Cl **45** *SC* **45.2.1.76a.3** *P* **116** *L* **1** # 1

Anslow, Peter Nortel Networks

Comment Type **T** *Comment Status* **D**

The title says "LP fast retrain count (1.147.10:6)" but the bits should be "(1.147.15:11)"

SuggestedRemedy

In the title of 45.2.1.76a.3 change "(1.147.10:6)" to "(1.147.15:11)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.4.1.3a** *P* **121** *L* **30** # 2

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

There are two headings 45.2.4.1.3a. The second one should be 45.2.4.1.3b

SuggestedRemedy

Change the second instance of 45.2.4.1.3a to 45.2.4.1.3b

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.5.1.3a** *P* **125** *L* **30** # 3

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

There are two headings 45.2.5.1.3a. The second one should be 45.2.5.1.3b

SuggestedRemedy

Change the second instance of 45.2.5.1.3a to 45.2.5.1.3b

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **46** *SC* **46.3.4** *P* **137** *L* **46** # 4

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

The editing instruction says "Insert text into the second paragraph of 46.3.4 as follows:" but the heading below is 46.3.3.
In the base standard Link fault signaling is 46.3.4

SuggestedRemedy

change heading to 46.3.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **47** *SC* **47.1** *P* **142** *L* **11** # 5

Anslow, Peter Nortel Networks

Comment Type **T** *Comment Status* **D**

This says "Transition to the low power state is enabled by register 4.0.9 (for a PHY XS) or 5.20.0 (for a DTE XS). This should be "or 5.0.9 (for a DTE XS)"

SuggestedRemedy

Change "or 5.20.0 (for a DTE XS)" to "or 5.0.9 (for a DTE XS)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.2** *P* **207** *L* **14** # 6

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

The editiong instruction is "Insert the following text after the existing text in 55.4.2.2 PMA Transmit function:"
Since this is all inserted text it should not be shown in underline font.

SuggestedRemedy

Remove the underline from the second and third sentences

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.2.2** *P* **208** *L* **26** # 7

Anslow, Peter Nortel Networks

Comment Type **T** *Comment Status* **D**

The editing instruction says "Insert the following text after subclause 55.4.2.2.1 in draft 2.2" which is inappropriate as this is an amendment to IEEE 802.3-2008

SuggestedRemedy

Delete this editing instruction and change the previous one from "Insert a new clause 55.4.2.2.1 after the existing text in 55.4.2.2 PMA Transmit function as shown below:" to "Insert new subclauses 55.4.2.2.1 and 55.4.2.2.2 after the existing text in 55.4.2.2 PMA Transmit function as shown below:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5.15** *P* **209** *L* **48** # 8

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

This refers to "Figure 55-27bb" which should be ""Figure 55-27b"

SuggestedRemedy

Change "Figure 55-27bb" to ""Figure 55-27b"
Similar issue with "Figure 55-16ab" Page 210 line 30

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.6.4** *P* **217** *L* **1** # 9

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

The editing instruction to insert subclause 55.4.6.4 should appear before the heading for 55.4.6.4. Also "after subclause 55.3.6.3" should be "after subclause 55.4.6.3"
Same issues for 55.4.6.5

SuggestedRemedy

Move the editing instruction before the heading and change "after subclause 55.3.6.3" to "after subclause 55.4.6.3".
Move the editing instruction for 55.4.6.5 before the heading and change "after subclause 55.3.6.4" to "after subclause 55.4.6.4".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.6.1.2** *P* **219** *L* **11** # 10

Anslow, Peter Nortel Networks

Comment Type **T** *Comment Status* **D**

Editing instruction refers to Table 55-11, but table heading is 55-7.
Also, only additions to existing rows are shown. Deletions should also be shown in strikethrough font as described on page 14 of the draft.

SuggestedRemedy

Change table heading to Table 55-11
In the first table row show "21" in strikethrough font
In U19 show "Reserved, transmit as 0" in strikethrough font

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.12.2** *P* **221** *L* **13** # 11

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

Both new rows use the "insert" editing instruction, so don't need to be in underline font

SuggestedRemedy

Remove underline from *FR row

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.12.4** *P* **223** *L* **9** # 12

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

All of the new rows use the "insert" editing instruction, so don't need to be in underline font

SuggestedRemedy

Remove underline from all rows in this subclause
Scrub the rest of the draft for similar instances of text added with the insert instruction which is shown with underline font.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the edit instruction to read:

Change the table by adding new rows.

Cl **71** *SC* **71.7.2** *P* **234** *L* **1** # 13

Anslow, Peter Nortel Networks

Comment Type **T** *Comment Status* **D**

There is no editing instruction for 71.7.2, but changes are shown.

SuggestedRemedy

Add an editing instruction

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **72.6.4** *P* **237** *L* **29** # 14

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

This says "for 1usec before"
1usec should be "1" followed by the greek letter mu, then "s" with a non-breaking space (Ctrl space) between 1 and mu.

SuggestedRemedy

Change to "1" followed by the greek letter mu, then "s" with a non-breaking space (Ctrl space) between 1 and mu.
Also on page 245 lines 4 and 16 for "30usec"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.4** *P* **255** *L* **21** # 15

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

This says "that have a fractional usec value shall be rounded up to the nearest integer number in usecs."
"usec" and "usecs" are not correct.

SuggestedRemedy

Change to "that have a fractional value shall be rounded up to the nearest integer number in microseconds."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **99** *SC* *P* **4** *L* **43** # 16

Anslow, Peter Nortel Networks

Comment Type **E** *Comment Status* **D**

This says "This amendment add changes required to enable ...". "add" should be "adds"

SuggestedRemedy

Change to "This amendment adds changes ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **72.6.11.2.3** *P* **239** *L* **31** # 17

Pillai, Velu Broadcom

Comment Type **T** *Comment Status* **D**

When tx_mode is QUIET or ALERT, the PMD Transmit function may deactivate functional blocks to conserve energy. When tx_mode is DATA, the PMD Transmit function operates normally.

PMD cannot be in energy saving while tx_mode is in ALERT.

SuggestedRemedy

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 is expected to transmit the alert pattern. And when it is DATA, the PMD Transmit function operates normally.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **45** *SC* **45.2.7.13** *P* **130** *L* **23** # 18

Grimwood, Michael Broadcom

Comment Type **T** *Comment Status* **D**

In Table 45-157a, the references to the clause 55 extended next page bits are not correct.

SuggestedRemedy

For 7.60.3, change "U23" to "U24"
For 7.60.2, change "U22" to "U23"
For 7.60.1, change "U21" to "U22"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.14** *P* **132** *L* **24** # 19

Grimwood, Michael Broadcom

Comment Type **T** *Comment Status* **D**

In Table 45-157b, the references to the clause 55 extended next page bits are not correct.

SuggestedRemedy

For 7.61.3, change "28.2.3.4.1 / 55.6.1; U3" to "28.2.3.4.1; U3 / 55.6.1; U24"
For 7.61.2, change "28.2.3.4.1 / 55.6.1; U2" to "28.2.3.4.1; U3 / 55.6.1; U23"
For 7.61.1, change "28.2.3.4.1 / 55.6.1; U1" to "28.2.3.4.1; U3 / 55.6.1; U22"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.2** *P* **208** *L* **35** # 20

Grimwood, Michael Broadcom

Comment Type **T** *Comment Status* **D**

There is a cut-and-paste typo in the description of the link failure signal. Also, clarify that the other pairs transmit quiet (as was done for alert).

SuggestedRemedy

"The link failure signal is transmitted on pair A when the PHY operates as a MASTER. The alert signal is transmitted on pair C when the PHY operates as a SLAVE."

To:

"The link failure signal is transmitted on pair A when the PHY operates as a MASTER. The link failure signal is transmitted on pair C when the PHY operates as a SLAVE. All other pairs transmit quiet as described in subclause 55.3.4a."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.76a.1** *P* **115** *L* **40** # 21

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

As defined bit 1.147.0 determines whether fast retrain is enabled or not via the lpi_fr_en variable. However, the lpi_fr_en is to be set based on the result of auto-negotiation not explicit configuration by station manager. AN will enable fast re-train if the local (7.32.1) and the received (7.33.1) fast re-train ability are both equal to 1.

The intent of this bit was to enable the station manager disable fast retrain if it had been enabled by auto-negotiation.

Make it clear that this bit enables fast re-train only for PHYs which support fast re-train. In other, the bit can enable fast retrain only if auto-negotiation has enabled fast retrain.

SuggestedRemedy

For PHYs that support fast re-train, this bit maps to lpi_fr_en as defined in 55.4.5.1.

Also, change the definition of lpi_fr_en on page 211 line 25 to:
Set TRUE if 1.147.0 is set to 1 and fast retrain resolved during auto-negotiation (i.e., fast re-train is supported), otherwise set FALSE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change

"This bit maps to lpi_fr_en as defined in 55.4.5.1."

to

"For PHYs that support fast re-train, this bit maps to lpi_fr_en as defined in 55.4.5.1."

Make change in Clause 55 as suggested.

Cl **47** *SC* **47.1.6** *P* **142** *L* **44** # 22

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

repeated phrase

SuggestedRemedy

change "specified in specified in" to "specified in".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **47** *SC* **48.2.4.2** *P* **148** *L* **20** # 23

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

||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.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This is a change to unmodified text hence the comment is out of scope.

The clarity of the text could be increased with a simpler change than in the suggested remedy by changing:
"The LPI ordered set ||LPIDLE|| is a special case of |||I|| .."

to:
"The LPI ordered set ||LPIDLE|| is a modification of |||I|| .."

Cl **47** *SC* **49.2.13.2.3** *P* **165** *L* **42** # 24

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

for consistency /LI/ is control character to imply that control bits are set

SuggestedRemedy

Change "/LI/ characters" to "/LI/ control characters".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The change does not add value and is on unchanged text.

Cl **47** *SC* **49.2.13.2.3** *P* **166** *L* **9** # 25

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

consistency

SuggestedRemedy

Change "EEE capability is implemented" to "EEE capability is supported".
and
Change "EEE capability is not implemented" to "EEE capability is not supported".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Cl **48** *SC* **48.2.6.1.2** *P* **149** *L* **30** # 26

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

||LI|| is never used in this section, except to define ||LPIDLE||. Why are there two labels for the LPI ordered set?

SuggestedRemedy

Rename ||LI|| to ||LPIDLE|| and delete current definition for ||LPIDLE||.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text is clear as is and the comment is on unchanged text.

Cl **48** *SC* **48.2.6.1.6** *P* **150** *L* **30** # 27

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

As currently specified for 10GBASE-KX4, when tx_quiet is TRUE the PMD must cease transmission . However, it is optional for the XGXS. Should it also be optional for the 10GBASE-KX4 MDI?

SuggestedRemedy

Make it clear in this text that turning off the transmitter is required on 10GBASE-KX4 or consider making QUIET output optional for 10GBASE-KX4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment is on unchanged text and hence out of scope.

Cl **48** *SC* **48.2.6.2.5** *P* **157** *L* **5** # 28

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

Tolerance on TSL and TUL are too tight and will preclude implementations that control EEE through firmware.

SuggestedRemedy

Change tolerance from 1% to 1 us.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The tolerance of 1% was set by the consensus of the task force.

Cl **49** *SC* **49.2.13.2.2** *P* **166** *L* **40** # 29

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Reference to 72.6.5 is not correct for the ALERT signal.

SuggestedRemedy

Change reference to 72.6.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.6** *P* **162** *L* **2** # 30

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Paragraph implies scrambler bypass is perpetually enabled during EEE. Also, this is a really long sentence

SuggestedRemedy

To aid block synchronization in the receiver for EEE capability when Clause 74 FEC is in use, the PCS shall bypass the scrambler when scrambler_bypass is TRUE. During scrambler bypass, the PCS shall pass the unscrambled data from the scrambler input rather than the scrambled data from the scrambler output and the scrambler shall continue to operate normally.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text is quite clear as is.

Cl **49** *SC* **49.2.13.3.1** *P* **173** *L* **19** # 31

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

Figure 49-17.

Transition from RX_SLEEP to RX_QUIET is based upon signal_ok which is implicitly based upon PMA clock lock and PMD energy detect. Since energy_detect is reliable only during the ALERT signal and may be sporadic while a data signal is received, it is possible for transitions to cycle between RX_SLEEP and RX_QUIET.

Note also that the signal_ok parameter generated by the PMD (Clause 51) is not explicitly defined. See 51.2.3.

SuggestedRemedy

In section 51.2.3, specify that signal_ok is not to be based upon energy_detect. This clarification may have to be propagated to each PMD.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

No change is proposed for this state diagram.

The definition of energy_detect in the PMD clause must be qualified with rx_mode so that the PMD only asserts signal_ok when an ALERT signal is detected.

Cl **49** *SC* **49.2.13.3.1** *P* **172** *L* **36** # 32

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

Figure 49-16
Must start 1us time in TX_REF_SCR_BYPASS

SuggestedRemedy

In TX_REF_SCR_BYPASS add line...
"Start one_us_timer"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.13.3.1** *P* **174** *L* **18** # 33

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

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

SuggestedRemedy

Change tolerance to +/- 1us.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The tolerance of 1% was set by the consensus of the task force.

Cl **49** *SC* **49.2.13.3.1** *P* **174** *L* **42** # 34

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

Table 49-3
No tolerance on TWTF.

SuggestedRemedy

Either specify maximum only (this should be okay) or specify minimum of 0.98 us.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Specify the maximum only.

Cl **51** *SC* **51** *P* **177** *L* **37** # 35

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

Figure 51-3

SuggestedRemedy

Add note to indicate that dashed lines are only for PHYs that support EEE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

The "(optional)" makes this clear so this change is not essential and could be deferred.

Cl **51** *SC* **51** *P* **177** *L* **35** # 36

Brown, Matt Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **D**

Figure 51-3
Show proper EEE service primitives.

SuggestedRemedy

On PMA SI, replace EEE signals with...
PMA_TXMODE.request
PMA_RXMODE.request
PMA_ENERGY.indication

On PMD SI, show...
PMD_TXMODE.request
PMD_RXMODE.request

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **51** *SC* **51.2.4** *P* **178** *L* **8** # 37

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

PMA_RXMODE not correctly specified.

SuggestedRemedy

Change section 51.2.4 as follows:
The rx_mode primitive is generated by the PCS receiver process for EEE capability to indicate the current RX LPI state.

In section 51.2.4.1 change "rx_quiet" to "rx_mode"

Change Section 51.2.4.2 as follows:
This primitive is generated by the PCS.

Change Section 51.2.4.3 as follows:
When received the PMA is configured appropriately for the indicated state and the value is propagated to PMD_RXMODE.request(rx_mode). When rx_mode is DATA the PMA operates normally. When rx_mode is QUIET, the PMA may go into a low power mode.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change 51.2.4:

This primitive is generated by the PCS Receive Process for EEE capability to indicate that the PMA and
PMD receive functions may go into a low power mode, see 49.3.6.6.
Without EEE capability, the primitive is never invoked and the PMA behaves as if rx_mode = DATA.

In section 51.2.4.1 change "rx_quiet" to "rx_mode"

Change 51.2.4.2:

The PCS generates this primitive to indicate the low power mode of the receive path.

Change 51.2.5.3:

When received the PMA is configured appropriately for the indicated state and the value is propagated to PMD_RXMODE.request(rx_mode). When rx_mode is DATA the PMA operates normally. When rx_mode is QUIET, the PMA may go into a low power mode.

Cl **51** *SC* **51.2.5** *P* **178** *L* **29** # 38

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

PMA_TXMODE not correctly specified.

SuggestedRemedy

Change section 51.2.5 as follows:
The tx_mode primitive is generated by the PCS receiver process for EEE capability to indicate the current TX LPI state.

Change Section 51.2.5.2 as follows:
This primitive is generated by the PCS.

Change Section 51.2.5.3 as follows:
When received the PMA is configured appropriately for the indicated state and the value is propagated to PMD_TXMODE.request(tx_mode). When tx_mode is DATA the PMA operates normally. When tx_mode is QUIET, the PMA may go into a low power mode. When tx_mode is ALERT, the PMA operation is not defined.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change 51.2.5:

This primitive is generated by the PCS Transmit Process for EEE capability to indicate that the PMA and
PMD transmit functions may go into a low power mode and to disable the PMD transmitter, see 49.3.6.6.
Without EEE capability, the primitive is never invoked and the PMA behaves as if tx_mode = DATA.

Change 51.2.5.2:

The PCS generates this primitive to indicate the low power mode of the transmit path.

Change 51.2.5.3:

When received the PMA is configured appropriately for the indicated state and the value is propagated to PMD_TXMODE.request(tx_mode). When tx_mode is DATA the PMA operates normally. When tx_mode is QUIET, the PMA may go into a low power mode. When tx_mode is ALERT, the PMA operation is not defined.

Cl **51** *SC* **51.2.6.1** *P* **179** *L* **5** # 39

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

energy_detect does not necessarily indicate a good signal when TRUE nor a bad signal when FALSE. Instead TRUE indicates reliable detection of ALERT signal and FALSE means that ALERT signal is reliably not detected.

SuggestedRemedy

Simplify the definition of this parameter in section 51.2.6.1 to indicate simply that it reflects the signal_ok parameters from the PMD SI.

The definition of signal_ok in Clause 72 will have to be modified to clearly state the indended behavior for LPI mode. Another comment is submitted to request this change to sub-clause 72.6.4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This signal reflects the state of signal_detect coming from the PMD. The is no distinction drawn between the "normal" function and the "ALERT" behavior. Therefore the definition is valid.

An appropriate change to the PMD clause may make the distinction.

Cl **51** *SC* **51.2.6.1** *P* **179** *L* **22** # 40

Brown, Matt Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **D**

Redundant section 51.4.2. This was to be replace by previous sections.

SuggestedRemedy

Delete section.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

These signals need to be added to the XSBI interface & therefore must be added in 51.4.2.

Cl **51** *SC* **51.8a.1** *P* **179** *L* **47** # 41

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

This section relates directly to PMD service interface parameters which are defined in the respective PMAs. No need to re-define here. PMD_SIGNAL.indication(signal_detect) primitive is already defined for non-EEE PHYs and energy detect is specified for the PMA SI in the previous section.

SuggestedRemedy

Replace text of 51.8a.1 with the following:
The following primitives are provided on PHYs that support EEE on the PMD service interface.
PMD_RXMODE.request(rx_mode)
PMD_TXMODE.request(tx_mode)
These primitives are specified in the respective PMD clauses.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This section defines the variables that are required for EEE. The service interface that passes the values of the variables is defined in 51.2. This structure mirros the definitions already in the clause for XSBI and the mapping to the PMA SI.

The definition for the PMD SI is in the PMD clauses.

Cl **55** *SC* **55.4.5.1** *P* **211** *L* **25** # 42

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

lpi_fr_en should be TRUE only if 1.147.0 is 1 and fast retrain was resolved during auto-negotiation and FALSE otherwise.

SuggestedRemedy

Change the definition of lpi_fr_en to:
Set TRUE if 1.147.0 is set to 1 and fast retrain resolved during auto-negotiation (i.e., fast re-train is supported) and is otherwise set to FALSE.

Change the definition of MDIO bit 1.147.0 on page 115 line 40 to:
For PHYs that support fast re-train, this bit maps to lpi_fr_en as defined in 55.4.5.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

'This variable is set to TRUE if 1.147.0 is set to 1 and fast retrain is supported. This variable is set to FALSE otherwise.'

Cl **55** *SC* **55.3.4a.1** *P* **194** *L* **9** # 43
Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Normal training here refers to training on PHYs that do not support EEE. Now that fast and "not fast" (aka normal) training are supported this phrase needs to be modified.

SuggestedRemedy

Change "normal training" to "training without EEE capability".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3** *P* **183** *L* **25** # 44
Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Figure 55-3
rx_lpi_active signal is shown connecting to PCS transmit block, but is not used there.

SuggestedRemedy

Delete rx_lpi_active connection to PCS transmit block.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment does not fix anything that is broken. Editor will revisit this in the Sponsor ballot cycle

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Cl **55** *SC* **55.1.3** *P* **183** *L* **33** # 45
Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Connection of pcs_status to link monitor block is missing. This is required for link monitor state diagram in Figure 55-27. This is an omission in base standard, but is required for proper operation of newly defined fast retrain.

SuggestedRemedy

Add connection of pcs_status to link monitor block.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **184** *L* **15** # 46
Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Data frames may be lost if transition out of LPI is due to fast or normal re-train.

SuggestedRemedy

Change "during the transition" to "during normal transition".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

What may happen during an abnormal transition does not need to be called out

---

Cl **55** *SC* **55.2.2.3.1** *P* **187** *L* **6** # 47
Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

consistent use of frame periods

SuggestedRemedy

Change "LDPC frames" to "LDPC frame periods".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

"Time equal to 4 LDPC frames"
is no different from
"Time equal to 4 LDPC frame periods"

Comment does not fix anything that is broken. Editor will revisit consistency in the Sponsor ballot cycle

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Cl **55** *SC* **55.2.2.9** *P* **187** *L* **13** # 48
Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

rx_lpi_active is boolean

SuggestedRemedy

Change "rx_lpi_active is ACTIVE" to "rx_lpi_is is TRUE".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
change to "rx_lpi_active is TRUE".

Cl **55** *SC* **55.3.2.2.9** *P* **191** *L* **1** # 49

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

consistent (with clause 49) terminology

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Does not fix anything that is broken. Editor will revisit consistency in the Sponsor ballot cycle

Cl **55** *SC* **0** *P* **182** *L* **0** # 50

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

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

SuggestedRemedy

page 184
line 36 replace "LP_IDLE characters" with "LPI control characters"
page 191
line 8 replace title with "LPI (/LI/)"
line 10 replace "Low power idle control" with "Low power idle (LPI) control"
line 11 replace "LPI characters" with "LPI control characters"
line 41 replace "LP_IDLE characters" with "LPI control characters"
page 192
line 12 replace "LP_IDLE codewords" with "LPI control characters"
line 19 replace "LP_IDLE" with "LPI"
page 193
line 15 replace "LP_IDLE" with "LPI control"

Consider generally replacing "LPI control characters" globally and above with "/LI/" or "/LI/ characters".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment does not fix anything that is broken. Editor will revisit consistency in the Sponsor ballot cycle

Cl **55** *SC* **55.3.4a** *P* **193** *L* **13** # 51

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

pcs_status is not set by PHY control state diagram nor is pcs_status=OK criteria for permitting transitions to LPI

SuggestedRemedy

Change:
"after PCS_status is set to OK by the PHY Control state diagram."
To either
"when the PHY has successfully completed training and is in the PCS_Data state in the PHY Control State Diagram."
or
"when the PHY has successfully completed training and loc_lpi_en is TRUE."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"when the PHY has successfully completed training and loc_lpi_en is TRUE."

Cl **55** *SC* **55.3.2.3** *P* **192** *L* **44** # 52

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

pcs_status=OK is not criteria for permitting transitions to LPI

SuggestedRemedy

Change:
"after PCS_status is set to OK."
To either
"when the PHY has successfully completed training and is in the PCS_Data state in the PHY Control State Diagram."
or
"when the PHY has successfully completed training and loc_lpi_en is TRUE."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

"when the PHY has successfully completed training and loc_lpi_en is TRUE."

Cl **55** *SC* **55.3.4a** *P* **193** *L* **16** # 53

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

text error

SuggestedRemedy

Change "transmit signal" to "transmitter".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.3.4a.3** *P* **196** *L* **28** # 54

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Now that the definition for the alert_detect variable has been changed, it has a different meaning from the alert_detect primitive from the PMA. Change the name to differentiate and modify definition appropriately.

SuggestedRemedy

change variable alert_detect to pcs_alert_detect and/or change the name of the PMA primitive alert_detect to pma_alert_detect
appropriately rename all instances of alert_detect in Clause 55 to reflect new names

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Editor believes that though the text could be improved, the intent is clear.

Editor will revisit the issue in the Sponsor ballot cycle.

Cl **55** *SC* **55.3.4a.1** *P* **194** *L* **16** # 55

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

convention

SuggestedRemedy

Change "low power mode" to "LPI mode".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Does not fix anything that is broken. Editor will revisit consistency in the Sponsor ballot cycle.

'Low power mode' was the term agreed for earlier drafts.

Cl **55** *SC* **55.3.4a.3** *P* **196** *L* **42** # 56

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

tx_active_pair is a variable not a vector

SuggestedRemedy

Change two instances of "vector" to "variable".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Change 'vector' to 'variable' in two locations on line 42.

Cl **55** *SC* **55.3.5.4** *P* **204** *L* **26** # 57

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Figure 55-16a.

The RX_WE state was to set the value of two variables and immediately transition to the RX_E state. However, by convention, the transition to RX_E may not occur until the next 64B/65B block is received. 802.3-2008 Section 4 55.3.5.4 on page 484 says that there is "exactly one transition for each receive block processed". This means that without specifying otherwise, the RX_WE state persists for one block cycle and one block of data is ignored.

SuggestedRemedy

Import the following paragraph from 802.3-2008 Section 4 on page 484...
"The 64B/65B Receive state diagram shown in Figure 55-16 controls the decoding of 65B received blocks. It makes exactly one transition for each receive block processed."
and amend as follows...
"The 64B/65B Receive state diagram shown in Figure 55-16 controls the decoding of 65B received blocks. It makes exactly one transition for each receive block processed<, except for the transition from RX_WE to RX_E which occurs immediately after the RX_WE processes are complete>."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5.14** *P* **209** *L* **23** # 58

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

The transition to PMA_Training_Init_S is not specified in any way by 55.3.4a.1.

SuggestedRemedy

Remove the amendment or clarify the connection with 55.3.4a.1.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

From 55.3.4a.1.

'When both PHYs support the EEE capability, the slave PHY is responsible for synchronizing its PMA training
frame to the master's PMA training frame during the transition to PMA_Training_Init_S. The slave shall
ensure that its PMA training frames are synchronized to the master's PMA training frames within 1 LDPC
frame, measured at the slave MDI on pair A.'

Cl **55** *SC* **55.4.2.5.15** *P* **209** *L* **48** # 59

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

text error

SuggestedRemedy

Change 55-27bb to 55-27b.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5.15** *P* **209** *L* **49** # 60

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

link failure signal is not defined in this section

SuggestedRemedy

Change "This causes the transmission of an easily-detected link failure signal." to "This causes the transmission of the link failure signal specified in 55.4.2.2.2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.6.1** *P* **213** *L* **31** # 61

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

Figure 55-24
In PMA_Coeff_Exch state tx_mode set to SEND_T after coefficients are exchanged.
A new state can be created to initialize fast training state.

SuggestedRemedy

Create new state between PCS_Data and PMA_Coeff_Exch called FR_INIT.

Create transition from PCS_Data to FR_INIT on condition fast_retrain_flag.

Create transition from FR_INIT to PMA_Coeff_Exch on condition UCT.

Insert the following assignments in state FR_INIT and delete them from PMA_Coeff_Exch:
tx_mode = SEND_T
fast_retrain_flag = FALSE

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See the editor's presentation on the fast retrain timeout process.

Cl **55** *SC* **55.4.6.1** *P* **213** *L* **31** # 62

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

During a fast re-train, a new PBO is not exchanged, so PBO_next is not defined.

SuggestedRemedy

Provide definition for PBO_next for fast retrain or otherwise resolve.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

PBO_next is set during initial training. It is not changed during fast retrain.

Cl **55** *SC* **55.4.2.4** *P* **209** *L* **16** # 63

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

The recommendation is valid only in ACTIVE not LPI mode.

SuggestedRemedy

Append last sentence with "when received while not in LPI mode.".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Is clear from the context and an explicit change is not required

Cl **72** *SC* **72.6.2** *P* **237** *L* **11** # 64

Brown, Matt Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **D**

The intent of the ALERT signal is to provide a signal that permits reliable discrimination from noise. In addition to setting the pattern to repeating 0xFF00, disable equalization and set to maximum swing.

SuggestedRemedy

Add the following text:
When tx_mode is ALERT, transmitter equalization is disabled and the amplitude is set to maximum. This setting is equivalent to the PRESET state specified in 72.6.10.3.4. When tx_mode is DATA, the driver coeffcients are restored to their states resolved during training.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Was not part of last accepted proposal, but maybe very helpful for receiver. Need .3az taskforce to decide.

Cl **72** *SC* **72.2** *P* **236** *L* **51** # 65

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

PMD service primitives PMD_RX_MODE and PMD_TX_MODE are not specified.

SuggestedRemedy

Move from section 72.6.10 to 72.2.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
PMD_TX_MODE and PMD_RX_MODE are optional interfaces, only necessary when LPI Function is implemented. Therefore put definitions in LPI Function.

Cl **72** *SC* **72.2** *P* **236** *L* **40** # 66

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

PMD_SIGNAL.indication as specified in 52.1.1 is not applicable to Clause 72 as it is specified for optical interfaces. Also, the signal detection function has unique characteristics in LPI mode.

SuggestedRemedy

Fully specify PMD_SIGNAL.indication within Clause 72 and refer to signal detection fucntion in 72.6.4.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Clause 72 uses Clause 51's definition of PMD_SIGNAL.inidation and is covered in 72.6.4.

Cl **72** *SC* **72.1** *P* **236** *L* **27** # 67

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

SuggestedRemedy

change "low power mode" to "LPI mode"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment does not fix anything that is broken and is out of scope

Cl **72** *SC* **72.1** *P* **236** *L* **25** # 68

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

SuggestedRemedy

Change "the quiet period" to "LPI mode".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment does not fix anything that is broken and is out of scope

Cl **72** *SC* **72.6.4** *P* **237** *L* **22** # 69

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

On EEE capable PHYs in LPI mode, signal detection is used to detect the presence of the ALERT signal.

SuggestedRemedy

On line 22 replace "when to ext Low Power if EEE is implemented" with "when the ALERT signal is detected indicating the begining of a REFRESH or WAKE cycle."

Change the paragraph starting on line 26 to the following:
The value of the SIGNAL_DETECT is defined by the training state diagram shown in Figure 72-5 when the PHY does not support EEE or if the PHY supports EEE and rx_mode is set to DATA. When the PHY supports EEE and rx_mode is set to QUIET, SIGNAL_DETECT indicates OK when an ALERT signal specified in 72.6.2 is detected marking the beginning of a REFRESH or WAKE cycle and otherwise indicates FAIL.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The proposed change won't work in that paragraph..

Cl **72** *SC* **72.6.11** *P* **238** *L* **25** # 70

Brown, Matt Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **D**

72.6.11 is the the PMD SI specification. Contents should be moved to 72.2.

SuggestedRemedy

Move contents of 72.6.11 to 72.2.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The interface is defined in the function that uses it.

Cl **72** *SC* **72.6.10.1** *P* **238** *L* **21** # 71

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

grammar

SuggestedRemedy

change "requests to transitions in" to "requests for transition in"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change:
"...requests to transistions in and out."
To:
"...requests to transistion in and out."

Cl **72** *SC* **72.6.11** *P* **238** *L* **45** # 72

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

convention

SuggestedRemedy

on line 45 change "LPI mode is implemented" to "EEE is supported".
on line 47 change "LPI mode is not implemented" to "EEE is not supported".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Will be revisited in sponsor ballot

Cl **72** *SC* **72.6.11** *P* **238** *L* **35** # 73

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

Text descriptors need to be corrected. This paragraph is not required in PMD definition so it should be deleted, not fixed.

SuggestedRemedy

Delete paragraph "The transmitter ... wake phase."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Just informative text, no need to delete, but could possibly add alert phase.

Cl **72** *SC* **72.6.11.1.2** *P* **239** *L* **5** # 74

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

generated on transitions to QUIET and to DATA

SuggestedRemedy

Change definition to ...
Generated in LPI mode and the receiver mode changes from QUIET to DATA or vice versa.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Can't find referenced text.

Cl **72** *SC* **72.6.11.2** *P* **239** *L* **16** # 75

Brown, Matt Applied Micro (AMCC)

Comment Type **E** *Comment Status* **D**

convention

SuggestedRemedy

Change "LPI mode is not implemented" to "EEE is not supported".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comment does not fix anything that is broken and is on unchanged text. Will be revisited in sponsor ballot.

Cl **72** *SC* **72.6.11.2.3** *P* **239** *L* **16** # 76

Brown, Matt Applied Micro (AMCC)

Comment Type **T** *Comment Status* **D**

transmitter does not power down when tx_mode is ALERT

SuggestedRemedy

change specification to ...
"When tx_mode is QUIET, the PMD transmit function may deactive functional blocks to conserve energy. When tx_mode is DATA or ALERT, the PMD transmit function operates normally."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Cl **49** *SC* **Figure 49-17** *P* **173** *L* # 77

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **D**

There is no way for a FEC enabled design to achieve rx_block_lock since the FEC Scrambler is always active. Disabling the scrambler in Clause 49 feeds constant data to the FEC, but the FEC's data scrambler (pn-2112) will scramble the data preventing a constant, predictable pattern from being transmitted.

SuggestedRemedy

1) Add scrambler bypass in the FEC mode by changing Figure 74-5 in clause 74 to match the changes that were added to Figure 49-5 for EEE, this reflects the scrambler bypass mode option.

2) Change the existing D2.3 references to scrambler_bypass to scrambler_bypass_tx (sections 49.2.13.2.2 Variables and 49.2.13.3 State diagrams i.e. Figure 49-16)

3) Create a new entry for scrambler_bypass_rx in the section 49.2.13.2.2 Variables

4) And insert the following in the state diagram in Figure 49-17:

RX_SLEEP
rx_lpi_active <= true
scrambler_bypass_rx <= false
start rx_tq_timer

RX_WAKE
rx_mode <= DATA
scrambler_bypass_rx <= scr_bypass_enable

start rx_rw_timer

RX_WTF
scrambler_bypass_rx = scr_bypass_enable
start rx_wf_timer

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The FEC uses a simple, cyclic scrambler so the receiver should be able to achieve lock rapidly.

There is no way to utilize a receive scrambler bypass in the receive state diagram as the receiver has no way to synchronize the bypass behavior with the link partner's transmit state diagram.

Cl **49** *SC* **49.2.4.7** *P* **161** *L* **7** # 78

Horner, Rita Avago Technologies

Comment Type **TR** *Comment Status* **D**

The conversion of LPI control code (lp_idle) for 10GBASE-R from 0x07 (that had been set ever since Pre D1.0 and all the way until D2.2) to 0x06 is impacting multiple ICs that are in production. This change of lp_idle to 0x06 will cause error conditions and will not allow interopability with existing products. There are no other character types such as start, terminate, etc. that have matching codes, why there needs to be a last minutes change of control code that is impacting many IC interop capabilities.

SuggestedRemedy

Switch back to the original lp_idle=0x07

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This change was made as per resolution of comments #187, #181, and #128 on D2.1

It was also agreed to in the resolution of comments #130 and # 466 on D2.0. This was for consistency between Clause 49 and Clause 55.

Cl **36** *SC* **36.2.5.2.2** *P* **83** *L* **6** # 79

Barrass, Hugh Cisco

Comment Type **TR** *Comment Status* **D** *LATE*

The receive state machine is not controling the state of signals on the GMII during LPI. The signals must be set to the values defined in Table 35.2.

SuggestedRemedy

Insert actions:

receiving <= FALSE
RXD<7:0> <= 0000 0001
RX_DV <= FALSE
RX_ER <= TRUE

Into state RX_SLEEP on p.83, l.6

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.4.2.5.15** *P* **209** *L* **50** # 80

Woodruff, Bill Aquantia

Comment Type **T** *Comment Status* **D**

This subclause states "… the PHY shall transition to the PMA_Coeff_Exch state and ….". However 55.4.2.5.6 Message Field defines that only states in Tables 55-4 or 55-5 are permissible. The issue is that for PMA_state<7,6> = <10>, the only permissible state for loc_rcvr_status is [0]. This will force a link_status=fail.

SuggestedRemedy

Modify Table 55-4 and 55-5 on the line for PMA_state<7,6> = <10>, to change the state for loc_rcvr_status to [0/1].

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change proposed in response to comment #61 addresses this.