Cl **00** *SC* **78.6.3** *P* **270** *L* **6** # 1

Diab, Wael Broadcom Corporation

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

When we structured the PICs on the last draft we did that after closing the comment on having a PICs for AN. There needs to be a PICs for AN, however, it should match the way we did the other requirements like timing, where it is against the appropriate cluases with the normative text for each PHY. Note that in some cases this does exist like in C40 so its worthwhile to make it consistant throughout.

SuggestedRemedy

- Remove the PICs entry for AN from C78
- Adjust the text around the PICs to only reflect DLL requirements
- Remove the corresponding shall from 78.3
- In approproate clauses like 28C, 28D, 73A, 24, 40, 55, 73 and/or other appropriate clauses.
- In 78.3 point to the appropriate clauses from the step above
- Check that this is not consistant for all PHY types (e.g. right now there is a PICs in 78.3 and 40 - AN15 - that would affect 1000BASE-T for instance. Should really be in one place)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove the PICs entry for AN from C78
- Adjust the text around the PICs to only reflect DLL requirements
- Remove the corresponding shall from 78.3

Autoneg has already been mandated as required in the EEE PHY clauses.

In Clause 24:
In Figure 24-1 change the Note that currently says: AUTONEG is optional
to: AUTONEG is mandatory for EEE capability and optional otherwise.

Add a new subclause after 24.1.4.3
24.1.4.4 Auto-Negotiation
Auto-Negotiation shall be implemented for EEE capability. See Clause 28.

Change the NWY row in 24.8.2.3 by adding adding 24.1.4.4 in the Subclause column and "LPC: M" to the Status column

Change "24.8.2.4" to "24.8.2.3"

In Clause 55:

Add item MF6a under feature EEE advertisement subclause 55.6.1.2 status EEE:M value comment as defined in table 55-11

Add item MF6b under feature fast retrain ability advertisement subclause 55.6.1.2 status FR:M value comment as defined in table 55-11

In Clause 70:
Page 233, line 27, change the reference from Clause 45 to 45.2.7.13

Page 238, line 34, change "will be advertised" to "is advertised"

In Clause 72:
Page 244, lines 15 and 16, change the reference from Clause 73 to 45.2.7.13

In Clause 73, add a change instruction to 73.11.4.9:
Add item AN13:
AN13 | AN message code 10 | Subclause 73A.4 | Value entry is EEE technology message code |status M |

Cl **24** *SC* **24.4.1.4.3** *P* **49** *L* **47** # 2

Anslow, Peter Ciena Corporation

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

*** Field CommentType updated on 7/13/2010 from ER to E ***
On page 49, line 47 (diff document) there is a reference to 25.4a.2 (link does not work) but 25.4a.2 does not exist in the draft.
)n page 50, line 14 there is a reference to 25.4a.1 (link does not work) but 25.4a.1 does not exist in the draft.
On page 53, line 47 is "Insert 25.4a at the end of 25.4 as shown below:". However, below this is subclause 25.5, followed by 25.50.1 etc. with no other editing instructions. These subclause numbers should presumably all be 25.4a.xxx
The clause numbering below this is also wrong. e.g. the PICS for clause 25 is 25.5 not 25.6

SuggestedRemedy

Correct clause numbering currently shown as 25.5 and 25.50 to 25.4a.
Change "Insert 25.4a at the end of 25.4 as shown below:" to "Insert 25.4a after 25.4 as shown below:"
Make sure links in 24.4.1.4.3 and 24.4.1.5.3 remain correct and work properly.
Also correct the clause numbering for the PICS section to 25.5 as per the editing instructions there.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

P.55, L.47, Change "Insert 25.4a at the end of 25.4 as shown below:" to "Insert 25.4a after 25.4 as shown below:"

P.56, L.1, Change Subclause number 25.5 to 25.4a
Change all subsequent Subclause number from 25.50.xx to 25.4a.xx

P.61, L.1, Change Subclause number 25.6 to 25.5
Change all subsequent Subclause number from 25.6.xx to 25.5.xx

P.61, L.12, Change the reference of Subclause number in item LPI from 25.5 to 25.4a

Cl **49** *SC* **49.2.13.2.2** *P* **171** *L* **53** # 3

Anslow, Peter Ciena Corporation

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

The editing instruction says "Insert new variables into 49.2.13.2.2, ..." but the heading beneth this is "49.2.9.2.2 Variables"

SuggestedRemedy

Change clause number in heading to 49.2.13.2.2

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.1** *P* **191** *L* **4** # 4

Anslow, Peter Ciena Corporation

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

The editing instruction says "Insert the following row into table 51.7.3:", but table 51.7.3 does not exist.

SuggestedRemedy

Change "Insert the following row into table 51.7.3:" to "Insert the following row at the end of the table in 51.10.3:

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.2.2.11** *P* **201** *L* **10** # 5

Anslow, Peter Ciena Corporation

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

There is no editing instruction regarding 55.2.2.11 or 55.2.2.12

SuggestedRemedy

On page 200 change "Insert 55.2.2.9 and 55.2.2.10 after section 55.2.2.8 as shown below:" to "Insert 55.2.2.9, 55.2.2.10, 55.2.2.11 and 55.2.2.12 after section 55.2.2.8 as shown below:"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The change is correct but the page number is 192]

Cl **55** *SC* **55.3.2.2.21** *P* **206** *L* **26** # 6

Anslow, Peter Ciena Corporation

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

"7.36us" should have a space between the number and its unit and the greek letter mu rather than u

SuggestedRemedy

change "7.36us" to have a space between the number and its unit (use ctrl space to make it non-breaking) and the greek letter mu rather than u

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.5.1** *P* **231** *L* **41** # 7

Anslow, Peter Ciena Corporation

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

2^9, 2^5 and 2^6, 2^4 on line 45 aren't in the same format as powers of two in the transition_count paragraph above.

SuggestedRemedy

change to using superscript for the power

Response *Response Status* **C**

ACCEPT.

Cl **71** *SC* **71.3** *P* **259** *L* **44** # 8

Anslow, Peter Ciena Corporation

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

On page 259 line 44 diff document (or page 237 line 37 in clean document) we have "PCS requirements for Auto-Negotiation (AN) service interface" clause 71.7 or 71.3 in the two docs respectively, but there are no editing instructions for clause 71.3
Also, the numbering above this in the diff document is 71.6 instead of 71.2. However the clen version is ok.

SuggestedRemedy

Either make changes to 71.3 "PCS requirements for Auto-Negotiation (AN) service interface" or remove this text.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will delete section 71.3

Cl **72** *SC* **72.6.4** *P* **266** *L* **12** # 9

Anslow, Peter Ciena Corporation

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

The editing instruction says "Change the text in the 1st paragraph of section 72.6.4 to read a follows:" butb there are 4 paragraps of changed text.

SuggestedRemedy

Change editing instruction to "Change 72.6.4 as follows:"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74** *P* **272** *L* **1** # 10

Anslow, Peter Ciena Corporation

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

802.3ba changed the title of clause 74 and also the title of 74.4.1

SuggestedRemedy

Change the title of 74 to "Forward Error Correction (FEC) sublayer for BASE-R PHYs" and the title of 74.4.1.to "Functional block diagram for 10GBASE-R PHYs"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.4.1** *P* **272** *L* **5** # 11

Anslow, Peter Ciena Corporation

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

The editing instruction says "Change Figure 74--2 as shown below using the title from 802.3ba D2.3:", but 802.3ba is now approved. Also, 802.3ba changed the title of Figure 74-2 to "Functional block diagram for 10GBASE-R PHYs"

SuggestedRemedy

Change editing instruction to "In 74.4.1 as modified by IEEE Std 802.3ba, replace Figure 74--2 as shown below:" Also, change the title of Figure 74-2 to "Functional block diagram for 10GBASE-R PHYs"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1** *P* **276** *L* **18** # 12

Anslow, Peter Ciena Corporation

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

The text starting "If the optional Energy Efficient Ethernet (EEE) capability is supported ..." has been added, but is not shown in underline font. Also, the font size (9 pt) is wrong.

SuggestedRemedy

Show the inserted text in underline and the correct size.

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.5.1.4** *P* **276** *L* **22** # 13

Anslow, Peter Ciena Corporation

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

Subclauses 74.5.1.4 through 74.5.1.7 have been added with the insert instruction, so none of the text should be shown in underline font. However some is and some isn't underlined.

SuggestedRemedy

Remove the underline from subclauses 74.5.1.4 through 74.5.1.7

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.10.2.3** *P* **278** *L* **27** # 14

Anslow, Peter Ciena Corporation

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

The editing instruction is "Change 74.10.2.3 as shown below:" but only one of the three functions is shown.

SuggestedRemedy

Show the two unmodified functions in normal font.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Several versions back the decision was to show only the changes.

But the editor will change the editing instruction to "Change the third paragraph of 74.10.2.3 as shown below:"

Cl **74** *SC* **74.11** *P* **279** *L* **1** # 15

Anslow, Peter Ciena Corporation

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

802.3ba changed the title of clause 74.11

SuggestedRemedy

In the title of 74.11 change "sublayer for 10GBASE-R PHYs" to "sublayer for BASE-R PHYs"

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.2.4** *P* **142** *L* **52** # 16

Turner, Edward J Gnodal Ltd

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

There's no PICS entry for the shall in "The PHY shall restart RX_CLK so that at least one positive transition occurs before it deaserts LPI."

SuggestedRemedy

Add PICS entry.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The "shall" at this point refers to the PHY that is attached to this sublayer, therefore the PICS entry would be inappropriate. This is similar to numerous other examples in RS clauses.

No PICS entry will be made for this but the spelling of "deaserts" will be corrected.

Cl **55** *SC* **55.4.5.1** *P* **218** *L* **34** # 17

Turner, Edward J Gnodal Ltd

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

Use '2 superscript 9' rather than '2^9'.
Also apply to '2^5' and '2^6' and '2^4' on line 38.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.2.1** *P* **231** *L* **48** # 18

Turner, Edward J Gnodal Ltd

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

Too much deletion has led to '.. may go into w power mode ..'

SuggestedRemedy

Change to '.. may go into low power mode ..'

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.7.1.4** *P* **244** *L* **31** # 19

Bennett, Michael Lawrence Berkeley Na

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

Submitted on behalf of Iain Robertson
This sub-clause discusses output amplitude requirements during LPI but makes no mention of common mode requirements. It should stipulate the amount by which the common mode can deviate from the non-LPI value.

SuggestedRemedy

Add a sentence, plus a spec in table 72-6. Suggested wording:
"During LPI, the common mode shall be maintained to within +/- TBDmV of the pre-LPI value"
Suggested spec in table 7-6:
"Common mode voltage deviation (max) during LPI: TBDmV"
Need discussion on the TBD value. For reference, PCI-E specs this as 100mV.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add a sentence, plus a spec in table 72-6:
"During LPI, the common mode shall be maintained to within +/- 150mV of the pre-LPI value"
Add entry in table 7-6:
"Common mode voltage deviation (max) during LPI: 150mV"

Make the same changes in 70 and 71.

Cl **36** *SC* **36.2.5.2.2** *P* **88** *L* **48** # 20

Healey, Adam LSI Corporation

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

The transition from RX_WAKE_DONE to LPI_K in the PCS Receive state diagram (Figure 36-7c, the second one) should be UCT (unconditional transition) and not SUDI. SUDI will cause to PCS Receive state diagram to be out of synchronization.

SuggestedRemedy

Change the transition condition from SUDI to UCT.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.2.5** *P* **175** *L* **52** # 21

Healey, Adam LSI Corporation

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

The definition of one_us_timer needs reference the parameter T_1U defined in Table 49-3 (which really should be replacing Table 49-2) in order to establish the bounds on the timer terminal count.

SuggestedRemedy

Change the definition of one_us_timer to: "This timer is used to count approximately 1 microsecond intervals. The timer terminal count is set to T1U. When the timer reaches terminal count it will set the one_us_timer_done = TRUE."

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74.7.4.8** *P* **277** *L* **47** # 22

Healey, Adam LSI Corporation

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

I believe the actual requirement here is that the hold-off timer not expire before 13.7 microseconds have passed. It could be longer since the FEC would set signal_ok to TRUE after detecting two scrambled blocks.

SuggestedRemedy

Change the first sentence to: "When rx_lpi_active is TRUE and rx_mode is set to DATA, start a hold-off timer whose duration is greater than or equal to 13.7 microseconds and enable. . .". Also change item b (page 278, line 7) to: "Expiration of the hold-off timer."

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.76a** *P* **120** *L* **50** # 23

Barrass, Hugh Cisco Systems, Inc.

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

The resolution to comment #359 draft 3.0 was missed. This must be implemented to make sense of the changes to Clause 55.

SuggestedRemedy

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.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

OBE,
see response to comment #96

Cl **79** *SC* **79.3.a** *P* **271** *L* **28** # 24

Barrass, Hugh Cisco Systems, Inc.

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

Duplicated period at the end of the line

SuggestedRemedy

delete it..

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.3** *P* **258** *L* **50** # 25
Brown, Matthew Applied Micro (AMCC)

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

Draft 3.0 Comment #174 was not implemented.

SuggestedRemedy

Implement Draft 3.0 Comment #174.

Response *Response Status* **C**

ACCEPT.

Response to Comment #174 on D3.0 is shown below:
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 **55** *SC* **55.1.4** *P* **191** *L* **5** # 26
Brown, Matthew Applied Micro (AMCC)

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

Figure 55-4. PMA_FR_ACTIVE primitive is not required for EEE nor for normal operation.

SuggestedRemedy

Re-draw dashed rectangle to include only EEE signals. Employ another means to differentiate FR signals from normal and EEE signals. Add a note to indicate the signals relevant to FR.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note in Figure 55-4 saying :
NOTE- PMA_PCSDATAMODE.indication is
required only for the EEE or fast retrain capabilities PMA_ALERTDETECT.indication and PCS_RX_LPI_STATUS.request are only required for the EEE capability
PMA_FR_ACTIVE.indication is only required for the fast retrain capability

Cl **55** *SC* **55.2.2.3.1** *P* **191** *L* **51** # 27
Brown, Matthew Applied Micro (AMCC)

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

New sentence is not indicates.

SuggestedRemedy

Add underline to sentence "For EEE, ... during LPI."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.2.2.3.1** *P* **192** *L* **5** # 28
Brown, Matthew Applied Micro (AMCC)

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

Clean up list.

SuggestedRemedy

Create list starting each item i and ii on new line.
Alternately, but less favored, change "training ii)" "training and ii)".

Response *Response Status* **C**

REJECT.

It is not clear that the remedy is an improvement.

Cl **55** *SC* **55.2.2.9.1** *P* **192** *L* **28** # 29

Brown, Matthew Applied Micro (AMCC)

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

When is alert_detect, set to NOT_DETECTED? Though the event DETECTED is obvious, it is not clear when alert_detect would be set to NOT_DETECTED. In fact, all of the definitions talk about the DETECTED event and the state machine really only requires the DETECTED event. Fixing this is somewhat complicated by the composite nature of the variable definition in 55.3.5.22.

SuggestedRemedy

Re-define alert_detect to have single value DETECTED sent when alert signal is detected, otherwise parameter value is undefined.

Proposed Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

There are only two values that alert_detect can be set to. If, as the comment states, it is clear when the first value is used, then it should be equally clear when the second value is used.
Whether the second value is not_detected, false, or undefined is moot since it is not used/detected elsewhere.

Cl **55** *SC* **55.2.2.10.1** *P* **193** *L* **4** # 30

Brown, Matthew Applied Micro (AMCC)

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

Not clear what rx_lpi_active is.

SuggestedRemedy

Change end of sentence to: "change in the rx_lpi_active variable as determined by the receive state diagram in Figure 55-16."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.2.2.11.1** *P* **193** *L* **19** # 31

Brown, Matthew Applied Micro (AMCC)

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

Not clear what pcs_data_mode parameter is.

SuggestedRemedy

Add sentence... "The pcs_data_mode parameter reflects the value of the pcs_data_mode variable as specified in 55.3.5.2.2 ."

Response *Response Status* **C**

REJECT.

The text states clearly that the variable is set by the PMA PHY control state machine. This change is unnecessary.

Cl **55** *SC* **55.2.2.12** *P* **193** *L* **42** # 32

Brown, Matthew Applied Micro (AMCC)

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

Not clear what fr_active parameter is.

SuggestedRemedy

Add sentence ... "The fr_active parameter reflects the value of the fr_active variable specified in 55.3.5.2.2."

Response *Response Status* **C**

REJECT.

The text states clearly that the variable is set by the PMA PHY control state machine. This change is unnecessary.

Cl **55** *SC* **55.3.2** *P* **194** *L* **10** # 33

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-5 is part of 55.3.2 and so should be placed appropriately.

SuggestedRemedy

Add heading 55.3.2 after 55.3 and move diagram to occur after 55.3.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add heading 55.3.2 after 55.3 and move diagram to occur after 55.3.2 however actual figure location in Frame may change depending on how the pages get laid out.

Cl **55** *SC* **55.3.2** *P* **194** *L* **26** # 34

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-5. fr_active parameter is not required for EEE nor for normal operation.

SuggestedRemedy

Re-draw dashed rectangle to include only EEE signals. Employ another means to differentiate FR signals from normal and EEE signals. Add a note to indicate the signals relevant to FR.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note in Figure 55-4 saying :
NOTE- pcs_data_mode is
required only for the EEE or fast retrain capabilities alert_detect and rx_lpi_active are only required for the EEE capability fr_active is only required for the fast retrain capability

Cl **55** *SC* **55.3.2.2** *P* **194** *L* **42** # 35

Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **R**

Figure 55-15 does not include states for EEE only and Figure 55-15a does not include dashed rectangles.

SuggestedRemedy

Restate as follows: State transitions within dashed rectangles in Figure 55-15 and all states and transitions in Figure 55.15a shall be supported by PHys with the EEE capability. PHYs without the EEE capability do not support these transitions.

Response *Response Status* **C**

REJECT.

It is not clear what is incorrect in the current labeling.

Figure 55-15 notes that transitions inside dashed rectangles are required for EEE operation. Figure 55-15a notes that the entire diagram is required for EEE operation.

The suggested remedy does not improve the diagrams.

Cl **55** *SC* **55.3.2.2** *P* **194** *L* **48** # 36

Brown, Matthew Applied Micro (AMCC)

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

Be clear about what is meant by "normal mode of operation".

SuggestedRemedy

Change start of sentence to: "After reaching the normal mode of operation (pcs_data_mode = TRUE), ..."

Proposed Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

The Clause 55 base text defines a training mode of operation and a normal mode of operation. This description reuses those terms.

Cl **55** *SC* **55.3.2.2.21** *P* **196** *L* **30** # 37

Brown, Matthew Applied Micro (AMCC)

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

Two variables cause transition to TX_NORMAL state.

SuggestedRemedy

Change start of sentence to: "When PCS_Reset is asserted or pcs_data_mode is not asserted ...".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.2.3** *P* **197** *L* **44** # 38

Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **R**

Sentence almost sounds like LPI is triggered by completion of training. Also, successful training is indicated by pcs_data_mode.

SuggestedRemedy

Change end of sentence to: "after the PHY has successfully completed training as indicated by pcs_data_mode equals TRUE."

Response *Response Status* **C**

REJECT.

The text is correct as written.

Cl **55** *SC* **55.3.4a.1** *P* **199** *L* **27** # 39
Brown, Matthew Applied Micro (AMCC)

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

Make sure that active is associated with pair, not pair and refresh_active.

SuggestedRemedy

Change "active pair" to "active-pair".

Response *Response Status* **C**

REJECT.

It's not clear what problem this is fixing.

Cl **55** *SC* **55.3.4a.3** *P* **199** *L* **36** # 40
Brown, Matthew Applied Micro (AMCC)

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

Relevant to initial or subsequent normal retrain.

SuggestedRemedy

Change "used for initial training" to "used for normal training". Alternately, "used for initial training or normal retraining".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comment is intended to be on line 36 of page 200.

change: "used for initial training"

to: "used for normal training"

Cl **55** *SC* **55.3.4a.3** *P* **200** *L* **50** # 41
Brown, Matthew Applied Micro (AMCC)

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

Sentence fragement.

SuggestedRemedy

Remove fragment or correct.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This should be a subclause title 55.3.5

Cl **55** *SC* **55.3.5.2.2** *P* **201** *L* **29** # 42
Brown, Matthew Applied Micro (AMCC)

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

LPI is indicated by LPI client and RS not MAC

SuggestedRemedy

Change "MAC indicates" to "LPI client indicates".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.2** *P* **201** *L* **44** # 43
Brown, Matthew Applied Micro (AMCC)

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

Convention in this Clause is to use receiver not RX.

SuggestedRemedy

Replace "RX" with "receiver".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.2** *P* **201** *L* **49** # 44
Brown, Matthew Applied Micro (AMCC)

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

Grammar.

SuggestedRemedy

Replace comma at end of sentence with period.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.2** *P* **201** *L* **34** # 45

Brown, Matthew Applied Micro (AMCC)

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

Introduction of pcs_data_mode variable in state diagrams permits us to reduce alert_detect to simply indicated detection of the alert signal.

SuggestedRemedy

Reduce definition to include only detection of alert signal.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change definition of alert_detect:

alert_detect

Indicates that an alert signal from the link partner has been received at the MDI as indicated by PMA_ALERTDETECT.indication(alert_detect).

Cl **55** *SC* **55.3.5.2.2** *P* **201** *L* **44** # 46

Brown, Matthew Applied Micro (AMCC)

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

The portion of the definition relating to detection of alert signal is not really clear. It is clear that alert_detect is set TRUE when the alert signal is detected. The definition of the alert detection function on page 216 only specifies when alert_detect is set. It is not clear when (or if) the alert_detect variable is ever set to FALSE. This variable is more of an event, than a state. What is the right unambiguous way to specify this.

SuggestedRemedy

Provide a mechanism or description that explains how the alert_detect variable is set to FALSE after being set TRUE. One way to resolve this is as follows. (a) In Figure 55-16, add "alert_detect = FALSE" in states "RX_INIT" and "RX_W". Define alert_detect as being set to TRUE by ALERT detect process.

Proposed Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

See #29. The description is clear.

Cl **55** *SC* **55.2.2.9.1** *P* **192** *L* **26** # 47

Brown, Matthew Applied Micro (AMCC)

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

alert_detect parameter values do not match alert_detect variable.

SuggestedRemedy

Either change values to match or explain that alert_detect parameter is DETECTED when alert_detect variable is TRUE and NOT_DETECTED with alert_detect variable is FALSE.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change DETECTED to TRUE, change NOT_DETECTED to FALSE in 55.2.2.9.1.

Cl **55** *SC* **55.3.5.2.2** *P* **202** *L* **2** # 48

Brown, Matthew Applied Micro (AMCC)

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

For clarity, for a table for various definitions of lpi_tx_mode.

SuggestedRemedy

Create table for defining lpi_tx_mode. Two columns: value and condition. One row is used for each value.

Response *Response Status* **C**

REJECT.

This does not seem neccesary.

Also the comment is out of scope; this text has not been changed for several drafts.

Cl **55** *SC* **55.3.5.2.2** *P* **202** *L* **29** # 49

Brown, Matthew Applied Micro (AMCC)

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

Consistent terminology.

SuggestedRemedy

Change "that have the fast retrain" to "that support the fast retrain".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.2** *P* **202** *L* **32** # 50

Brown, Matthew Applied Micro (AMCC)

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

Given that lpi_fr_sigtype is defined in the previous line to exist only for PHYs that support FR, it is unnecessary and somewhat confusing to qualify the IDLE state with support of fast retrain.

SuggestedRemedy

Change first sentence to: "This variable is set to IDLE if 1.147.1 is set to 1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

OBE, See responses to comments 96 and 58

lpi_fr_sigtype is now fr_sigtype

Cl **55** *SC* **55.3.5.2.4** *P* **203** *L* **31** # 51

Brown, Matthew Applied Micro (AMCC)

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

Grammar.

SuggestedRemedy

Change "to the eight types" to "one of the eight types"

Response *Response Status* **C**

REJECT.

As stated by the text, a vector may simultaneously belong to C and I, so the suggested remedy is not accurate.

Cl **55** *SC* **55.3.5.2.4** *P* **203** *L* **36** # 52

Brown, Matthew Applied Micro (AMCC)

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

Edit instruction.

SuggestedRemedy

Add underline to "and /LI/."

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.4** *P* **204** *L* **15** # 53

Brown, Matthew Applied Micro (AMCC)

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

Grammar.

SuggestedRemedy

Change "to the eight types" to "one of the eight types"

Response *Response Status* **C**

REJECT.

As stated by the text, a vector may simultaneously belong to C and I, so the suggested remedy is not accurate.

Cl **55** *SC* **55.3.5.4** *P* **205** *L* **26** # 54

Brown, Matthew Applied Micro (AMCC)

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

No states are unique to EEE.

SuggestedRemedy

Change "States and transitions" to "transitions".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **206** *L* **3** # 55

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-14. LFER monitor state is active when training has not completed; it may start in PCS_Test mode. This constitutes a modification to the base standard, but improves the behavior.

SuggestedRemedy

Change open transition to LFER_MT_INIT, replacing "!block_lock" with "!pcs_data_mode".

Response *Response Status* **C**

REJECT.

It is not clear why this is necessary, and the suggested remedy appears to be incorrect.

Cl **55** *SC* **55.3.5.4** *P* **207** *L* **34** # 56

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-15. Transition from TX_E to TX_L must be indicates as EEE only.

SuggestedRemedy

Add dashed rectangle around transition from TX_E to TX_L.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **209** *L* **3** # 57

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **R**

Figure 55-16. Last term in transition criteria on open transition to RX_INIT is incorrect. When not in PCS_Data mode send LF either if not in fast re-train or if in fast retrain only if lpi_fr_sigtype is not IDLE.

SuggestedRemedy

Change last term to : "((!(lpi_fr_sigtype==IDLE) * lpi_fr_active) + !lpi_fr_active) * ! pcs_data_mode"

Response *Response Status* **C**

REJECT.

It appears that the existing equation is correct.

The editor believes that the suggested change is equivalent to the existing transition condition.

Cl **55** *SC* **55.3.5.4** *P* **209** *L* **3** # 58

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-16. Last term in transition criteria on open transition to FR_RX_INIT could be clarified by adding brackets around comparison of lpi_fr_sigtype. Also, outer brackets are not required so they can be removed.

SuggestedRemedy

Change last term to : "((lpi_fr_sigtype==IDLE) * lpi_fr_active) * ! pcs_data_mode"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In addition to suggeted remedy:
Change lpi_fr_sigtype to fr_sigtype

change lpi_fr_active to fr_active

change lpi_fr_en to fr_enable

Also make the same name changes in Clause 45.

Cl **55** *SC* **55.3.5.4** *P* **209** *L* **3** # 59

Brown, Matthew Applied Micro (AMCC)

Comment Type **TR** *Comment Status* **R**

Figure 55-16. Use of block_lock in open transition to RX_INIT and FR_RX_INIT is redundant since it is further qualified by pcs_data_mode.

SuggestedRemedy

Remove !block_lock term from open transition to RX_INIT and FR_RX_INIT.

Response *Response Status* **C**

REJECT.

Pcs_data_mode does not exist for legacy 10GBASE-T phys, therefore it needs to remain.

Cl **55** *SC* **55.3.6.1** *P* **212** *L* **10** # 60

Brown, Matthew Applied Micro (AMCC)

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

Grammar.

SuggestedRemedy

Change "indicates that current" to "indicates the current".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.1** *P* **213** *L* **8** # 61

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-17. fr_active parameter is not required for EEE nor for normal operation.

SuggestedRemedy

Re-draw dashed rectangle to include only EEE signals. Employ another means to differentiate FR signals from normal and EEE signals. Add a note to indicate the signals are relevant to FR.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note in Figure 55-17 saying :
NOTE- pcs_data_mode is required only for the EEE or fast retrain capabilities alert_detect and rx_lpi_active are only required for the EEE capability fr_active is only required for the fast retrain capability

---

Cl **55** *SC* **55.4.2.2** *P* **213** *L* **52** # 62

Brown, Matthew Applied Micro (AMCC)

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

lower power operation is not commonly used term

SuggestedRemedy

Change "normal and lower power operation" to "normal and LPI operation".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.2.2.1** *P* **214** *L* **20** # 63

Brown, Matthew Applied Micro (AMCC)

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

LDPC frames not being sent

SuggestedRemedy

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

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.2.2.1** *P* **214** *L* **25** # 64

Brown, Matthew Applied Micro (AMCC)

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

Use normal form for primitive/parameter.

SuggestedRemedy

Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.2.2.1** *P* **215** *L* **2** # 65

Brown, Matthew Applied Micro (AMCC)

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

Use normal form for primitive/parameter.

SuggestedRemedy

Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.2.2.1** *P* **215** *L* **22** # 66

Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **R**

The wake signal is not properly defined here. Either fix or refer to official definition.

SuggestedRemedy

Change sentence to: "The alert signal is followied by a wake signal as specified in 55.3.2.2.9a."

Response *Response Status* **C**

REJECT.

The description seems adequate. The reference in the suggested remedy does not give details of the wake signal so would be a poorer choice.

Cl **55** *SC* **55.4.2.2.2** *P* **215** *L* **37** # 67
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
Use normal form for primitive/parameter.

SuggestedRemedy
Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

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

Cl **55** *SC* **55.4.2.2.2** *P* **215** *L* **42** # 68
Brown, Matthew Applied Micro (AMCC)

Comment Type **ER** *Comment Status* **A**
Use normal form for primitive/parameter.

SuggestedRemedy
Change "PMA_CONFIG.indication parameter config" to "PMA_CONFIG.indication(config)".

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

Cl **55** *SC* **55.4.2.5.14** *P* **216** *L* **29** # 69
Brown, Matthew Applied Micro (AMCC)

Comment Type **T** *Comment Status* **R**
Similar requirements exist for fast retrain.

SuggestedRemedy
Add sentence, "For PHYs that support fast retrain, further requirements for this transition are described in 55.4.2.5.15."

Response *Response Status* **C**
REJECT.

The requirements for fast retrain do not affect normal training.

Cl **55** *SC* **55.4.2.5.14** *P* **216** *L* **39** # 70
Brown, Matthew Applied Micro (AMCC)

Comment Type **T** *Comment Status* **R**
Similar requirements exist for fast retrain.

SuggestedRemedy
Add sentence, "For PHYs that support fast retrain, further requirements for this transition are described in 55.4.2.5.15."

Response *Response Status* **C**
REJECT.

The fast retrain requirement is in the next subclause and adding a cross reference is not required.

Cl **55** *SC* **55.4.2.5.14** *P* **216** *L* **44** # 71
Brown, Matthew Applied Micro (AMCC)

Comment Type **T** *Comment Status* **A**
Can also go to the LPI transmit mode.

SuggestedRemedy
Add the following "... and to the LPI transmit mode under control of the local LPI client.".

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

Cl **55** *SC* **55.4.2.5.15** *P* **216** *L* **53** # 72
Brown, Matthew Applied Micro (AMCC)

Comment Type **E** *Comment Status* **A**
Grammar.

SuggestedRemedy
Change "THP turn" to "THP turns".

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

Cl **55** SC **55.4.2.5.15** P **217** L **6** # 73
Brown, Matthew Applied Micro (AMCC)

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

Reference to incorrect figure.

SuggestedRemedy

Change 55-13a to 55-13.

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.2.5.15** P **217** L **7** # 74
Brown, Matthew Applied Micro (AMCC)

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

Relevant to initial or subsequent normal retrain.

SuggestedRemedy

Change "used for initial training" to "used for normal training". Alternately, "used for initial training or normal retraining".

Response *Response Status* **C**

ACCEPT.

"used for normal training"

Cl **55** SC **55.4.2.6a** P **217** L **38** # 75
Brown, Matthew Applied Micro (AMCC)

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

lower power mode is not commonly used term

SuggestedRemedy

Change "lower power receive mode" to "LPI receiver mode".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "lower power receive mode" to "LPI receive mode".

Cl **55** SC **55.4.5.1** P **218** L **33** # 76
Brown, Matthew Applied Micro (AMCC)

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

Use superscript for exponential terms.

SuggestedRemedy

For 2^9 and 2^4, use superscript for 9 and 4, respectively.

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.4.5.1** P **218** L **37** # 77
Brown, Matthew Applied Micro (AMCC)

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

Use superscript for exponential terms.

SuggestedRemedy

For 2^6 and 2^4, use superscript for 6 and 4, respectively.

Response *Response Status* **C**

ACCEPT.

Cl **45** SC **45.2.1.76a.3** P **121** L **4** # 78
Brown, Matthew Applied Micro (AMCC)

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

What does it mean to disable this bit?

SuggestedRemedy

Change "disabling this bit" to "setting this bit to 0".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.76a.3** *P* **120** *L* **36** # 79

Brown, Matthew Applied Micro (AMCC)

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

A RO status bit is not provided to indicate whether fast retrain was negotiated or not. 1.147.0 does not suffice, since it may be overwritten by the station manager.

SuggestedRemedy

Provide a RO status bit to indicate whether fast retraining was successfully negotiated or not. 1.147.1 is suggested. Name "Fast Retrain Negotiated". Description: "1 = Fast retrain was negotiated; 0 Fast retrain was not negotiated." R/W: "RO".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define a new register bit:

1.147.2 : Fast retrain negotiated : 1 = PHY has negotiated fast retrain, 0 = PHY has not negotiated fast retrain : read only

Insert 45.2.1.76a.4 Fast retrain ability (1.147.2)

This bit indicates that the PHY has negotiated fast retrain as defined in 55.4.5.1.

Cl **55** *SC* **55.4.5.1** *P* **219** *L* **18** # 80

Brown, Matthew Applied Micro (AMCC)

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

Common terminology.

SuggestedRemedy

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

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.6.1** *P* **220** *L* **33** # 81

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-24. fr_maxwait_timer_done not defined

SuggestedRemedy

Define fr_max_wait_timer in 55.4.5.2

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the text in 55.4.5.2 on page 219 as follows:

The following timer is required only for PHYs that support the EEE capability.
Lpi_refresh_rx_timer
This timer is used to monitor link quality during the low power receive mode. If the PHY does not reliably detect reliable refresh signaling before this timer expires then a full retrain is performed.
Values: The condition lpi_refresh_rx_timer_done becomes true upon timer expiration
Duration: This timer shall have a period equal to 50 complete quiet-refresh signal periods, equivalent to 8.192ms.

The following two timers are required only for PHYs that support the fast retrain capability:
link_fail_sig_timer
Determines the period of time the PHY sends the link failure signal.
Values: The condition link_fail_sig_timer_done becomes true upon timer expiration
Duration: This timer shall have a period equal to 4 LDPC frame periods.

Fr_maxwait_timer
Determines the period of time the PHY has to transition its PCS Control State to PCS_Test following a fast retrain before the fast retrain is aborted and a full retrain performed.
Values: The condition fr_maxwait_timer_done becomes true upon timer expiration
Duration: This timer shall have a period equal to 30ms.

Cl **55** *SC* **55.4.6.1** *P* **220** *L* **33** # 82

Brown, Matthew Applied Micro (AMCC)

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

Figure 55-27b. link_fail_sig_timer_done not defined

SuggestedRemedy

Define fr_max_wait_timer in 55.4.5.2

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #81

Cl **55** *SC* **55.4.2.5.14** *P* **216** *L* **49** # 83
Brown, Matthew Applied Micro (AMCC)

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

The is a pile-on comment for Draft 3.0 comment #359. The response to comment #359 addresses incorrectly detecting a failed link by optionally replacing the local fault signal with the idle signal during fast retrain. The reponse did not address loss of data during a fast retrain. To prevent loss of data, a mechansm is required which informs the MAC to defer transmission; while not indicating a link failure, avoiding adverse effects on MAC clients.

SuggestedRemedy

Provide a mechanism to signal from the PHY to the RS a temporary interruption during fast retrain. Provide a mechanism in the RS to cause the MAC to defer transmission of packets while fast retrain is active, particular for a MAC which is connected to a PHY through a XAUI interface. To accomplish this create a new character, similar to /LI/, call tentatively /CRS/ (carrier sense). Send /CRS/ continuous to the RX XGMII while fast retrain is active. In the RS, while receiver /CRS/ from the RX XGMII set PLS_CARRIER.indication(CARRIER_STATUS) to CARRIER_ON.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #96

Cl **46** *SC* **46.1.7.3** *P* **140** *L* **42** # 84
Brown, Matthew Applied Micro (AMCC)

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

CARRIER status has values CARRIER_ON and CARRIER_OFF.

SuggestedRemedy

Change "CARRIER_STATUS is set to false" to "CARRIER_STATUS is set to CARRIER_OFF".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

OBE, see response to comment #96

Cl **46** *SC* **46.3a.2.2** *P* **145** *L* **28** # 85
Brown, Matthew Applied Micro (AMCC)

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

CARRIER status has values CARRIER_ON and CARRIER_OFF.

SuggestedRemedy

Change "CARRIER_STATUS = OFF" to "CARRIER_STATUS= CARRIER_OFF".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a.2.2** *P* **145** *L* **36** # 86
Brown, Matthew Applied Micro (AMCC)

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

CARRIER status has values CARRIER_ON and CARRIER_OFF.

SuggestedRemedy

Change "CARRIER_STATUS = ON" to "CARRIER_STATUS= CARRIER_ON".

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49** *P* **174** *L* **1** # 87
Horner, Rita Avago Technologies

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

TX_REFRESH state no longer exists

SuggestedRemedy

revmove the tx_tr_timer

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49** *P* **178** *L* # 88
Horner, Rita Avago Technologies

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

There is a potential dead-lock definition if the timer expires at the same time as tx_raw transitions from LI to !LI

SuggestedRemedy

Remove the !tx_ts_timer_done from the state transition TX_SLEEP to TX_ACTIVE

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49** *P* **178** *L* # 89
Horner, Rita Avago Technologies

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

The exit from TX_QUIET should be tx_timer_done or tx_raw !=LI

SuggestedRemedy

Remove the requirement of !tq_timer_done on the exit from TX_QUIET

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

As per the comment, change the transition to:

tx_tq_timer_done + T_TYPE(tx_raw) !=LI

Cl **49** *SC* **49** *P* **180** *L* **34** # 90
Horner, Rita Avago Technologies

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

Correct the defination for rx_fault

SuggestedRemedy

rx_fault should be changed to "receive fault" as it is referred to in the MDIO definition and in 49.2.14.1. PCS_status

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a** *P* **144** *L* **5** # 91
Brown, Matthew Applied Micro (AMCC)

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

label "PLS_Service Primitives" only applies to primitives starting with PLS.

SuggestedRemedy

Change "PLS_Service Primitives" to "PLS Service Primitives" and move to a location within the set of PLS primitives. Add dashed rectangle around PLS service primitives to differentiate from the LPI client service primitives.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a.1** *P* **144** *L* **37** # 92
Brown, Matthew Applied Micro (AMCC)

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

Until 1 second after link_status is OK, effect of primitive is undefined regardless of its value.

SuggestedRemedy

Delete "or if LPI_REQUEST=ASSERT".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3a.1** *P* **144** *L* **30** # 93
Brown, Matthew Applied Micro (AMCC)

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

While LPI_INDICATION is DEASSERT, all behavior is normal.

SuggestedRemedy

Delete "inter-frame".

Response *Response Status* **C**

REJECT.

"normal inter-frame behavior" implies that idles are sent between packets (instead of LPI).

Cl **36** *SC* **36.2.5.2.2** *P* **87** *L* **22** # 94

Healey, Adam LSI Corporation

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

The transition from LPI_K back to LP_IDLE_D is inconsistent with the equivalent legacy transition (RX_K to IDLE_D) when xmit != DATA. If xmit != DATA and SUDI([/KD5.6/]+[/D16.2/]), the state diagram would get stuck into the LPI_K state indefinitely. However, this is highly unlikely. What is more likely is that auto-negotiation is restarted while the receiver is detecting LPI. In this case, the state diagram would remain in the LPI_K state during the data code-group reception, and would transition into the RX_INVALID state (via "F") when the next /K28.5/ is received. At worst, this would force an Auto-Negotiation restart (via RUDI(INVALID)) but this seems like an unneccessary glitch with a straightforward work-around.

SuggestedRemedy

For the transition from LPI_K to LPI_IDLE_D, change the term xmit != DATA ∗ SUDI("member of set of" [/D/]∗![/D21.5/]∗![/D2.2/])) to xmit != DATA ∗ SUDI("member of set of" [/D/]∗![/D21.5/]∗![/D2.2/]*![D5.6]*![D16.2])). Also remove the term xmit = DATA from the transition from LPI_K to IDLE_D (via "C").

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Rewriting to clarify the problems in the comment tool:

For the transition from LPI_K to LPI_IDLE_D, change the term

xmit != DATA * SUDI("member of set of" [/D/] * ![/D21.5/] * ![/D2.2/]))

to

xmit != DATA * SUDI("member of set of" [/D/] * ![/D21.5/] * ![/D2.2/] * ![D5.6] * ![D16.2])).

(i.e. 2 elements added to the set of terms)

Also remove the term xmit = DATA from the transition from LPI_K to IDLE_D (via "C").

Cl **45** *SC* **45.2.1.76a** *P* **120** *L* **19** # 95

Ganga, Ilango Intel Corporation

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

In order to advertise the fast retrain ability (45.7.10), the management needs to know if the PHY is capable of fast retrain. Also the management may choose not to advertise fast retrain ability, to the link partner, even if the local PHY is fast retrain capable. So define a bit to fast retrain ability bit to fast retrain control/status register. This bit will be set to one for PHYs that implement fast retrain capability.

SuggestedRemedy

Add a bit to 1.147, 10GBASE-T fast retrain status & control register, to indicate PHY fast retrain capability

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define a new register bit:

1.147.3 : Fast retrain ability : 1 = PHY supports fast retrain, 0 = PHY does not support fast retrain : read only

Insert 45.2.1.76a.3 Fast retrain ability (1.147.3)

This bit indicates that the PHY supports fast retrain as defined in 55.4.5.1.

Cl **46** *SC* **46.1.7.3** *P* **140** *L* **37** # 96

Ganga, Ilango Intel Corporation

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

The spirit of the EEE objectives is not to drop or corrupt frames; however fast retrain mechanism, as defined, has the potential to drop frames. Some of the upper layer protocols expect no packet drop characterestics and certain reliability at link level. Fast retrain condition may cause frame loss up to several ms. So implement a mechanism that has ability to defer frame transmission during fast retrain.

SuggestedRemedy

Set the PLS_CARRIER.inidication primitive when the PMA indicates fr_active (PMA_FR_ACTIVE.indication) to defer transmission during fast retrain. This will ensure no packet drop during fast retrain.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Straw polls
Support for:
a) Adding a new signal <link unavailable> in addition to IDLE and LF
Yes: 27
b) Adding a new signal <link unavailable> replacing IDLE, not touching LF
Yes: 3
c) No <link unavailable> signal
Yes: 3
Straw poll with ~31 people in the room.

Assuming option (a) in the above set of choices, perform the optional detection of <link unavailable> as proposed in brown_01_0710.pdf
Yes: 16
No: 0
Abstain: 11

Assuming option (a) and the above, perform the optional deference
Yes: 10
No: 2
Abstain: 14

Motion
Editors are instructed to prepare text with the changes to clauses 45, 46, 48 and 55 for review by the task force on Wednesday morning with:
1) A new signal <link unavailable> in addition to IDLE and LF as defined in brown_01_0710.pdf
2) The optional detection of <link unavailable> as proposed in brown_01_0710.pdf
3) The optional deference
4) Use the name <Link Interruption> instead of <link unavailable>
5) Also add the definition in Table 48-4

Moved by: W. Diab
Seconded: I. Ganga
Yes: 25
No: 0
Abstain: 2
Motion passes

Change clauses 45, 46, 48 and 55 as per
8023az-45_Proposed_2.pdf
8023az-46_Proposed_2.pdf
8023az-48_Proposed.pdf
8023az-55_Proposed.pdf

The above files are posted on the task force website and were reviewed a the task force meeting.

Cl **55** *SC* **55.3.2.2.9** *P* **195** *L* **10** # 97

Ganga, Ilango Intel Corporation

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

As per D3.1, either IDLE or Local Fault is generated during fast retrain. Currently local fault may be used to trigger link failure condition to the higher layers. At a system level such link failure conditions may be used to initiate link failover mechanisms for high availability. Asserting local fault does not unambiguously indicate if the local fault is due to link failure or fast retrain. Any timeout mechanisms to delay signaling link failure to higher layers may delay the highavailability/failover features to take effect. So it is best to define a separate control code to indicate fr_active (PMA_FR_ACTIVE.indication) to the RS sublayer. This could be used to signal a fast retrain condition.

SuggestedRemedy

1. Define a seprate control code to indicate fast retrain condition to the higher layers (RS sublayer). Providing fr active signal allows systems flexibility to implement failover/lossless characteristics. 2. For the PHYs that support fast retrain, specify an option to assert PLS_CARRIER.indication during fast retrain active that allows tx deferral.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #96

Cl **46** *SC* **46.1.7.3** *P* **140** *L* **41** # 98

Ganga, Ilango Intel Corporation

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

Assertion of CARRIER_STATUS by the RS should be based upon LPI_REQUEST not LPI_INDICATE. i.e., it is based upon the transmit LPI state, not the receive side. This statement in 46.1.7.3 is inconsistent with the reference state diagram (46-10a) and the description in 78.1.3.1.

SuggestedRemedy

Change LPI_INDICATION to LPI_REQUEST

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.76a** *P* **120** *L* **20** # 99

Ganga, Ilango Intel Corporation

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

It appears that the response to Comment #359 has not been fully implemented. Implement the changes to Clause 45 as per response to #359

SuggestedRemedy

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.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #96
-

Cl **55** *SC* **55** *P* **187** *L* # 100

Ganga, Ilango Intel Corporation

Comment Type **TR** *Comment Status* **R** *fastretrain*

As per D3.1, there is an option in the PMA to either send IDLE or Local Fault during fast retrain. However it is possible for one link partner to enable IDLE and other link partner may enable to send Local Fault condition. So the link partners may have different settings at either end of the link and this may cause inconsistent behaviour at the link/system level.

SuggestedRemedy

One possibility is to provide a mechanism to advertise the fast retrain signal type along with fast retrain ability, so both link partner can enable this feature consistently. Alternatively do not provide an optional feature, just specify one mechanism to signal fast retrain active condition. This will ensure consistent behavior at the either end of the link.

Response *Response Status* **C**

REJECT.

The host system decides whether it wishes to receive local fault or idles during a fast retrain. It is not clear why the system behaviour needs to be symmetric.

Also see response to comment #96

Cl **78** *SC* **78.1.3.2** *P* **256** *L* **8** # 101

Brown, Matthew Applied Micro (AMCC)

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

Use primitive/parameter name.

SuggestedRemedy

Change "the LPI_INDICATION parameter to ASSERT in the LP_IDLE indication primitive of the LPI Client service interface" to "LP_IDLE.indication(LPI_INDICATION) to ASSERT"

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.3.2** *P* **256** *L* **12** # 102

Brown, Matthew Applied Micro (AMCC)

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

Use primitive/parameter name.

SuggestedRemedy

Change "the LPI_INDICATION parameter is set to DE-ASSERT in the LP_IDLE indication primitive of the LPI Clinet service interface" to "LP_IDLE.indication(LPI_INDICATION) is set to DE-ASSERT"

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.4** *P* **257** *L* **26** # 103

Brown, Matthew Applied Micro (AMCC)

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

Table 78-1. All relevant clauses should be listed here. In particular, for 100BASE-TX clause 25 should be listed.

SuggestedRemedy

For 100BASE-TX list 24 and 25. For 1000BASE-KX list 70, 35. For 10GBASE-KX4 list 71, 48. For 10GBASE-KR list 72, 51, 49.

Response *Response Status* **C**

ACCEPT.

Cl **36** *SC* **36.2.5.1.7** *P* **81** *L* **28** # 104

Sela, Oren

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

The tx_tq_timer definition is incorrect and doesn't take into account the change done in the 3.1 draft.
Current text:This timer is started when the PCS receiver enters the RX_SLEEP state.

SuggestedRemedy

Should be:This timer is started when the PCS receiver enters the START_TQ_TIMER state.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.3.1** *P* **179** *L* # 105

Sela, Oren

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

in LPI Receiver state diagram 49-17: Arch from RX_SLEEP to RX_QUIET is !rx_tq_timer_done * !rx_block_lock!rx_block_lock is not a strong enough condition for detecting idelness. Should be :!rx_tq_timer_done * (!rx_block_lock + hi_ber)~

SuggestedRemedy

Per comment

Response *Response Status* **C**

REJECT.

No consensus to make the change.

Cl **30** *SC* **30** *P* **63** *L* # 106

Barrass, Hugh

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

LD Fast retrain count and LP fast retrain count need to be added as Clause 30 objects

SuggestedRemedy

Add to Table 30-1b
aLDFastRetrainCount
aLPFastRetrainCount
(both ATTRIBUTE, GET).
Add 30.3.1.1.42
aLDFastRetrainCount
ATTRIBUTE
APPROPRIATE SYNTAX:
Generalized nonresetable counter. This counter has a maximum increment rate of 1 000 counts per second
BEHAVIOUR DEFINED AS:
A count of the number of 10GBASE-T fast retrains initiated by the local device. The indication reflects the state of the PHY event counter (see 45.2.1.76a.2 and 55.4.5.1.).;
Add 30.3.1.1.43
aLPFastRetrainCount
ATTRIBUTE
APPROPRIATE SYNTAX:
Generalized nonresetable counter. This counter has a maximum increment rate of 1000 counts per second
BEHAVIOUR DEFINED AS:
A count of the number of 10GBASE-T fast retrains initiated by the link partner. The indication reflects the state of the PHY event counter (see 45.2.1.76a.2 and 55.4.5.1.).;

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74** *P* **248** *L* **52** # 107

Slavik, Jeff

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

Incorrect usage of state

SuggestedRemedy

Change LPI mode is active to LPI mode is asserted

Response *Response Status* **C**

REJECT.

Cl **74** *SC* **74** *P* **249** *L* **51** # 108

Slavik, Jeff

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

Restating definition of EEE for 2nd time in the clause

SuggestedRemedy

Change "Energy Efficient Ethernet (EEE) capability" to "EEE capability"

Response *Response Status* **C**

ACCEPT.

Cl **74** *SC* **74** *P* **249** *L* **7** # 109

Slavik, Jeff

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

It's rapid block lock not fast block lock

SuggestedRemedy

Change fast to rapid (two occurrences, second occurrence on line 9)

Response *Response Status* **C**

ACCEPT.