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 **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* **46.3a** *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 **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* **49.2.13.3.1** *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* **49.2.13.3.1** *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 **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* **55.1.1** *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* **55.1.3** *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* **55.12** *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* **55.12.2** *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* **55.12.3** *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* **55.4.2.5.15** *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* **55.4.6.1** *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 **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 **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 **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