = FALSE.

71.2.1.1 Semantics of the service primitive

PMD_RXQUIET.request (rx_quiet)

The rx_quiet parameter takes on one of two values: TRUE or FALSE.

71.2.1.2 When generated

The PCS generates this primitive to request the appropriate PMD receive LPI state.

71.2.1.3 Effect of receipt

This variable is from the Receive process of PCS to control the power saving function of local receiver. The 10GBASE-KX4 PHY receiver should put unused functional blocks into a low power state to save energy.

71.2.2 PMD_TXQUIET.request

This primitive is generated by the PCS Transmit Process when LPI mode is supported to indicate that the PMA and PMD transmit functions should go into a low power mode and to disable the PMD transmitter. See subclause 71.6.6. When LPI mode is not supported, the primitive is never invoked and the PMD behaves as if tx_quiet = FALSE.

71.2.2.1 Semantics of the service primitive

PMD_TXQUIET.request (tx_quiet)

The tx_quiet parameter takes on one of two values: TRUE or FALSE.

71.2.2.2 When generated

The PCS generates this primitive to request the appropriate PMD transmit LPI state..

71.2.2.3 Effect of receipt

This primitive affects operation of the PMD Transmit disable function as described in 71.6.6. The 10GBASE-KX4 PHY transmitter should put unused functional blocks into a low power mode to save energy.

Append the following paragraph to 71.6.12

If EEE is supported, the PMD transmit function enters into a low power mode when tx_quiet is set to TRUE and exits when tx_quiet is set to FALSE. While tx_quiet is TRUE the PMD transmitter functional blocks should be deactivated to conserve energy. The PMD receive function enters into a low power mode when rx_quiet is set to TRUE and exits when rx_quiet is set to FALSE. While rx_quiet is TRUE the PMD receiver functional blocks should be deactivated to conserve energy.

Cl **71** *SC* **71.10.4.2** *P* **234** *L* **35** # 263

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

PICS for receive signal detect assert and de-assert times from 71.7.1.4 is missing.

SuggestedRemedy

Add PICS for signal detect assert and de-assert times.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the timing from the table and append the following text to the end of 71.6.4:

"If EEE is supported, the signal energy from a compliant transmitter shall set SIGNAL_DETECT to OK within 750ns when transitioning from LPI quiet to active and set SIGNAL_DETECT to FAIL within 750ns when transitioning from active to LPI quiet.

Also, Add the following PIC to 71.10.4.2

Item: FS9b
Feature: Signal Detect for EEE
Subclause: 71.6.4
Value: Transition timing to set SIGNAL_DETECT.
Status: LPI:M
Supported: Yes[ ], N/A [ ]

Cl **71** *SC* **71.10.4.2** *P* **234** *L* **35** # 264

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

PICS for transmit enable/disable times/amplitudes from 71.7.2 is missing.

SuggestedRemedy

Add PICS for transmit enabled/disabled times.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following 2 rows to the PICS table in 71.10.4.4

Item: TC6a
Feature: Output Amplitude LPI voltage
Subclause: 71.7.1.4
Value/Comment: Less than 30mv within 500ns of tx_quiet = TRUE
Status: LPI:M
Support: Yes[ ], N/A [ ]

Item: TC6b
Feature: Output Amplitude ON voltage
Subclause: 71.7.1.4
Value/Comment: Greater than 720mV within 500ns of tx_quiet = FALSE
Status: LPI:M
Support: Yes[ ], N/A [ ]

Cl **72** *SC* **72** *P* **235** *L* **1** # 265

Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Throughout Clause 72 "low power mode" is used to refer to what is more technically "low power idle mode" or "LPI mode". Note that a "low power" mode is defined for all 802.3 PHYs and is invoked by setting MDIO bit 1.0.11 to 1.

SuggestedRemedy

Change all references to "low power mode" to "LPI mode".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor will make changes across all backplane PHYs to be more consistant with LPI mode.

Also see response to comment # 129.

Cl **72** *SC* **72.2** *P* **235** *L* **47** # 266
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
spelling

SuggestedRemedy
change "conserver" to "conserve"

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.2** *P* **235** *L* **48** # 267
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
EEE terminology.

SuggestedRemedy
change "EEE is implemented" to "EEE is supported".

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.2** *P* **235** *L* **42** # 268
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
Paragraph on EEE behavior seems out of place here.

SuggestedRemedy
Move paragraph lines 42 to 48 to end of sub-clause 72.1.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change 72.2 to the following:

The PMD service interface is summarized as follows:
a) PMD_UNITDATA.request (as defined in 52.1.1)
b) PMD_UNITDATA.indication (as defined in 52.1.1)
c) PMD_SIGNAL.indication

The PMD provides the following service interface primitives if EEE is supported:
PMD_RX_MODE.request(rx_mode)
PMD_TX_MODE.request(tx_mode)

72.2.1 PMD_RX_MODE.request
This primitive is generated by the PCS Receive Process when EEE is supported to indicate that the input signal is quiet and the PMA and PMD receiver may go into LPI mode. See Clause 49.2.13.2.6. When EEE is not supported, the primitive is never invoked and the PMD behaves as if rx_mode = DATA.

72.2.1.1 Semantics of the service primitive
PMD_RX_MODE.request (rx_mode)
The rx_mode parameter takes on one of two values: QUIET or DATA.

72.2.1.2 When generated
The PCS generates this primitive to indicate the LPI Receive state diagram is in the QUIET state.

72.2.1.3 Effect of receipt
When rx_mode is QUIET, the PMD receive function may deactivate functional blocks to conserve energy. When rx_mode is DATA, the PMD receive function operates normally.

72.2.2 PMD_TX_MODE.request
This primitive is generated by the PCS Transmit Process when EEE is supported to indicate that the PMA and PMD transmit functions may go into a LPI mode and to disable the PMD transmitter. See subclause 72.6.5. When EEE is not supported, the primitive is never invoked and the PMD behaves as if tx_mode = DATA.

72.2.2.1 Semantics of the service primitive
PMD_TX_MODE.request (tx_mode)

The tx_mode parameter takes on one of three two values: QUIET, ALERT, or DATA.

72.2.2.2 When generated
The PCS generates this primitive to indicate that LPI Transmit state diagram is in the QUIET and ALERT states.

72.2.2.3 Effect of receipt
When tx_mode is QUIET, the PMD Transmit function may deactivate functional blocks to conserve energy. When tx_mode is ALERT, the PMD Transmit function transmits the alert pattern. And when it is DATA, the PMD Transmit function operates normally.

Note to editor: Also similar corrections clauses 70 & 71.

Cl **72** *SC* **72.6.4** *P* **236** *L* **23** # 269
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
EEE terminology.

SuggestedRemedy
change "EEE is implemented" to "EEE is supported".

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.6.4** *P* **236** *L* **35** # 270
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
EEE terminology.

SuggestedRemedy
change "EEE is not implemented" to "EEE is not supported".

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.6.5** *P* **236** *L* **45** # 271
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **R**
Transmitter output is not specified during LPI QUIET period.

SuggestedRemedy
Modify item a) with new text delimited by <> as follows: "variable is set to ONE <or tx_mode is QUIET>, this function..."

Response *Response Status* **C**
REJECT.
That section references table 7-6 which show the TX disable as 30 mV.

Cl **72** *SC* **72.6.11** *P* **237** *L* **28** # 272
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
link partner is by definition remote

SuggestedRemedy
change "remote link partner's" to "link partner's"

Response *Response Status* **C**
ACCEPT.

Cl **72** *SC* **72.6.11** *P* **237** *L* **32** # 273
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**
PMD service interface parameters belong in 72.2

SuggestedRemedy
On page 235, delete lines 50 to 54. Move definitions from 72.6.11 (page 237 line 32 to page 238 line 28) to section 7.2.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

See response to comment #268

Cl **72** *SC* **72.6.11.1.2** *P* **237** *L* **52** # 274
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Sentence does not make sense.

SuggestedRemedy

Replace with: "The PCS generates this primitive to indicate the current receive LPI state"

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.6.11.1.2** *P* **237** *L* **51** # 275
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

definition isn't clear, also is a request

SuggestedRemedy

Change definition to "The PCS generates this primitive to request the appropriate PMD receive LPI state."

Response *Response Status* **C**

ACCEPT.

This text has been moved - see response to comment #268

Cl **72** *SC* **72.6.11.2.2** *P* **238** *L* **21** # 276
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

definition isn't clear, also is a request

SuggestedRemedy

Change definition to "The PCS generates this primitive to request the appropriate PMD transmit LPI state."

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.7.1.4** *P* **238** *L* **43** # 277
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

maximum voltage level during QUIET mode is not specified

SuggestedRemedy

add sentence "While in LPI QUIET mode, the PMD output voltage shall be no larger than the maximum specified for TX disabled in Table 72-6." Add PICs statement in 72.10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "For EEE capability, the transmitter's differential peak-to-peak output voltage shall be less than 30mV within 500ns of tx_mode being set to QUIET."

To "For EEE capability, the transmitter's differential peak-to-peak output voltage shall be less than 30mV within 500ns of tx_mode being set to QUIET and remain so while tx_mode is set to QUIET."

Cl **72** *SC* **72.10.4.2** *P* **240** *L* **35** # 278
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

PICS for receive signal detect assert and de-assert times from 72.7.1.4 is missing.

SuggestedRemedy

Add PICS for signal detect assert and de-assert times.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the LPI timing from Table 72-9
Insert the following text after the 2nd paragraph on 72.6.4:

"If EEE is supported, the signal energy from a compliant transmitter shall set SIGNAL_DETECT to OK within 500ns when transitioning from LPI quiet to active and set SIGNAL_DETECT to FAIL within 500ns when transitioning from active to LPI quiet.

Also, Add the following PIC to 72.10.4.2

Item: FS5c
Feature: Signal Detect for EEE
Subclause: 70.6.4
Value: Transition timing to set SIGNAL_DETECT.
Status: LPI:M
Supported: Yes[ ], N/A [ ]

Cl **72** *SC* **72.10.4.2** *P* **240** *L* **35** # 279
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

PICS for transmit enable/disable times/amplitudes from 72.7.2 is missing.

SuggestedRemedy

Add PICS for transmit enabled/disabled times.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following 2 rows to the PICS table in 72.10.4.4

Item: TC6a
Feature: Output Amplitude LPI voltage
Subclause: 72.7.1.4
Value/Comment: Less than 30mv within 500ns of tx_quiet
Status: LPI:M
Support: Yes[ ], N/A [ ]

Item: TC6b
Feature: Output Amplitude ON voltage
Subclause: 72.7.1.4
Value/Comment: Greater than 90% of previous level within 500ns of tx_quiet de-asserted
Status: LPI:M
Support: Yes[ ], N/A [ ]

Cl **74** *SC* **74.4.1** *P* **241** *L* **23** # 280
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Figure 74-2. LPI blocks appears to be part of receiver but includes transmit and receiver functions.

SuggestedRemedy

Move LPI block outside of the receive block.

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.4.1** *P* **241** *L* **39** # 281
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Figure 74-2. FEC_LPI_ACTIVE is not required between PMA and FEC.

SuggestedRemedy

Delete FEC_LPI_ACTIVE signal between PMA and FEC.

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.4.1** *P* **241** *L* **29** # 282
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Figure 74-2. Primitives between FEC and PCS should be prefixed with FEC not PCS.

SuggestedRemedy

On LPI primitives between FEC and PCS, replace "PCS_" with "FEC_".

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.4.1** *P* **241** *L* **29** # 283
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Figure 74-2. Primitives between FEC and PMA should be prefixed with PMA not FEC

SuggestedRemedy

On LPI primitives between FEC and PMA replace "FEC_" with "PMA_".

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1** *P* **242** *L* **21** # 284
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

new text

SuggestedRemedy

underline "FEC_ENERGY.indication(energy_detect)"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1.4** *P* **242** *L* **43** # 285
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Remove details of signal detection as this not properly defined here and is already specified in the PMD.

SuggestedRemedy

Delete end of sentence " is set to ... otherwise".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The sentence will now be:
A boolean variable that reflects the value of the energy detection primitive PMA_ENERGY.indication

Cl **74** *SC* **74.5.1.8** *P* **243** *L* **54** # 286
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

spelling

SuggestedRemedy

change "FEC_UNIDATA" to "FEC_UNITDATA"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1.8** *P* **243** *L* **54** # 287
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

spelling

SuggestedRemedy

change "block" to "blocks"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Page 244, line 1

Cl **74** *SC* **74.5.1.8** *P* **244** *L* **10** # 288
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**

space

SuggestedRemedy

add space in "standard.FEC"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1.8** *P* **244** *L* **10** # 289
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

preclude is the wrong word

SuggestedRemedy

change to "The FEC sub-layer will hold off asserting SIGNAL_OK..."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

change to "The FEC sub-layer shall hold off asserting SIGNAL_OK..."

Add in corresponding PICS

Cl **78** *SC* **78.1** *P* **246** *L* **15** # 290
Brown, Matthew Applied Micro (AMCC)

Comment Type **E** *Comment Status* **A**

unnecessary word

SuggestedRemedy

Replace "the 10GBASE-T" with "10GBASE-T"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Leave "the" in there and put in a "the" in front of 1000BASE-T for consistency.

Cl **78** *SC* **78.1** *P* **246** *L* **22** # 291
Brown, Matthew Applied Micro (AMCC)

Comment Type **E** *Comment Status* **A**

missing word

SuggestedRemedy

Replace "also met" with "also be met"

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.2.1.2** *P* **248** *L* **15** # 292
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

LPI_REQUEST is also ineffective when receiving REMOTE_FAULT. Note that sending REMOTE_FAULT is equivalent to receiving LOCAL_FAULT.

SuggestedRemedy

Add "e) The PHY is receiving REMOTE_FAULT."

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Changed page number to 248 from 246.

Cl **78** *SC* **78.1.3.3.1** *P* **250** *L* **23** # 293
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

Sending LPI indicates the tranmit process, not the system, is entering LPI mode.

SuggestedRemedy

Change "the local system is entering" to "the local transmitter is entering".

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.2** *P* **251** *L* **44** # 294
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

What is a "start of shell delimiter"? SSD is defined in 1.4.334 as "start of stream delimiter".

SuggestedRemedy

Replace "start of shell" with "start of stream". Two instances.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #295

Cl **78** *SC* **78.2** *P* **251** *L* **44** # 295
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **A**

SSD is not defined for 10G PHYs. What should be used in its place?

SuggestedRemedy

I'm not sure what the right answer is.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace:

"...of a start of shell delimiter (SSD) …"
with:
"a given unit of data"

Cl **78** *SC* **78.1.3.3.2** *P* **251** *L* **5** # 296
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

The PHY indicates LPI when receiving the the SLEEP signal, much before ceasing transmission.

SuggestedRemedy

Change "When the Link partner has ceased transmission," to "When the receiver detects the SLEEP signal,".

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.3** *P* **252** *L* **47** # 297
Brown, Matthew Applied Micro (AMCC)

Comment Type **GR** *Comment Status* **A**

What is "link establishment process"? I assume this is auto-negotiation.

SuggestedRemedy

Replace "link establishment process" with "auto-negotiation".

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.3** *P* **252** *L* **49** # 298
Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **R**

Some PHYs do not permit asymmetric LPI nor is it necessary to state this here.

SuggestedRemedy

Delete "independently in either direction".

Response *Response Status* **C**

REJECT.

1000BASE-T allows asymmetric operation at the system level.

Cl **74** *SC* **74.5.1.8** *P* **244** *L* **4** # 299
Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A** *timers*

A hold-off of 30 microseconds seems too long. For a normal wake (not a wake from refresh) the FEC rapid block lock mechanism will receive the determinstic frames approximately 12 microseconds following the start of wake. If the rapid block lock mechanism fails to acheive lock during during the 1 microsecond transmission of deterministic frames, it will be inhibited from setting signal_ok = TRUE for an additional 17 microseconds even if it has an alternate mechanism to obtain lock during that period. During this period, received frames are simply consumed by the PHY. The purpose of the hold-off is to prohibit the FEC sublayer from setting signal_ok prior to the deterministic frames being received so that those frames are never passed to the PCS for further processing. A hold-off of 13 microseconds would appear to be sufficient. With respect to the variable arrival of deterministic frames for the wake from refresh scenario, a separate comment has been submitted to alter to the transmitter behavior to make schedule for deterministic frame transmission to be deterministic. This proposal should be considered in conjuction with the proposed changes to the LPI state diagram.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the timer from 30usec to 13.7 usec

Cl **70** *SC* **70.7.1.5** *P* **227** *L* **49** # 300
Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The requirements of 70.7.1.5 ensure that the transmitter will provide a signal with sufficient amplitude to trigger the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

SuggestedRemedy

Define the maximum time the transmitter is allowed, following the assertion of tx_quiet = FALSE, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 78-4 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 70-4 for this value.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Append to 70.7.1.5 the following sentence:

"The transmitter output shall be fully compliant within 5 us after tx_quiet is set to FALSE."

Cl **70** *SC* **70.7.1.5** *P* **227** *L* **51** # 301

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The transmitter is required to transmit a differential peak-to-oeak output greater than 800 mV within 500 ns following a tx_quiet being set to false. However, the output voltage during normal operation is allowed to be as low as 800 mV (per Table 70-6). It makes no sense to force the voltage at the start of wake to be greater than the minimum.

SuggestedRemedy

Moreover, the output amplitude should only only be as large as needed to trigger the receiver signal detect function. In other clauses, this is less than the minimum value during normal operation. Suggest that the value be 700 mV peak-to-peak differential.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

I propose making it 720 mV peak-to-peak differential as that is consistent with the 90% that is in Clause 72.

Cl **71** *SC* **71.7.1.4** *P* **232** *L* **40** # 302

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The requirements of 71.7.1.4 ensure that the transmitter will provide a signal with sufficient amplitude to trigger the receiver signal detect function. It offers the receiver designer no guidance as to when the transmitter output will be fully compliant (amplitude, jitter, etc.).

SuggestedRemedy

Define the maximum time the transmitter is allowed, following the assertion of tx_quiet = FALSE, to obtain full compliance. This value is proposed to be 5 microseconds. The values in Table 78-4 must be updated to align with this allowance as this considered to be part of the transmitter's wake time shrinkage. Include a row in Table 71-4 for this value.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Append to 71.7.1.4 the following sentence:

"The transmitter output shall be fully compliant within 5 us after tx_quiet is set to FALSE."

Cl **71** *SC* **71.7.1.4** *P* **232** *L* **43** # 303

Healey, Adam LSI Corporation

Comment Type **TR** *Comment Status* **A**

The transmitter is required to transmit a differential peak-to-peak output greater than 800 mV within 500 ns following a tx_quiet being set to false. However, the output voltage during normal operation is allowed to be as low as 800 mV (per Table 71-4). It makes no sense to force the voltage at the start of wake to be greater than the minimum.

SuggestedRemedy

Moreover, the output amplitude should only only be as large as needed to trigger the receiver signal detect function. In other clauses, this is less than the minimum value during normal operation. Suggest that the value be 700 mV peak-to-peak differential.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "800mV" to "720mV"

Cl **00** *SC* **00** *P* **12** *L* **42** # 304

Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A** *TOC*

ToC is incorrect. 55.2.2.3.1, 55.2.2.9, 55.2.2.10, 55.2.2.11, 55.3.2.2, and 55.3.2.3 are put under 55.1.4

SuggestedRemedy

Correct headings so that ToC is correct

Response *Response Status* **C**

ACCEPT.

Add in subclause heading into Clause 55 where necessary.

Cl **00** *SC* **00** *P* **12** *L* **44** # 305

Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A** *TOC*

ToC is incorrect for Clause 55. 55.3.5.2.3, 55.3.5.2.4, 55.3.5.2.5 are shown under 55.3.4a.3. 55.10, and 55.12 is not in the ToC

SuggestedRemedy

Correct headings so that ToC is correct

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **00** *P* **12** *L* **43** # 306
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A** *TOC*

ToC for Clause 55 is totally wrong, and needs to be completely reviewed. Subclauses are not under appropriate subclauses

SuggestedRemedy

do total review of all headings and relations of subclause headings, so that it is correct.

Response *Response Status* **C**

ACCEPT.

Cl **69** *SC* **69.2.3** *P* **223** *L* **46** # 307
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Clause 82 is mandatory - not optional for 40GBASE-KR4

SuggestedRemedy

Change optional entry to mandatory entry for Clause 82 (40GBASE-R PCS) for 40GBASE-KR4

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #251

Cl **69** *SC* **69.2.3** *P* **223** *L* **42** # 308
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Clause 81 has nothing to do with 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR

SuggestedRemedy

Delete optional entry for Clause 81 RS to 1000BASE-KX, 10GBASE-KX4, and 10GBASE-KR.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #251

Cl **69** *SC* **69.2.3** *P* **223** *L* **46** # 309
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Clause 81 XLGMII is not mandatory for 40GBASE-KR4. It is an optional physical interface.

SuggestedRemedy

Change mandatory entry to optional entry for Clause 81 (XLGMII) for 40GBASE-KR4

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #251

Cl **69** *SC* **69.2.6** *P* **224** *L* **3** # 310
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

The statement -"With the optional EEE feature, described in Clause 78, the Backplane Ethernet PHYs can achieve lower is not accurate for EEE, as EEE only applies to Backplane Ethernet PHYs for 10Gb/s or lower power consumption

SuggestedRemedy

Modify statement to read -With the optional EEE feature, described in Clause 78, Backplane Ethernet PHYs for 10Gb/s or lower can achieve lower power consumption.

Response *Response Status* **C**

ACCEPT.

Cl **14** *SC* **14.10.4.7.1** *P* **22** *L* **7** # 311
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Stated parameter fr LS4 is for a type 10BASE-T MAU but this does not agree with the text in 14.4.2.1 which states for a 10BASE-T MAU that is not a 10BASE-Te MAU.

SuggestedRemedy

Change parameter for LS4 to agree with text in 14.4.2.1

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Parameter for LS4 in section 14.10.4.7.1 from:
"Insertion loss, 5.0 to 10 MHz for a type 10BASE-T MAU"
to:
"Insertion loss, 5.0 to 10 MHz for a type 10BASE-T MAU that is not a type 10BASE-Te MAU"

Change Value/Comment for LS4 in section 14.10.4.7.1 from:
"Conditional on whether it is a type 10BASE-T MAU. <= 11.5db"
to:
"Conditional on whether it is a type 10BASE-T MAU that is not a type 10BASE-Te MAU. <= 11.5db"

Make a similar change to parameter TS1 in section 14.10.4.5.12.

Change Parameter for TS1 in section 14.10.4.5.12 from:
"Peak differential output voltage on TD circuit for a type 10BASE-T MAU"
to:
"Peak differential output voltage on TD circuit for a type 10BASE-T MAU that is not a type 10BASE-Te MAU"

Change Value/Comment for TS1 in section 14.10.4.5.12 from:
"Conditional on whether it is a type 10BASE-T MAU. 2.2 to 2.8 V"
to:
"Conditional or whether it is a type 10BASE-T MAU that is not a type 10BASE-Te MAU. 2.2 to 2.8 V"

Cl **22** *SC* **22.7.3.2a** *P* **31** *L* **24** # 312
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Feature for L2 reads - RX_CLK max high/low time transitioning to START_RX_SLEEP state, but there is no mention of START_RX_SLEEP state in identified subclause 22.2.2.2.

SuggestedRemedy

Change parameter for L2 to agree with text in 22.2.2.2

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:

RX_CLK max high/low time while the PHY is asserting LPI

Cl **22** *SC* **22.7.3.2a** *P* **31** *L* **30** # 313
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

no SHALLS for L4 and L6

SuggestedRemedy

add appropriate SHALL statements

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The L4 option is indicated in the clause using "may"

L6 should have been deleted following an earlier change to the draft - delete L6

Cl **22** *SC* **22.7.3.2a** *P* **31** *L* **33** # 314
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

L5 parameter should refer to RX-CLK restarting which is what the shall statement refers to

SuggestedRemedy

change l5 parameter text to Restat of RX_CLK before LPI deasserted

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change to:

RX_CLK restart before LPI deasserted

Cl **25** *SC* **25.4a.5** *P* **54** *L* **45** # 315
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**

Signal_Detect output shall be asserted within 5 micro sec instead of 1000 micro sec. why is instead of 1000 microsec necessary?

SuggestedRemedy

delete instead of 1000 micros

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.4a.6** *P* **54** *L* **52** # 316
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**

Signal_Detect output shall be asserted within 5 micros instead of 350 micros. why is instead of 350micros necessary?

SuggestedRemedy

delete "instead of 350 micros"

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.5.4.4** *P* **56** *L* **44** # 317
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Value states The scrambler and transmit functions continue to operate for at least 5 micros following tx_quiet = TRUE, but the cited text says it shall operate for the first 5microS, not at least 5micros

SuggestedRemedy

change value field to read - The scrambler and transmit functions continue to operate for the first 5 micros following
tx_quiet = TRUE.

Response *Response Status* **C**

ACCEPT.

Cl **35** *SC* **35.5.3.3a** *P* **73** *L* **7** # 318
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

Referenced subclause is incorrect, and there is no corresponding SHALL statement

SuggestedRemedy

change subclause to 35.2.2.6. change feature to assertion of LPI in RX direction. Change value to as defined in Table 35-2. Add corresponding SHALL statement

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This changes the base text that refers to the legacy gigabit RS operation and may affect the installed base of PHYs however these changes will not affect the operation of the PHYs.

Make the following changes:

Change reference as described

Change feature as described

Change the paragraph on p.68, l.32 to read:

Table 35-2 specifies the permissible encoding of RXD<7:0>, RX_ER, and RX_DV, along with the specific indication that shall be interpreted by the RS.

Cl **35** *SC* **35.5.3.3a** *P* **73** *L* **5** # 319
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**

Feature includes value statement

SuggestedRemedy

Change feature to assertion of LPI in TX Direction change value to "as defined in Table 35-1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make the suggested change for L1 and L2.

Cl **35** *SC* **35.5.3.3a** *P* **73** *L* **10** # 320
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**
no shall statements for L3.

SuggestedRemedy
add appropriate SHALL statement

Response *Response Status* **C**
REJECT.

The L3 option is indicated in the clause using "may"

Cl **40** *SC* **40.3.3.1** *P* **98** *L* **48** # 321
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**
no shall or PIC for lpi_mode

SuggestedRemedy
add shall statement and appropriate PIC

Response *Response Status* **C**
REJECT.

The wording was chosen specifically to avoid adding a redundant item to the PICS Proforma.

The variable in question is set by the PMA PHY Control function and passed to the PCS Receive function. It is stated that the PMA PHY control function shall operate as if the value of this variable is FALSE (40.4.5.1, page 103, line 28) and the PCS Receive function inherits this value. As this is behavior covered by PICS Proforma item PMF27, an additional item would be redundant.

Cl **40** *SC* **40.12.6** *P* **113** *L* **18** # 322
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
There is no variable defined for PMF28

SuggestedRemedy
add a variable definition. In value field Pperate should be changed to Operate

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change Value/Comment for PMF28 to:

"Operate as if the value of rem_lpi_req is FALSE."

Cl **40** *SC* **40.4.5.1** *P* **103** *L* **42** # 323
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**
shouldn't there be a SHALL and associated PIC

SuggestedRemedy
add appropriate SHALL and PIC

Response *Response Status* **C**
REJECT.

The editor assumes the comment refers to the definition of the rem_lpi_req variable.

The wording was chosen specifically to avoid adding a redundant item to the PICS Proforma.

The variable in question is set by the PCS Receive function and passed to the PMA PHY Control function. It is stated that the PCS Receive function shall operate as if the value of this variable is FALSE (40.3.3.1, page 99, line 4) and the PMA PHY Control function inherits this value. As this is behavior covered by PICS Proforma item PCR5, an additional item would be redundant.

Cl **40** *SC* **40.12.6** *P* **114** *L* **20** # 324
Dambrosia, John Force10 Networks

Comment Type **E** *Comment Status* **A**

Text discusses state diagram Fig. 40-15b

SuggestedRemedy

Add reference in Value column to Fig 40-15b

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor assumes that this refers to PME74.

Change the Value/Comment field for PME74 to:

"Achieve compliant operation upon entry to the WAKE_TRAINING state (see the PHY Control state diagram, Figure 40-15b)."

Cl **40** *SC* **40.5.1** *P* **108** *L* **35** # 325
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**

Add SHALL statement and PIC

SuggestedRemedy

Add "SHALL" statement and PIC

Response *Response Status* **C**

REJECT.

In the context of 40.5.1, this item is being added to a list associated with descriptive text and adding "shall" for this particular item is inappropriate and redundant.

Supplemental requirements for EEE auto-negotiation are addressed in 40.5.1.2 and PICS Proforma item AN15.

Cl **40** *SC* **40.6.1.2.7** *P* **110** *L* **42** # 326
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

The following statement is made - When the PHY supports the optional EEE capability, it is required to transmit Idle symbols while in the WAKE state (see the PHY Control state diagram, Figure 40--15b). If it is required there should be a corresponding SHALL statement

SuggestedRemedy

add corresponding shall statement

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The word "shall" was avoided specifically to avoid adding a redundant item to the PICS Proforma.

The required behavior is embodied by the PHY Control state diagram (tx_mode is set to SEND_I in the WAKE state) as referenced by the cited text and compliance to this state diagram is required per PMF24.

However, use of the phrase "is required to" is unnecessary. Change the text as follows.

"When the PHY supports the optional EEE capability, it transmits Idle symbols while in the WAKE state (see the PHY Control state diagram, Figure 40-15b)."

Cl **00** *SC* **0** *P* *L* # 327
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**

Bookmark for 40.5.1 is under 40.4

SuggestedRemedy

Correct bookmark for 40.5.1 so it is not under 40.4

Response *Response Status* **C**

ACCEPT.

This will require insertion of a heading for 40.5 in the draft.

Cl **00** *SC* **0** *P* *L* # 328
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**
Bookmark for 40.6.l.x.x is under 40.5.1.2

SuggestedRemedy
Correct bookmarks

Response *Response Status* **C**
ACCEPT.

Add heading for 40.6 into the draft o fix this problem.

Cl **46** *SC* **46.5.3.3a** *P* **141** *L* **25** # 329
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
No corresponding SHALL statements for L1, L2, L3

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

The "shall" for item L1 (first) is on p.135 l.52

Add the following at the end of the first paragraph of 46.3.2.4 (p.137 l.22) to provide a "shall" for L1 (second):

The RS shall interpret the LPI coding as shown in Table 46-4

Optional items L2 & L3 are designated by "may" in the clauses referenced.

Cl **46** *SC* **46.5.3.3a** *P* **141** *L* **25** # 330
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**
redundant item numbers

SuggestedRemedy
renumber item number's accordingly

Response *Response Status* **C**
ACCEPT.

Cl **47** *SC* **47.6.4.4** *P* **144** *L* **30** # 331
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no corresponding SHALL statements for LP-04

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Add a new subclause:

Insert the following after 47.3.4.6

47.3.4.7 EEE receiver timing

For EEE capability, the receiver shall meet the timing requirements shown in Table 47-3 for Signal_Detect activation and deactivation.

Cl **48** *SC* **48.7.4.8** *P* **159** *L* **24** # 332
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no corresponding SHALL statements for LP-01

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Insert a new subclause in the draft: 48.2.6.2.4:

Change the first paragraph of 48.2.6.2.4

The PCS shall implement its Receive process as depicted in Figure 48-9, including compliance with the associated state variables as specified in 48.2.6.1 and including the optional EEE capability.

Cl **49** *SC* **49.2.13.2.3** *P* **163** *L* **24** # 333
Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**
subclauses are out of order with 49.2.13.2.2 on Page 166

SuggestedRemedy
reorder subclauses

Response *Response Status* **C**
ACCEPT.

Cl **49** *SC* **49.3.6.6** *P* **176** *L* **32** # 334
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no corresponding shall statements for LP-04, LP-05, and LP-06

SuggestedRemedy
add corresponding shall statements

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

The "shall" for LP-04 is on p.166, l.51.

Modify the change instruction for 49.2.13.3:

Change Figure 49-14 for LPI transmit state diagram and 49-15 for LPI receive state diagram; change the final paragraph of 49.2.13.3

Insert the following paragraph in the draft, with appropriate change markers.

"The PCS shall perform the functions of Lock, BER Monitor, Transmit and Receive as specified in these state diagrams, including the optional EEE capability if implemented."

Cl **51** *SC* **51.10.4.5** *P* **181** *L* **22** # 335
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no corresponding shall statements for LP-01

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

This subclause is deleted by comment #199

Delete the subclause with this PICS entry.

Cl **70** *SC* **70.6.5** *P* **226** *L* **21** # 336
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no PICS for SHALL statements for bullets a and D

SuggestedRemedy
add corresponding PIC statements

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Propose the following two PICS be added to 70.10.4.1

Item: FS5d
Feature: Transmitter Disable
Subclause: 70.6.5
Value/Comment: Disables Transmitter when PMD_Transmit_disable set to ONE
Status: TD:M
Support: Yes [ ], N/A[ ]

Item: FS7a
Feature: tx_quiet disabled transmitter
Subclause: 70.6.5
Value/Comment: Disables Transmitter when tx_quiet is asserted as specified in 70.7.1.5.
Status: LPI:M
Support: Yes [ ], N/A [ ]

Cl **70** *SC* **70.10.4.1** *P* **229** *L* **31** # 337
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no SHALL statement for FS10

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **W**
ACCEPT IN PRINCIPLE.

Delete FS10

Cl **71** *SC* **71.10.4.2** *P* **234** *L* **31** # 338
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no SHALL statement for FS18

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

For 71.6.12, change

"The following primitives are defined on the PMD Service Interface when EEE is supported:"

"If EEE is supported, the following PMD Service Interface primatives shall be supported."

Cl **72** *SC* **72.10.4.2** *P* **240** *L* **35** # 339
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
no SHALL statement for FS12

SuggestedRemedy
add corresponding shall statement

Response *Response Status* **W**
ACCEPT IN PRINCIPLE.

Delete FS12 from the PICS table

Also see response to comment # 131

Cl **74** *SC* **74.8.4** *P* **244** *L* **27** # 340
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
SHALL statement doesn't have appropriate PIC

SuggestedRemedy
add appropriate PIC

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Item: FEM4
Feature: FEC Error Monitoring during EEE
Sub clause: 74.8.4
Value/Comment: Disables FEC Error Monitoring during EEE as specified in 74.8.4
Status: EEE:M
Support: Yes[]

Cl **78** *SC* **0** *P* **262** *L* **20** # 341
Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**
there are no PIC statements for all corresponding SHALL statements in Clause 78

SuggestedRemedy
create PICs section and add pics for all appropriate SHALLs

Response *Response Status* **W**
ACCEPT IN PRINCIPLE.

See response to comment #20

Cl **79** *SC* **79.5.a** *P* **266** *L* **27** # 342

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

There are no corresponding SHALL statements for EET1 - EET5

SuggestedRemedy

add corresponding SHALL statements

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. - 79.3.a.1: Replace "is the time" with "shall be defined as the time"
- 79.3.a.2: Replace "is the time" with "shall be defined as the time"
- 79.3.a.3: Change corresponding PICs from an M to an O to match the may in the text
- 79.3.a.4: Replace "The respective echo values are" with "The respective echo values shall be defined as"
- Insert section 79.3.a.5. Titled "EEE TLV usage rules". Content "An LLDPDU should contain no more than one EEE TLV.". Add reference to new section in PICs entry

Cl **55** *SC* **55.12.3** *P* **220** *L* **27** # 343

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

PCT1a value comment field refers to Fig 55-16, but there is no reference in 55.3.2.2 to Fig 55-16

SuggestedRemedy

delete reference to Fig 55-16

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The reference should be to 55-15a.
Also change the text in clause 55.3.2.2 page 189 line 39 to refer to 'Figure 55-15 and Figure 55-15a' instead of only Figure 55-15.

Cl **55** *SC* **55.12.3** *P* **220** *L* **29** # 344

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**

PCT2 subclause reference 55.3.2.2.4 does not exist. PCT3 subclause reference 55.3.2.2.6 does not exist in this amendment. PCT4a subclause reference 55.3.2.2.10 does not exist in this amendment. Subclause references for PCT5 - PCT10 do not exist in this amendment. Therefore there are no appropriate SHALL statements for these PICs.

SuggestedRemedy

Add appropriate proper subclauses with appropriate SHALL statements

Response *Response Status* **C**

REJECT.

This part of the draft is part of a 'change' instruction. Rows are being added to the table for EEE. The subclauses that are identified in the comment are part of the existing Clause 55 text, and are not being modified by this amendment and are therefore not included in this draft.

Reject since no change will be made to the draft.

Note: the additional EEE items were added in the midst of the table to match the precedent of PMF16a, which was an ammendment to the base standard and placed in between PMF16 and PMF17.

Cl **55** *SC* **55.12.3** *P* **220** *L* **53** # 345

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**

subclauses references for PCT11 - PCT15 are incorrect.

SuggestedRemedy

change 55.3.3 for PCT11 to 55.3.3a.1. Change 55.3.4 for PCT12 PCT15 to 55.3.4a.1

Response *Response Status* **C**

REJECT.

See #344

The instructions to the editor are to make changes to the table in 55.12.3 and the cited PICS are from the base document and are not changed and hence the reference is to subclauses in the base document.

Cl **55** *SC* **55.12.3** *P* **221** *L* **10** # 346

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

PCT15C, PCT15d, PCT15j-PCT15p, and PCT17 subclause references do not exist in this amendment, therefore there are no corresponding SHALL statements for these pics.

SuggestedRemedy

Add appropriate proper subclauses with appropriate SHALL statements

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the references as follows:

PCT15c : 55.3.4a.1
PCT15d : 55.3.4a.2
PCT15j-15p: 55.3.4a.3
PCT17: N/A / base standard reference [no change needed]

Cl **55** *SC* **55.12.3** *P* **221** *L* **24** # 347

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

LPI tx wake timer does not exist in this draft other than in the PIC

SuggestedRemedy

add appropriate text and SHALL statement

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the "LPI tx wake timer" PICS (PCT15i) as the timer was removed in a previous draft

Cl **55** *SC* **55.12.3** *P* **222** *L* **18** # 348

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

PMF16a comment to Table 55-6A is incorrect, as this is for Recommended fast retrain sequence timing

SuggestedRemedy

Move reference in comment field to PMF16B

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

PMF16a is part of the base standard. It can be removed from this table, which lists rows that are to be inserted.

Remove the row containing PMF16a.

Cl **55** *SC* **55.12.3** *P* **222** *L* **18** # 349

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **A**

There is no corresponding SHALL statement related to a start up sequence

SuggestedRemedy

add shall statement for appropriate text related to start up sequence.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #348

Cl **55** *SC* **55.12.3** *P* **222** *L* **23** # 350

Dambrosia, John Force10 Networks

Comment Type **ER** *Comment Status* **A**

The definitions of the feature for PMF16c and PMF16d include text that is appropriate for Value comment field.

SuggestedRemedy

correct text in Feature and Value / Comment fields accordingly

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change PMF16c 'Feature' text to
'Behavior after fast retrain request'
Change 'Value/Comment' text to
'Transmit PAM2 within 9 LDPC
frame periods following fast retrain request'
Change PMF16d 'Feature' text to
'Behavior after fast retrain signal detection'
Change 'Value/Comment' text to
'Transmit PAM2 within 9 LDPC
frame periods following fast retrain signal detection'

Cl **55** *SC* **55.12.3** *P* **222** *L* **31** # 351

Dambrosia, John Force10 Networks

Comment Type **TR** *Comment Status* **R**

There is no corresponding SHALL statement related to seeing Table 55-6A. In the text following the timing in this table is defined as should

SuggestedRemedy

Replace text on Line 5 Page 210 from "To ensure interoperability the training times in Table 55--6a should be observed during the fast retrain." to "To ensure interoperability the training times in Table 55--6a shall be observed during the fast retrain."

Response *Response Status* **W**

REJECT.

The text matches what is used to describe Table 55-6 which is part of the base standard and has identical PICS text. That table is analogous to 55-6A, but for normal training.

Cl **55** *SC* **55.1.1** *P* **182** *L* **15** # 352

Ganga, Ilango Intel Corporation

Comment Type **ER** *Comment Status* **A**

There is no need to repeat the 10GBASE-T objectives in this amendment. Change editing instructions to insert the new objectives for EEE.

SuggestedRemedy

Change editing instruction as follows: "Insert the following objective to the end of the list as follows:" " l) Support a EEE capability as part of Energy Efficient Ethernet (Clause 78)"

Response *Response Status* **W**

ACCEPT.

Cl **55** *SC* **55.1** *P* **182** *L* **11** # 353

Ganga, Ilango Intel Corporation

Comment Type **ER** *Comment Status* **A**

Fast retrain capability is optional, so change the sentence as suggested.

SuggestedRemedy

10GBASE-T PHYs with EEE capability may optionally support a fast retrain mechanism

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

There is no advantage to making fast retrain contingent on EEE support.

The text should be changed to state
'10GBASE-T PHYs may optionally support a fast retrain mechanism'.

Even if EEE is disabled the fast retrain feature has value, and PHYs should be able to support that option.

see #202

Cl **55** *SC* **55.12.2** *P* **220** *L* **13** # 354
Ganga, Ilango Intel Corporation

Comment Type **ER** *Comment Status* **A**

Provide reference to subclause where the fast retrain option is specified.

SuggestedRemedy

Add subclause reference to PICS items FR and EEE

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add 55.4.2.5.15 as a reference for fast retrain.
Add 55.1.3.3 as a reference for EEE

Cl **55** *SC* **55.12** *P* **220** *L* **9** # 355
Ganga, Ilango Intel Corporation

Comment Type **ER** *Comment Status* **R**

The "Value/Comment" column should be after the subclause column to match the PICS tables in the base standard.

SuggestedRemedy

Move the "Value/Comment" column to match the base standard. Make this change in this clause and and in other clauses as applicable

Response *Response Status* **W**

REJECT.

The table reflects the ordering used in clause 55 in 802.3-2008.

This can only be fixed in a revision and the commentor may submit it as a maintenance request.

Cl **55** *SC* **55.1.3** *P* **182** *L* **48** # 356
Ganga, Ilango Intel Corporation

Comment Type **E** *Comment Status* **A**

Only 10GBASE-T PHYs with EEE capability may optionally support Fast Retrain mechanism, so change sentence as suggested

SuggestedRemedy

10GBASE-T PHYs with EEE capability may optionally support a fast retrain mechanism.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Comment was considered "Technical" by editor

Text changed in response to comments
#353 and #202

Cl **55** *SC* **55.1.3** *P* **183** *L* **3** # 357
Ganga, Ilango Intel Corporation

Comment Type **ER** *Comment Status* **R**

As per style manual 16.3, a note to a figure is informative and a footnote to a figure is normative. So change this not to a footnote as applicable

SuggestedRemedy

Check notes to figures and tables and change to guidelines in style manual if applicable

Response *Response Status* **W**

REJECT.

The text in the note is informative text and no change is required.

Cl **55** *SC* **55.1.3.3** *P* **184** *L* **10** # 358
Ganga, Ilango Intel Corporation

Comment Type **E** *Comment Status* **A**

Change sentence as follows "A 10GBASE-T PHY may optionally support EEE capability"

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"A 10GBASE-T PHY may optionally support the EEE capability." seems better than either option.

Cl **55** SC **55.4.2.5.15** P **209** L **42** # 359

Ganga, Ilango Intel Corporation

Comment Type **TR** *Comment Status* **A** *frdata*

The effect Clause 55 Fast Retrain on the Reconciliation Sublayer & MAC is unclear. Fast Retrain mechanism should be specified in a such a way that it does not indicate link down/link failure to the higher layers and also does not cause any data loss (that may cause packet drops). When the PHY Control State Diagram exits the PCS Data state to enter PMA_INIT_FR, it is unclear what action the PHY will take with respect to the XGMII path to the MAC. If PHY sends Local Fault up to the XGMII (i.e., if block_lock is lost, forcing the Local Fault ordered set) then the MAC will see this as a loss of link and this will be very disruptive to the System. The Fast Retrain mechanism is 'fast' enough to allow for recovery without sending alarms to higher functions. However, if the fast retrain is not signaled to the MAC, then the MAC may continue to send data that will be lost. It is also undesirable to drop 30msec of data without notification.

SuggestedRemedy

Fast Retrain mechanism should be specified in such a way that it does not cause a Local Fault (or signal link down to higher layers). The mechanism should also prevent the MAC from transmitting data during the retrain period to avoid any data loss or packet drops.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

See motion in diab_01_0510.pdf

Also make the following changes to Clause 45:

Define a new register bit:

1.147.1 : Fast retrain signal type : 1 = send IDLE during fast retrain, 0 = send local fault during fast retrain

Insert 45.2.1.76a.2 Fast retrain signal type (1.147.1)

For PHYs that support fast retrain, this bit maps to lpi_fr_sigtype as defined in 55.4.5.1.

When Fast retrain signal type is set to one, the PMA sends IDLE characters on the receive path during fast retrain. When Fast retrain signal type is set to zero, the PMA sends local fault on the receive path during fast retrain.

See parnaby_03_0510.pdf for the changes to clause 55

Also see response to comment #164 for data loss or packet drops

Cl **55** SC **55** P **201** L **2** # 360

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A** *presentation*

Submitted on behalf of Michael Grimwood. It is possible for the PCS 64B/65B transmit state diagram to encode LP_IDLE but not transition into TX_L, resulting in the transmitter and receiver being out-of-sync. This can occur during PCS_Test when loc_lpi_en is false and the transmitter encodes tx_raw of type LI resulting in the receiver decoding rx_raw of type LI.

SuggestedRemedy

In Figure 55-15, add a transition into TX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. Eliminate all dependence on the variable loc_lpi_en. In Figure 55-16, add a transition into RX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. A presentation will be submitted showing the required changes to Figures 55-15 and 55-16.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #361

Cl **55** SC **55** P **183** L **22** # 361

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A** *presentation*

Submitted on behalf of Michael Grimwood. loc_lpi_en is used to signal from the PMA to the PCS that the PHY Control state diagram is in PCS_Test. This can be generalized to communicate when the PHY Control is in PCS_Data in order to hold the PCS state diagrams in INIT when not in PCS_Data. Replace loc_lpi_en with the variable, pcs_data_mode, and the primitive PMA_LOCLPIEN with PMA_PCSDATAMODE.

SuggestedRemedy

A presentation will be submitted showing the required detailed changes to the text and state diagrams 55-15 and 55-24.

Response *Response Status* **C**

ACCEPT.

Implement the changes shown in grimwood_01_0510.pdf

Cl **55** *SC* **55** *P* **205** *L* **3** # 362

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A** *presentation*

55.3.5.4 The EEE transmit state diagram conflicts with the fast retrain state diagram. The fast retrain state diagram should take precedence. This can be resolved by holding the EEE transmit state diagram in state TX_NORMAL when a fast retrain is occurring.

SuggestedRemedy

Change the condition to enter state TX_NORMAL from pcs_reset to (pcs_reset + !pcs_data_mode).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #361

Cl **55** *SC* **55** *P* **201** *L* **2** # 363

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A** *presentation*

Submitted on behalf of Michael Grimwood. 55.3.5.4 The expected behavior of the PCS 64/65B Transmit state diagram during fast retraining is not clear. Propose to hold the diagram in TX_INIT when a fast retrain is occurring.

SuggestedRemedy

In Figure 55-15, change the condition to enter state TX_INIT from pcs_reset to (pcs_reset + !pcs_data_mode). Note that this has a common resolution with an issue in which the transmit and receive PCS state diagrams can get out of sync.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #361

Cl **55** *SC* **55** *P* **194** *L* **9** # 364

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A**

Submitted on behalf of Michael Grimwood. Clarify that the transition to PCS_Test serves as the fixed timing reference for LPI refresh signaling in fast retraining (as well as initial training and normal retraining).

SuggestedRemedy

In Section 55.3.4a.1, page 194 line 9 Change: "As in training without the EEE capability, the master and slave signal when they will transition to PCS_Test
using the transition counter following the procedure described in 55.4.2.5.14." To: " In initial training, normal retraining, and fast retraining, with or or without the EEE capability being supported, the master and slave signal when they will transition to PCS_Test using the transition counter following the procedure described in 55.4.2.5.14."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55** *P* **209** *L* **46** # 365

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A** *THP*

Submitted on behalf of Michael Grimwood. In initial training the THP is turned off at the beginning of state PMA_Coeff_Exch. During PCS_Data, the THP is on. During a fast retrain in PMA_Coeff_Exch, is the THP on or off?

SuggestedRemedy

Change: "After completing the link failure signal the PHY shall transition to the PMA_Coeff_Exch state and send PAM2 signaling within a time period equivalent to 9 LDPC frame periods ." To: "After completing the link failure signal the PHY shall transition to the PMA_Coeff_Exch state, keep its THP turned on with its previously-exchanged coefficients, and send PAM2 signaling within a time period equivalent to 9 LDPC frame periods."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In the fast retrain, THP coefficients are retained when entering the the PMA_Coeff_Exch state

Yes: 6
No: 2
Abstain: 4

Cl **55** *SC* **55** *P* **209** *L* **52** # 366

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A**

Submitted on behalf of Michael Grimwood. LPI uses a training sequence based on scramblers that are free running from PCS Reset or if scrambler re-initialization is used for initial training, from PCS_Test. In order to ensure that fast retraining is compatible with LPI, the scrambler should not be re-initialized by fast retraining events. To accomplish this, constrain fast retraining to use a training sequence without periodic re-initialization and establish that it be free running from PCS reset or from the first entry to PCS_Test if scrambler re-initialization is used for initial training. (similar to the specifications for LPI).

SuggestedRemedy

Add this paragraph after line 52: The PAM2 symbols are generated using the PMA side-stream scrambler polynomials shown in Figure 55-13. The training sequence without periodic re-initialization described in 55.3.4 shall be used during fast retraining, with the scramblers free-running from PCS Reset. If scrambler re-initialization is used for initial training, it shall be disabled and the scramblers shall begin free-running when the PHY Control state diagram enters the PCS_Test state and the variable fr_active is FALSE.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45** *P* **115** *L* **48** # 367

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A**

Submitted on behalf of Michael Grimwood. The fast retrain status and control register (1.147) is in the PMA and should be reset by PMA reset, not PCS reset.

SuggestedRemedy

Change: "These bits shall be reset to all zeros when read or upon execution of the PCS reset." To: "These bits shall be reset to all zeros when read or upon execution of the PMA reset."

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45** *P* **116** *L* **4** # 368

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A**

Submitted on behalf of Michael Grimwood. The fast retrain status and control register (1.147) is in the PMA and should be reset by PMA reset, not PCS reset.

SuggestedRemedy

Change: "These bits shall be reset to all zeros when read or upon execution of the PCS reset." To: "These bits shall be reset to all zeros when read or upon execution of the PMA reset."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55** *P* **209** *L* # 369

Bennett, Michael Lawrence Berkeley Na

Comment Type **T** *Comment Status* **A** *frdata*

Submitted on behalf of Paul Langner Paul.Langner@aquantia.com Currently the IEEE fast-retrain mechanism being proposed does not implement a mechanism to inform the MAC that the link is temporarily unavailable. As a result, the MAC will continue to send data during a fast-retrain (for up to 30 ms). This data will all be lost. In order to prevent this from occurring, a mechanism is needed to inform the MAC that the link is temporarily unavailable, so that the data will not be lost, and can be buffered until the link is available.

SuggestedRemedy

Create a control code (similar to Local Fault) that indicates that the link is temporarily unavailable, and this control code would be sent continuously to the MAC until the retrain is completed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See responses to comment #359 and #164

Cl **55** *SC* **55** *P* **201** *L* **2** # 370

Bennett, Michael

Comment Type **T** *Comment Status* **A**

It is possible for the PCS 64B/65B transmit state diagram to encode LP_IDLE but not transition into TX_L, resulting in the transmitter and receiver being out-of-sync. This can occur during PCS_Test when loc_lpi_en is false and the transmitter encodes tx_raw of type LI resulting in the receiver decoding rx_raw of type LI.

SuggestedRemedy

In Figure 55-15, add a transition into TX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. Eliminate all dependence on the variable loc_lpi_en. In Figure 55-16, add a transition into RX_INIT conditioned on the PHY Control state diagram not being in state PCS_Data. A presentation will be submitted showing the required changes to Figures 55-15 and 55-16.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

THIS IS A DUPLICATE OF COMMENT #360.

See response to #361

Cl **55** *SC* **55.3.5.2.3** *P* **197** *L* **39** # 371

Bennett, Michael

Comment Type **T** *Comment Status* **A**

"lpi_wake_timer used in Figure 55-16b conflicts with the lpi_wake_timer that represents Tw_PHY and is described on page 192 line 25.
Rename the instance of lpi_wake_timer that is used in Figure 55-16b to lpi_tx_wake_timer
"

SuggestedRemedy

"On page 197, line 36 change:
""lpi_wake_timer:
This timer defines the time the local transmitter transmits the wake signal.
Values: The condition lpi_wake_timer_done becomes true upon timer expiration.
Duration: This timer shall have a period equal to lpi_wake_time LDPC frame periods.""
To:
""lpi_tx_wake_timer:
This timer defines the time the local transmitter transmits the wake signal.
Values: The condition lpi_tx_wake_timer_done becomes true upon timer expiration.
Duration: This timer shall have a period equal to lpi_wake_time LDPC frame periods.""
On page 205 line 42, change "start lpi_wake_timer" to "start lpi_tx_wake_timer"
On page 205 line 46, change "lpi_wake_timer done" to " lpi_tx_wake_timer_done"
"

Response *Response Status* **C**

ACCEPT.

This was a comment submitted from the floor by Mike Bennett on behalf of Mike Grimwood

Cl **36** *SC* **36.2.5.2.2** *P* **83** *L* # 372

Healey, Adam

Comment Type **T** *Comment Status* **A**

There is a fault (and an editorial issue) in the state diagram in figure 36-7c.

SuggestedRemedy

Replace the diagram in figure 36-7c with the diagram in healey_03_0510.pdf.
Delete all references to timer rx_ts_timer (including the definition in 36.2.5.1.7).
Change the definition of rx_tq_timer:
This timer is shall be started each time the /LI/ ordered set is received, as indicated by sequence SUDI([K28.5]) immediately followed by SUDI([D6.5]+[D26.4]), and rx_lpi_active is TRUE. The timer terminal count is set to TQR. When the timer reaches terminal count it will set rx_tq_timer_done = TRUE.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement changes in healey_03_0510.pdf

Cl **78** *SC* **78.4.2.2** *P* **255** *L* **6** # 373

Diab, Wael

Comment Type **T** *Comment Status* **A**

the definition of PHY WAKE VALUE is incorrect

SuggestedRemedy

Change section 78.4.2.2 under the definition of PHY WAKE VALUE from "representing the Tw_phy" to "representing the Tw_sys_tx (min)"

Response *Response Status* **C**

ACCEPT.
Based on motion #3 recorded in minutes