Cl **24** *SC* **24.4.1** *P* **49** *L* **53** # 1

Dawe, Piers Avago Technologies

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

Saying '100BASE-X supports Low Power Idle mode when the Energy Efficient Ethernet is implemented' could be interpreted to mean that the EEE implementation within 100BASE-X can vary with time (i.e. in every case can be switched on and off). But it's optional.

SuggestedRemedy

Change 'when' to 'if'. If the EEE feature can be switched on and off, say 'if the Energy Efficient Ethernet is implemented and enabled.' or 'if the Energy Efficient Ethernet is implemented and Low Power Idle mode is enabled.'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to
'if the Energy Efficient Ethernet is implemented and Low Power Idle mode is utilized.'

Please refer to comment #198

Cl **24** *SC* **24.1.4.1** *P* **36** *L* **53** # 2

Dawe, Piers Avago Technologies

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

Interpreting and generating EEE MII opcodes would be optional like the rest of EEE.

SuggestedRemedy

Change 'Interpret and generate MII opcodes to optionally enable or disable the Low power Idle mode.' to 'Optionally, interpret and generate MII opcodes to enable or disable the Low Power Idle mode.'

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.3** *P* **54** *L* **19** # 3

Dawe, Piers Avago Technologies

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

Don't say 'subclause'

SuggestedRemedy

Change to 'see', twice. Also, I think there should be no space in PMD_RXQUIET.request (rx_quiet); should be PMD_RXQUIET.request(rx_quiet)

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.3** *P* **54** *L* **53** # 4

Dawe, Piers Avago Technologies

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

Untidy table wasting space

SuggestedRemedy

Make the table full width

Response *Response Status* **C**

REJECT.

We risk introducing errors by making unecessary changes. The publication editors can take care of this.

Cl **35** *SC* **35.1.1** *P* **6** *L* **16** # 5

Dawe, Piers Avago Technologies

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

Page and line numbers in P802.3ayD2.3.
Want to mention the optional EEE functionality in 35.1.1 Summary of major concepts.

SuggestedRemedy

Per comment. State that this option is for use only with 1000BASE-KX.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

The commenter is correct that this should be included in 35.1.1. However, it is defined for both 1000BASE-KX and 1000BASE-T.

Add bullet point h) to 35.1.1

h) The GMII may also support low power idle signaling as defined for Energy Efficient Ethernet for some PHY types (see Clause 78).

Cl **35** *SC* **35.2.1** *P* **65** *L* **14** # 6

Dawe, Piers Avago Technologies

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

Need to be clear that this is optional.

SuggestedRemedy

Change 'The mapping changes slightly when Low Power Idle signaling is in operation.' to 'If the optional Low Power Idle signaling feature is implemented, the mapping changes slightly when Low Power Idle signaling is in operation.'

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change 'The mapping changes slightly when Low Power Idle signaling is in operation.'

to 'The mapping changes slightly when optional Low Power Idle signaling is in operation.'

Cl **36** *SC* **36.2.4.7** *P* **40** *L* **43** # 7

Dawe, Piers Avago Technologies

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

Page and line numbers in P802.3ayD2.3.
Need to make clear that the new codings in Table 36-3 are optional and of restricted application.

SuggestedRemedy

Add sentence: 'The ability to transmit or receive /LI/, /LI1/ and /LI1/ is an option, to support an option of 10GBASE-KX4 only.'

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add sentence: 'The ability to transmit or receive /LI/, /LI1/ and /LI1/ is an option for certain PHYs to support Energy Efficient Ethernet (see Clause 78).'

Cl **40** *SC* **40.1.4** *P* **76** *L* **45** # 8

Dawe, Piers Avago Technologies

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

j) Ability to signal...

SuggestedRemedy

j) Optionally, ability to signal... ?

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.7.15a.1** *P* **99** *L* **49** # 9

Dawe, Piers Avago Technologies

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

Consistent spelling

SuggestedRemedy

To align with base document, change 'advertized' to 'advertised', 'advertizes' to 'advertises'. Two more in Clause 69.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.31** *P* **46** *L* **47** # 10

Dawe, Piers Avago Technologies

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

Multi-Word

SuggestedRemedy

Multi-word

Response *Response Status* **C**

REJECT.

See #14

Cl **45** *SC* **45.2.1** *P* **37** *L* **41** # 11

Dawe, Piers Avago Technologies

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

P802.3ba is providing a very welcome third column in Table 45-3, called 'Clause', with clickable entries giving the subclause for each register.

SuggestedRemedy

Please do the same.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.6** *P* **38** *L* **29** # 12

Dawe, Piers Avago Technologies

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

Missing subclause heading

SuggestedRemedy

Insert the heading for 45.2.1.6, which contains Table 45-7. Check for any other missing headings.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The registers are moving, however the new clause subheading must be included.

Cl **45** *SC* **45.2.1.6** *P* **39** *L* **9** # 13

Dawe, Piers Avago Technologies

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

Pre-existing entries all say '... PMA/PMD type'. As the table title is PMA/PMD control 2 register bit definitions and the entries are grouped as 'PMA/PMD type selection' this seems superfluous, but one should be consistent.

SuggestedRemedy

To remove the clutter, strike out 'PMA/PMD type selection' from all the pre-existing entries.

Response *Response Status* **C**

REJECT.

This project has no reason to edit that register.

Cl **45** *SC* **45.2.3** *P* **43** *L* **8** # 14

Dawe, Piers Avago Technologies

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

Table too narrow for the new contents

SuggestedRemedy

Resize column widths to contents

Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

It is unclear which table is too narrow - neither the subclause nor the page number correspond to a table that needs changing.

The commenter is advised to review 802.3av that may be more appropriate for this comment.

Cl **00** *SC* **0** *P* **1** *L* **56** # 15

Dawe, Piers Avago Technologies

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

A bug has crept into the Frame template: page numbers are too low, won't print on some printers, and 2 lines lower than in published 802.3.

SuggestedRemedy

Remove (at least) one line-feed in each of left and right page footers

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **1.4** *P* **17** *L* **21** # 16

Dawe, Piers Avago Technologies

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

Jitter definitions are a can of worms, and things have moved on since TP-PMD. There are more up-to-date 8B/10B oriented definitions in FC-PI-4 but we for Clause 1, would have to check that we do have definitions which are acceptable for 8B/10B (e.g. Gigabit Ethernet), 64B/66B (10GE) and TP-PMD.

SuggestedRemedy

If you do decide to pull TP-PMD into 802.3, please contact me.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
We will not pull TP-PMD into 802.3

Cl **01** *SC* **1.4** *P* **18** *L* **26** # 17

Dawe, Piers Avago Technologies

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

re 'Baseline Wander' There is no quantitative definition of this in TP-PMD, nor in Section 4 of 802.3

SuggestedRemedy

Change to 'baseline wander'. Similarly emitter coupled logic, non return to zero.

Response *Response Status* **C**

ACCEPT.

Clean up draft to reflect the task force decision not to pull TPPMD into 802.3

Cl **14** *SC* **1.5** *P* **18** *L* **34** # 18

Dawe, Piers Avago Technologies

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

Containing the growing clause title length, and as the medium isn't baseband (it's just a wire, it doesn't know; it's the modulation scheme that's baseband)

SuggestedRemedy

Delete 'baseband' before medium.

Response *Response Status* **C**

REJECT.
Comment actually refers to Clause 14, Page 20, line 6

This usage is not unique to clause 14 and should be handled in maintenance.

Cl **01** *SC* **1.3** *P* **16** *L* **44** # 19

Dawe, Piers Avago Technologies

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

Does ISO/IEC 9314-10 exist? I understand the FCD was withdrawn in 2005.

SuggestedRemedy

If there is no ISO/IEC 9314-10, don't delete the ANSI reference

Response *Response Status* **C**

ACCEPT.

Cl **14** *SC* **14.1.1** *P* **20** *L* **19** # 20

Dawe, Piers Avago Technologies

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

I thought it had been decided not to maintain 'ISO/IEC 8802-3 LAN International Standard'. Anyway, a document referring to itself as 'International Standard' is posturing.

SuggestedRemedy

Change
'The relationship of this clause to the entire ISO/IEC 8802-3 LAN International Standard is shown in Figure 14-1.'
to
'Figure 14-1 shows the relationship of the 10BASE-T or 10BASE-Te PMA, MDI and medium (shown shaded) with other sublayers, to the ISO/IEC Open System Interconnection (OSI) reference model.'

Response *Response Status* **C**

ACCEPT.

Editor will follow suggested remedy.

The commenter has a valid point point - we should self-reference to 802.3. Based on the PSDO agreement we have with ISO we would still consider ourselves a international standard - so the sentence in question could now read:

'The relationship of this clause to the entire IEEE Std 802.3 LAN International Standard is shown in Figure 14-1.'

The challenge is that we wont have the chance to do this throughout the standard to all layer diagrams until the next revision so we are going with the change recommended by the commenter.

Cl **14** *SC* **14.1.1** *P* **20** *L* **16** # 21

Dawe, Piers Avago Technologies

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

The layer diagram could be improved. If you change it...

SuggestedRemedy

Change the 7-point material to 8 point.
Change the ALL CAPS to normal upper and lower case.
Move 'Higher layers' down so that it doesn't make 'LAN CSMA/CD layers' look like more layers in the stack. Suggest putting 'OSI reference model layers' and 'LAN CSMA/CD layers' at the same level, underlined, to show they are headings for the stacks not layers in the stacks.

Response *Response Status* **C**

REJECT.

Out of scope for this project. Editor suggests commenter recommend this to the next maintenance project.

Cl **14** *SC* **14.3.1.2** *P* **23** *L* **3** # 22

Dawe, Piers Avago Technologies

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

Shouldn't use colour in 802.3

SuggestedRemedy

Change all the blue to black

Response *Response Status* **C**

ACCEPT.

Cl **14** *SC* **14.9** *P* **28** *L* **1** # 23

Dawe, Piers Avago Technologies

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

PICS is 14.10

SuggestedRemedy

Change 14.9 to 14.10, several times

Response *Response Status* **C**

ACCEPT.

Cl **22** *SC* **22.2.2.7** *P* **32** *L* **10** # 24

Dawe, Piers Avago Technologies

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

re 'driving the value <1110> onto...' On the page before and in the table below you don't use < >

SuggestedRemedy

Change to 'driving the value 1110 onto...' Similarly on line 14, and in 35.2.2.7.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.6** *P* **37** *L* **27** # 25

Dawe, Piers Avago Technologies

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

Figure 24-4 has much dashed material but I did not see a statement of what it means.

SuggestedRemedy

Add a sentence here; maybe 'Functionality for Far-End Fault Indication and Low Power Idle is shown dashed.'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a note at the bottom of the figure saying "Signals or functions shown with dashed lines are optional."

Cl **24** *SC* **24.1.6** *P* **38** *L* **8** # 26

Dawe, Piers Avago Technologies

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

There is no function or process called 'CARRIER SENSE' but there is one called 'Carrier Sense'.

SuggestedRemedy

Change 'CARRIER SENSE' to 'Carrier Sense'. Similarly with all the boxes (except TX RX PCS PMA PMD). Similarly Fig 40-3, 40-4, 40-5, 40-14, 55-3, 55-4, 55-5, 55-17.

Response *Response Status* **C**

REJECT.

The use of capital letters in these instances is as in the original text.

Cl **24** *SC* **24.4.1** *P* **49** *L* **53** # 27
Dawe, Piers Avago Technologies

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

New material should be underlined

SuggestedRemedy

Underline item c. Also in Table 35-2, 'Assert low power idle'.

Response *Response Status* **C**

ACCEPT.
There are more text to be underlined in subclause 24.3 and 24.4.

Cl **46** *SC* **46.1.7** *P* **103** *L* **13** # 28
Dawe, Piers Avago Technologies

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

'deswcribed': this isn't what the base document says!

SuggestedRemedy

described

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.1** *P* **190** *L* **16** # 29
Dawe, Piers Avago Technologies

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

Page and line number of P802.3ayD2.3
Bullet e says 'The RS generates continuous data or control characters on the transmit path and expects continuous data or control characters on the receive path.' If EEE, is it still continuous? Need a mention of the EEE option somewhere in this list, anyway.

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The definition of XGMII with LPI is still continuous, so e) doesn't need to be changed.

Add bullet item:

h) The XGMII may also support low power idle signaling as defined for Energy Efficient Ethernet for some PHY types (see Clause 78).

Cl **46** *SC* **46.3.1.2** *P* **104** *L* **3** # 30
Dawe, Piers Avago Technologies

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

Can tidy up the table

SuggestedRemedy

Resize column widths to contents, making the table full width. Also Table 46-4.

Response *Response Status* **C**

ACCEPT.

Resize tables 46-3 and 46-4.

Cl **46** *SC* **46.3.2.2** *P* **106** *L* **52** # 31
Dawe, Piers Avago Technologies

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

Because there is now a 'basic frame' (as distinguished from an 'envelope frame') and this diagram should work for envelope frames too, it needs a better title. In P802.3ba we have used 'Frame reception without error'

SuggestedRemedy

Change 'Basic frame reception' to 'Frame reception without error'

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.2.2** *P* **106** *L* **38** # 32
Dawe, Piers Avago Technologies

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

Where RXC<3:0> is 0xF (all ones) no RXC line can be low. When it's 0x0, no RXC line can be high.

SuggestedRemedy

Remove the low lines at either end of the RXC<3:0> composite trace, remove the high line during 'frame data'.

Response *Response Status* **C**

REJECT.

The style is used because RXC is a vector, therefore using a single line (high or low) is considered inappropriate. Furthermore, the style is consistent for all of the diagrams in the base clause.

Cl **46** *SC* **46.3.1.2** *P* **104** *L* **20** # 33

Dawe, Piers Avago Technologies

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

I believe there is a small bug in one of these tables. It may be this: the PLS_DATA.indication parameter for Start is shown as 'No applicable parameter, first eight ZERO, ONE of a frame (a preamble octet). But we know what a preamble octet is.

SuggestedRemedy

Should the PLS_DATA.indication parameter for Start be 10101010 (binary)? Similarly in Table 46-4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The preamble octet is replaced by the start character, that is why there is no applicable parameter.

However, the word "replaces" has mysteriously disappeared from this location. Therefore that cell must be changed back to its original form:

'No applicable parameter, replaces first eight ZERO, ONE of a frame (a preamble octet). "

Cl **48** *SC* **48.2.3** *P* **232** *L* **35** # 34

Dawe, Piers Avago Technologies

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

Page and line numbers in P802.3ayD2.3.
Need to make clear that the new codings in Table 48-2 and Table 48-3 are optional.

SuggestedRemedy

Add sentence after 'is specified in Table 48-3.':
The ability to transmit or receive Low Power Idle is an option, to support an option of 1000BASE-KX only.'

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change 48.2.3 (as suggested).

Add sentence after 'is specified in Table 48-3.':

'The ability to transmit or receive Low Power Idle is an option for certain PHYs to support Energy Efficient Ethernet (see Clause 78).'

Cl **49** *SC* **49.2.4.4** *P* **268** *L* **11** # 35

Dawe, Piers Avago Technologies

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

Page and line numbers in P802.3ayD2.3.
Need to make clear that the new codings in Table 49-1 are optional.

SuggestedRemedy

Add sentences after 'The control characters and their mappings to 10GBASE-R control codes and XGMII control codes are specified in Table 49-1. All XGMII and 10GBASE-R control code values that do not appear in the table shall not
be transmitted and shall be treated as an error if received.':
The ability to transmit or receive Low Power Idle is an option, to support an option of 10GBASE-KR only.' If this option is not supported or not enabled, Low Power Idle shall not be transmitted and shall be treated as an error if received.' Add PICS to support the shalls.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change 49.2.4.4

After "shall not be transmitted and shall be treated as an error if received."

Add

'The ability to transmit or receive Low Power Idle is an option for certain PHYs to support Energy Efficient Ethernet (see Clause 78). If this option is not supported Low Power Idle shall not be transmitted and shall be treated as an error if received.'

Cl **55** *SC* **55.3.5.4** *P* **132** *L* **133** # 36

Dawe, Piers Avago Technologies

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

6.5 point text! The minimum per style manual is 8 point.

SuggestedRemedy

Change all text in this figure and Fig 55-8 to 8 point. You can put the second and third boxes beside each other if you run out of height.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.6.1.2** *P* **146** *L* **1** # 37
Dawe, Piers Avago Technologies

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

Wrong table number, no subclause heading. Table is too long.

SuggestedRemedy

Insert '55.6.1.2 10GBASE-T Auto-Negotiation page use'.
Change 'Table 55-10' to 'Table 55-11'.
Resize column widths to contents.

Response *Response Status* **C**

ACCEPT.

The editor will redo the table with the suggested changes.

Cl **70** *SC* **70.6.4** *P* **151** *L* **9** # 38
Dawe, Piers Avago Technologies

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

manditory

SuggestedRemedy

mandatory Also 70.6.5, 71.6.6

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.6.10.2** *P* **152** *L* **19** # 39
Dawe, Piers Avago Technologies

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

usec, msec

SuggestedRemedy

us, ms (and use a mu not a u). At least four tables.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.1** *P* **149** *L* **18** # 40
Dawe, Piers Avago Technologies

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

Table too narrow. Frame won't take the table notes into account when sizing columns

SuggestedRemedy

Make the table wider so that the table note takes just two lines. Also Table 71-1, 72-1.
Also make Table 72-1 wider

Response *Response Status* **C**

ACCEPT.

Expanding table does brings note down to two lines.

Cl **72** *SC* **72.7.4.2** *P* **184** *L* **30** # 41
Dawe, Piers Avago Technologies

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

FS12 Status O

SuggestedRemedy

FS12 Status LPI:M ? Also CF43 and following

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

If TF agrees to LPI:M, editor will replace O with "LPI:M" ins FS12 and CF43-CF47

Cl **76** *SC* **76.2.3.3** *P* **193** *L* **36** # 42
Dawe, Piers Avago Technologies

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

bit <0> ... bit <1>

SuggestedRemedy

bit 0 ... bit 1

Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

Intended for av

Cl **99** *SC* **99** *P* **1** *L* **2** # 43

Dawe, Piers Avago Technologies

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

Amendement

SuggestedRemedy

Amendment
Also at line 30, change 'a amendement' to 'an amendment'
At line 30, extra comma 'clause, Clause 78, which'
Broken link 'Clause 78'
Line 22, too many capitals:
Media Access Control parameters, Physical Layers and management parameters for Energy-Efficient Ethernet

Response *Response Status* **C**

ACCEPT.

Cl **99** *SC* **99** *P* **3** *L* **8** # 44

Dawe, Piers Avago Technologies

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

conciously

SuggestedRemedy

consciously
At line 10, consecuively s/b consecutively
Line 40, 802.3az-2008 is too optimistic

Response *Response Status* **C**

ACCEPT.

Cl **99** *SC* **99** *P* **5** *L* **5** # 45

Dawe, Piers Avago Technologies

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

.Section

SuggestedRemedy

Section
Line 12, Gb/s split over a line break. There's a Frame option to stop this.
Line 18, change 'of the IEEE Std 802.3 standard with' to 'of IEEE Std 802.3 with'
Line 24, change 'operation point-to-multipoint' to 'operation on point-to-multipoint'

Response *Response Status* **C**

ACCEPT.

Cl **99** *SC* **99** *P* **11** *L* **49** # 46

Dawe, Piers Avago Technologies

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

There is a newer version of this page

SuggestedRemedy

Ask P802.3av for it

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.4.11.5** *P* **60** *L* **19** # 47

Healey, Adam LSI Corporation

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

The wake time for the 100BASE-TX receiver is dependent on the time required to activate the far-end transmitter. Furthermore, the receiver should have some assurance of a compliant input signal upon which to base timing recovery and adaptive equalization. Neither of these aspects of transmitter behavior are currently defined in the draft.

SuggestedRemedy

Specify that the transmitter:
1. Shall deliver a signal that will assert signal detect within TBD1 us following transmitter activation
2. Shall deliver a fully compliant 100BASE-TX signal within within TBD2 (> TBD1) us following transmitter activation

Response *Response Status* **C**

ACCEPT.

25.4.11.8 Changes to 10.1.2 "Transmitter"

During the Low Power Idle mode, when tx_quiet is deasserted, the transmitter output shall deliver a signal that exceeds Signal_Detect assertion threshold within 2 us, and deliver a fully compliant 100BASE-TX signal within 5 us.

Cl **28C** *SC* **28C.12** *P* **196** *L* **41** # 48

Healey, Adam LSI Corporation

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

I'm not sure where to anchor this comment, but Annex 28D should also be amended to outline extensions of Clause 28 for Energy Efficient Ethernet and I propose that Clause 28 extensions for EEE include:

1. Auto-Negotiation is mandatory for a EEE PHY (this is currently not the case for 100BASE-TX)
2. The exchange of additional next pages for EEE capability and mode negotiation extends the time required to complete Auto-Negotiation. To reduce this time, a EEE PHY may use the extended next page mechanism introduced by IEEE 802.3an-2006 (it is not currently an option for 100BASE-TX).

SuggestedRemedy

Add amendment to Annex 28D per comment.

Response *Response Status* **C**

ACCEPT.

Cl **36** *SC* **36.2.4.8** *P* **72** *L* **25** # 49

Healey, Adam LSI Corporation

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

Table 36-3, by itself, does not adequately describe the low power idle encoding process. Per the PCS transmit ordered_set state diagram (Figure 36-5), TX_EN = FALSE is encoded as /I/, regardless of TX_ER and TXD<7:0>.

SuggestedRemedy

Modify the PCS transmit ordered_set state diagram (Figure 36-5) and PCS transmit code-group state diagram (Figure 36-6) to clearly define /LI/ encoding, mark the modifications as optional, and define new state variables as appropriate.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Significant changes will be required to the clause to reflect the additions to the state machines and the operation of Low Power Idle in the transmit and receive directions.

The editor will work with the commenter to prepare a more complete definition in the next draft.

Cl **36** *SC* **36.2.4.8** *P* **72** *L* **25** # 50

Healey, Adam LSI Corporation

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

Table 36-3, by itself, does not adequately describe the low power idle decoding process. Per the PCS receive state diagram (Figures 36-7a and 36-7b), /LI/ would be decoded as RX_DV = FALSE and RX_ER = FALSE (e.g. normal inter-frame).

SuggestedRemedy

Modify the PCS receive state diagram (Figures 36-7a and 36-7b) to clearly define /LI/ decoding, mark the modifications as optional, and define new state variables as appropriate.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #49

Cl **40** *SC* **40.1.3** *P* **75** *L* **1** # 51

Healey, Adam LSI Corporation

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

Referring to Figure 40-3, since Energy Efficient Ethernet is an optional feature, clearly highlight optional functions and signals using dashed lines and add a note below the figure indicating that dashed lines denote optional features.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.2.2** *P* **78** *L* **1** # 52

Healey, Adam LSI Corporation

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

Referring to Figure 40-4, since Energy Efficient Ethernet is an optional feature, clearly highlight optional primitives using dashed lines and add a note below the figure indicating that dashed lines denote optional features.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.2.2** *P* **79** *L* **5** # 53

Healey, Adam LSI Corporation

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

Correct indentation for the definition of primitive values for this and all following EEE-related primitives.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.3** *P* **81** *L* **1** # 54

Healey, Adam LSI Corporation

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

Referring to Figure 40-5, since Energy Efficient Ethernet is an optional feature, clearly highlight optional functions and signals using dashed lines and add a note below the figure indicating that dashed lines denote optional features.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.3.1.3.4** *P* **82** *L* **8** # 55

Healey, Adam LSI Corporation

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

In the PHY Control state diagram, as proposed for Energy Efficient 1000BASE-T, it is possible that loc_rcvr_status = OK while SEND_Z is asserted. Unless the definition of Sdn[2] is modified, channel C may not send zero as desired.

SuggestedRemedy

Modify defintion of Sdn[2] to read:

Sdn[2] = Scn[2]^TXDn[2] if (tx_enablen-2=1)
Scn[1]^1 else if (loc_rcvr_status=OK) * (tx_mode!=SEND_Z)
Scn[2] else

Response *Response Status* **C**

ACCEPT.

Note the typo in the suggested remedy, "Scn[1]^1" should be "Scn[2]^1."

Cl **40** *SC* **40.3.4** *P* **83** *L* **2** # 56

Healey, Adam LSI Corporation

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

Referring to Figure 40-10a, since Energy Efficient Ethernet is an optional feature, clearly highlight optional states and transitions by encapsulating the LP_IDLE state and associated transitions in the dashed box labeled "optional implementation."

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.2** *P* **85** *L* **8** # 57

Healey, Adam LSI Corporation

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

Referring to Figure 40-14, since Energy Efficient Ethernet is an optional feature, clearly highlight optional functions and signals using dashed lines and add a note below the figure indicating that dashed lines denote optional features.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.2.3a** *P* **96** *L* **51** # 58

Healey, Adam LSI Corporation

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

What does it mean to have the transmit PMA/PMD "receive" low power idle signaling? Is it supposed to interpret the code-groups (or data-groups or symb_vectors or...) received from the transmit PCS, or is it based on the assertion of some status flag by the PCS? Assuming there is no breakdown in the communication between the PCS and PMA, it seems it would be cleaner to associate this bit with the PCS.

SuggestedRemedy

Clarify the definition of this bit or relocate accordingly.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #91

Cl **45** *SC* **45.2.7.15a** *P* **99** *L* **18** # 59

Healey, Adam LSI Corporation

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

EEE mode control register, 7.62, includes R/W bits that a management entity may use to request modes of operation from the link partner. However, no register is maintained that reflects whether or not the local device actually supports a given mode.

I understand that these control are only placeholders, but for example bit 7.62.4 is used to request 10GBASE-KR reduced energy refresh. There is no bit in the management register space that tells the management entity that the local device actually supports reduced energy refresh.

SuggestedRemedy

Define EEE capabilities register with contents corresponding the modes in 7.62. All bits in this register are RO, and will reflect the capabilities of the local device.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Same response as to comment #88

Cl **45** *SC* **45.2.1.2.1b** *P* **96** *L* **38** # 60

Healey, Adam LSI Corporation

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

What does it mean for the Rx PMA/PMD to "receive" LP idle? The LP idle signal is decoded by the Rx PCS. Presumably, the PCS indicates to the PMA/PMD that the loss of signal it is about to experience is related to quiet-refresh cycling and not a loss of link. Furthermore, in 1000BASE-T, it is possible to receive and LP idle signal without quiet-refresh cycling. For these reasons, it seems cleaner to associate this bit with the Rx PCS.

SuggestedRemedy

Clarify the definition of this bit or relocate accordingly.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #91

Cl **45** *SC* **45.2.1.2.3a** *P* **97** *L* **3** # 61

Healey, Adam LSI Corporation

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

What does it mean for the Rx PMA/PMD to "receive" LP idle? The LP idle signal is decoded by the Rx PCS. Presumably, the PCS indicates to the PMA/PMD that the loss of signal it is about to experience is related to quiet-refresh cycling and not a loss of link. Furthermore, in 1000BASE-T, it is possible to receive and LP idle signal without quiet-refresh cycling. For these reasons, it seems cleaner to associate this bit with the Rx PCS.

SuggestedRemedy

Clarify the definition of this bit or relocate accordingly.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #91

Cl **45** *SC* **45.2.7.15a.1** *P* **99** *L* **48** # 62

Healey, Adam LSI Corporation

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

Regarding the 1000BASE-T wakeup time advertisement...

Based on the premise that longer wake time corresponds to additional power savings (e.g. PHY layer circuitry may be put into a deeper sleep state) and there will exist applications that do not require a wake time as fast as 16 us, there is an advantage to increasing the upper bound on the advertised wake time.

Also, based on the premise that management may manipulate the advertised wake time to be larger than the minimum value supported by the PHY, this mechanism does not allow the local device to indicate that it supports a faster wake time than advertised. Consider a local device that has prioritized power savings and therefore advertises a slower wake time than the PHY can support but would be able to support the faster wake time if necessary. A link partner with an application that requires lower latency, and requests a faster wake time, may not be able to arbitrate a suitable wake time with the local device despite the fact the local device actually supports the desired wake time.

SuggestedRemedy

Proposal for modified 1000BASE-T wake time negotiation to be presented to the Task Force (tentative name healey_01_1108.pdf).

Response *Response Status* **C**

REJECT.

Comment #209 was accepted hence this point is moot.

Cl **48** *SC* **48.2.4.2** *P* **110** *L* **18** # 63

Healey, Adam LSI Corporation

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

"Low Power Idle is indicated by inserting /D20.5/ randomly in one column of each row during ||I||."

A /D20.5/ code-group is randomly inserted into one LANE of each ||K|| or ||R|| COLUMN. ||I|| also includes the align column ||A||, and inserting /D20.5/ into an ||A|| will result in repeated deskew_error indications and eventually loss of alignment indication (align_status = FAIL).

SuggestedRemedy

Correct definition per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add after 'during ||I||'

'to replace ||K|| or ||R|| (not ||A||)'

Cl **48** *SC* **48.2.4.2** *P* **108** *L* **39** # 64

Healey, Adam LSI Corporation

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

The text in 48.2.4.2 and Table 48-2 do not adequately describe the low power idle encoding process. The normative transmit process is defined in
48.2.6.2.1 and the PCS transmit source state diagram (Figure 48-6). Per Figure 48-6, I believe Low Power Idle would be encoded as K30.7 (Invalid XGMII character) which contrary to the definition in this subclause.

SuggestedRemedy

Modify the PCS transmit source state diagram (Figure 48-6) to clearly define Low Power Idle encoding, mark the modifications as optional, and define new state variables as appropriate.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Significant changes will be required to the clause to reflect the additions to the state machines and the operation of Low Power Idle in the transmit and receive directions.

The editor will work with the commenter to prepare a more complete definition in the next draft.

Cl **48** *SC* **48.2.4.2** *P* **108** *L* **39** # 65

Healey, Adam LSI Corporation

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

The text in 48.2.4.2 and Table 48-2 do not adequately describe the low power idle decoding process. The normative receive process is defined in
48.2.6.2.4 and the PCS receive state diagram (Figure 48-9). Per Figure 48-9, I believe Low Power Idle would be decoded as K30.7 (Invalid XGMII character) which contrary to the definition in this subclause.

SuggestedRemedy

Modify the PCS receive state diagram (Figure 48-9) to clearly define Low Power Idle decoding, mark the modifications as optional, and define new state variables as appropriate.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #64

Cl **48** *SC* **48.2.4.2** *P* **110** *L* **18** # 66

Healey, Adam LSI Corporation

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

How does a user of the standard know if the implementation meets the requirement of randomness?

SuggestedRemedy

Rigorously define the desired progression of /D20.5/ code-group insertion for each successive column.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The user of the standard has already overcome his fear of "randomness" when he implemented bullet item "e) When not sending an ||A||, either ||K|| or ||R|| is sent with a random uniform distribution between the two."

However, the term "random" needs a little more clarity.

Replace "inserting /D20.5/ randomly in one column"

with "inserting /D20.5/ with a random uniform distribution in one of the columns"

Cl **49** *SC* **49.2.4.7** *P* **111** *L* **45** # 67

Healey, Adam LSI Corporation

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

In Table 49-1, the possible 8B/10B codes for Low Power Idle include /D20.5/.

SuggestedRemedy

Add /D20.5/ to the list with reference to 48.2.4.2.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.1** *P* **149** *L* **33** # 68

Healey, Adam LSI Corporation

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

It seems like "deactivates transmit" should be "deactivates transmit functions."

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.3a** *P* **149** *L* **47** # 69

Healey, Adam LSI Corporation

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

I believe the feature in question is actually "Energy Efficient Ethernet" and not "Low Power Idle."

SuggestedRemedy

Update text per comment.

Response *Response Status* **C**

ACCEPT.

Editor will change "Low Power Idle" to "Energy Efficient Ethernet".

Cl **70** *SC* **70.6.10.5.2** *P* **155** *L* **6** # 70

Healey, Adam LSI Corporation

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

Clause 70 defines 1000BASE-KX PMD sub-layer but the LPI Transmit state diagram (Figure 70-1) includes PCS layer functions such as low power idle encoding. The definition of these functions is misplaced and should be properly described in Clause 36 (the subject of a different comment). The functions defined in this clause should be limited in scope to the PMD-level functions. PCS state information required to the implement PMD functions, and vice versa, should be communicated to the PMD using service interface primitives.

It is imperative to preserve the IEEE 802.3 layering model. In the future, it is likely that additional 1000BASE-X PMDs will be amended to support EEE. It is wasteful to repeat the definition of the PCS low power idle encoding for each PMD, and potentially disasterous if the definitions are inconsistent.

SuggestedRemedy

A proposal will be made to the Task Force illustrating the layer model and modifications required to adhere to the layer model (tentatively named healey_02_1108.pdf).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Restructure Draft moving appropriate functionality from Clause 70 to Clause 36 as per koenen_01_1108.pdf

Cl **70** *SC* **70.6.10.5.2** *P* **156** *L* **1** # 71

Healey, Adam LSI Corporation

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

Clause 70 defines 1000BASE-KX PMD sub-layer but the LPI Receive state diagram (Figure 70-2) includes PCS layer functions such as low power idle decoding. The definition of these functions is misplaced and should be properly described in Clause 36 (the subject of a different comment). The functions defined in this clause should be limited in scope to the PMD-level functions. PCS state information required to the implement PMD functions, and vice versa, should be communicated to the PMD using service interface primitives.

It is imperative to preserve the IEEE 802.3 layering model. In the future, it is likely that additional 1000BASE-X PMDs will be amended to support EEE. It is wasteful to repeat the definition of the PCS low power idle encoding for each PMD, and potentially disasterous if the definitions are inconsistent.

SuggestedRemedy

A proposal will be made to the Task Force illustrating the layer model and modifications required to adhere to the layer model (tentatively named healey_02_1108.pdf).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Restructure Draft moving appropriate functionality from Clause 70 to Clause 36 as per koenen_01_1108.pdf

Cl **70** *SC* **70.6.10.2** *P* **152** *L* **19** # 72

Healey, Adam LSI Corporation

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

T_WL does not appear to be used.

SuggestedRemedy

Delete the parameter definition.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.6.10.2** *P* **152** *L* **9** # 73

Healey, Adam LSI Corporation

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

Define a minimum value for T_SL. Obviously, T_SL = 0 is not acceptable.

SuggestedRemedy

Specify the minimum value of T_SL. As a placeholder, suggest T_SL(min.) = 64 us for a greater than +/-10% tolerance. All timer values should be subject to further review.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Follow suggested remedy

Insert editor's note stating all subject to further review.

Cl **70** *SC* **70.6.10.2** *P* **152** *L* **16** # 74

Healey, Adam LSI Corporation

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

Define a minimum value for T_UL. Obviously, T_UL = 0 is not acceptable.

SuggestedRemedy

Specify the minimum value of T_UL. As a placeholder, suggest T_UL(min.) = 160 us for a greater than +/-10% tolerance. All timer values should be subject to further review.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Follow suggested remedy

Add editor's note saying all timer values are subject to further review

Cl **70** *SC* **70.6.10.3** *P* **152** *L* **32** # 75

Healey, Adam LSI Corporation

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

I do not understand the purpose of T_SR. The receiver SLEEP period ends when the transmitter ceases transmission.

SuggestedRemedy

Delete the parameter definition, delete associated state variables, and delete it as a transition condition from the RX_SLEEP state (Figure 70-2).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove RX_tx_timer and new RX_DEACT state and rx_deact_timer to handle debounce. Make other adjustments that arise from this to the draft.

Cl **70** *SC* **70.6.10.3** *P* **152** *L* **41** # 76

Healey, Adam LSI Corporation

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

T_UR does not appear to be used.

SuggestedRemedy

Delete the parameter definition.

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.6.4a** *P* **151** *L* **25** # 77

Healey, Adam LSI Corporation

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

Referring to Table 39-1, the term "signal_detect assertion threshold" is not used hence the reference is ambiguous. In addition, "signal_detect deassertion threshold" is not a term used in Table 39-1 and constitutes another ambiguous reference. Finally, Table 39-1 defines what one might interpret to be the thresholds in terms of the 1000BASE-CX minimum differential sensitivity which has no comparable value in 1000BASE-KX. Should the -CX value be used?

The cross-reference to Table 39-1 does not appear to be adding any useful information. Define the signal_detect assertion and de-assertion criteria for Energy Efficient Ethernet directly in 70.6.4a.

SuggestedRemedy

Remove cross reference to Table 39-1 and specify the assertion/de-assertion criteria in this subclause.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor needs recommended text to specify assertion/de-assertion criteria for PMD signal detect here. In the absence of specific values, table will be filled with TBDs.

Remove cross reference to Table 39-1

Cl **70** *SC* **70.6.5** *P* **151** *L* **36** # 78

Healey, Adam LSI Corporation

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

The wake-up time for the 1000BASE-KX receiver is dependent on the time required to activate the far-end transmitter. Furthermore, the receiver should have some assurance of a compliant input signal upon which to base timing recovery and adaptive equalization (if included). Neither of these aspects of transmitter behavior are currently defined in the draft.

SuggestedRemedy

Specify that the transmitter:
1. Shall deliver a signal that will assert signal detect within TBD1 us following transmitter activation
2. Shall deliver a fully compliant 1000BASE-KX signal within within TBD2 (> TBD1) us following transmitter activation

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This may not belong in 70.6.5, but certainly within 70.6. Editor will propose new text in an appropriate section following framework in healey_02_1108.pdf

Cl **40** *SC* **40.4.5.1** *P* **86** *L* **44** # 79

Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A** *40_mr_enable*

It should be stated that when the optional Energy Efficient Ethernet feature is not implemented, loc_lpi_req and rem_lpi_req are FALSE and, as a consequence, lpi_mode is OFF. This will prohibit transition into the optional LP_IDLE state in the PCS Receive state diagram, part a (Figure 40-10a), into the optional PHY Control state diagram, part b (Figure 40-15b), and obviate the need for the optional PCS Local LPI Request state diagram (Figure 40-9).

Similar conditions should be applied when the Energy Efficient Ethernet feature is disabled by management.

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
When optional Energy Efficient features are not implemented, the default values for the cited variables should be defined per the comment. This has the effect of restoring "baseline" 1000BASE-T operation.

As pointed out by comment #208, there is no means to enable or disable Energy Efficient Ethernet via management.

Cl **40** *SC* **40.4.5.2** *P* **87** *L* **25** # 80

Healey, Adam LSI Corporation

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

Expanding the range of lpi_quiet_timer to at least +/-10% would broaden implementation choice without adversely affecting quiet-refresh cycling behavior.

SuggestedRemedy

Change lpi_quiet_timer range to 20 to 24 ms.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.5.2** *P* **88** *L* **31** # 81

Healey, Adam LSI Corporation

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

Per the current Energy Efficient Ethernet PHY Control state diagram, it is possible that the MASTER will be required to decode rem_lpi_req from the SLAVE while the SLAVE is receiving zeros from the MASTER (e.g. the timing loop is broken).

This scenario would occur when the MASTER's lpi_update_timer expires and the MASTER transitions to WAIT_QUIET, transmitting zeros to the SLAVE while the SLAVE is still in the UPDATE state. Prior to the SLAVE detecting zeros from the MASTER, it chooses to exit low power idle. The MASTER will need to detect the SLAVE's rem_lpi_req = FALSE with the timing loop open.

Since the timing loop will be open for a very short period of time, this is likely not an issue. However a very simple change to lpi_update_timer can eliminate this corner case.

The change would make the duration of MASTER lpi_update_timer longer than the SLAVE lpi_update_timer. This ensures that the SLAVE always enters WAIT_QUIET before the MASTER, and hence maintains timing. In addition, it has negligible impact on the total refresh time since the SLAVE transition to WAIT_QUIET will force the MASTER to transition to WAIT_QUIET.

SuggestedRemedy

Define that the duration of lpi_update_timer for the SLAVE is 0.18 to 0.2 ms and duration of lpi_update_timer for the MASTER is 0.23 to 0.25 ms.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.5.1** *P* **87** *L* **15** # 82

Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A** *40_signal_detect*

The criteria of the assertion and de-assertion of signal_detect and the corresponding maximum assertion and de-assertion must be define to ensure inter-operability.

SuggestedRemedy

Proposal to be presented to the Task Force (tentative name healey_01_1108.pdf).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define signal_detect assertion time (signal_detect = TRUE) to be 0.5 us.
Define signal_detect de-assertion time (signal_detect = FALSE) to be 0.5 us.
Define the signal to be transmitter during wake to have the properties define in slide 9 of healey_03_1108.pdf.

Cl **40** *SC* **40.4.5.1** *P* **86** *L* **40** # 83

Healey, Adam LSI Corporation

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

There may be ambiguity regarding the definition of scr_status with the addition of the signal_detect function for Energy Efficient Ethernet. To ensure correct interpretation of the operation of the state diagram, such ambiguity should be removed.

Per the current definition of scr_status, it may assume one of the following two values:
OK: The descrambler has achieved synchronization.
NOT_OK: The descrambler is not synchronized.

It seems to follow that once you have determined there is no input signal (e.g. signal_detect = FALSE), the scrambler cannot be synchronized.

SuggestedRemedy

Specify that, for Energy Efficient Ethernet, when signal_detect = FALSE, scr_status must be set to NOT_OK.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

when zero_detect = FALSE, scr_status must be set to NOT_OK.

Cl **40** *SC* **40.4.2.4** *P* **86** *L* **24** # 84

Healey, Adam LSI Corporation

Comment Type **T** *Comment Status* **A** *40_PHY_Control*

The abbreviated state names may bias the perception of the function of each state in a manner that was not intended. Additional text may be provided to 40.4.2.4 to guide a user of the standard and reduce the possibility of misunderstanding that could lead to interoperability issues.

A key issue in question is whether the adaptive filter coefficients should be updated during the WAKE_TRAINING state. The intended behavior was to have the filter coefficients adapted during the UPDATE state per the current text in Draft 1.0.

"If both PHYs continue to request low power operation, then both PHYs remain in the UPDATE state and continue to transmit for time defined by lpi_update_timer. This time is intended to allow the remote PHY to refresh its receiver state (e.g. timing recovery, adaptive filter coefficients) and thereby track long term variation in the timing of the link or the underlying channel characteristics."

It was not intended that adaptive filter coefficient would be updated during WAKE_TRAINING, and attempting to do so could makes the implementation subject to undesirable corner cases. However, this is not clearly stated.

It is proposed that the current text be updated to make the intention clear.

SuggestedRemedy

Clearly state that adaptive filter coefficients should be updated in the UPDATE and SEND IDLE OR DATA states and not in the WAKE_TRAINING or WAKE_SLAVE states.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Refer to response to comment# 191.

Cl **40** *SC* **40.4.2.4** *P* **86** *L* **16** # 85

Healey, Adam LSI Corporation

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

Grammar: "sequences" should be "sequence"

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.2.4** *P* **86** *L* **20** # 86

Healey, Adam LSI Corporation

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

Incorrect state diagram variable name: "tx_wake_timer" should be "lpi_waketx_timer"

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.

Note, also needed to change MASTER PHY to PHY on line 22.

Cl **40** *SC* **40.4.2.4** *P* **86** *L* **32** # 87

Healey, Adam LSI Corporation

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

Grammar: "the both" should be "both"

SuggestedRemedy

Per comment.

Response *Response Status* **C**

ACCEPT.
Changed to "then both." Note, also needed to change "DATA data" to "DATA state" on line 28.

Cl **45** *SC* **45.2.7.13a** *P* **97** *L* **42** # 88

Healey, Adam LSI Corporation

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

EEE advertisement register, 7.60, includes R/W bits that a management entity may use to constrain the modes advertised to the link partner. However, no register is maintained that reflects the actual capabilities of the local device.

Further to the point, 45.2.6.13a.1 (and other subclauses), state that "If the device supports EEE operation for 10GBASE-KR..." How does the management entity know the device supports EEE operation for 10GBASE-KR?

SuggestedRemedy

Define EEE capabilities register with contents identical to 7.60 (with the exception of the Next page bit). All bits in this register are RO, and will reflect the capabilities of the local device.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add register 3.20 EEE Capability register

All supported PCS types listed in the register.

Cl **45** *SC* **45.2.7.14a** *P* **99** *L* **23** # 89

Healey, Adam LSI Corporation

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

Referring to Table 45-145, bit 15, not bit 10, is the Next page bit. However, it is not clear that this should be defined here. The scope of this register should be constrained to the unformatted code field.

SuggestedRemedy

Change Table 45-145, 7.60.10 to Reserved, Ignore on read.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.7.15a** *P* **99** *L* **23** # 90

Healey, Adam LSI Corporation

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

Referring to Table 45-146, bit 15, not bit 10, is the Next page bit. However, it is not clear that this should be defined here. The scope of this register should be constrained to the unformatted code field.

SuggestedRemedy

Change Table 45-146, 7.62.10 to Reserved, Ignore on read.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.2.1a** *P* **96** *L* **35** # 91

Healey, Adam LSI Corporation

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

What does it mean to have the transmit PMA/PMD "receive" low power idle signaling? Is it supposed to interpret the code-groups (or data-groups or symb_vectors or...) received from the transmit PCS, or is it based on the assertion of some status flag by the PCS? Assuming there is no breakdown in the communication between the PCS and PMA, it seems it would be cleaner to associate this bit with the PCS.

SuggestedRemedy

Clarify the definition of this bit or relocate accordingly.

Response *Response Status* **C**

ACCEPT.

The four LP Idle bits in register 1.1 should have been placed in the PCS register space.

Move all four bits to register 3.1, bits 8-11.

Cl **45** *SC* **45.2.1.2.1a** *P* **96** *L* **39** # 92

Healey, Adam LSI Corporation

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

"The receive link status bit shall be implemented with latching high behavior."

This is the "Tx LP idle received" bit.

SuggestedRemedy

Change bit name per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "The receive link status bit shall be implemented with latching high behavior."

To "This bit shall be implemented with latching high behavior."

2 instances - 45.2.1.2.1a and 45.2.1.2.1b

Cl **45** *SC* **45.2.1.2.1b** *P* **96** *L* **46** # 93

Healey, Adam LSI Corporation

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

"The receive link status bit shall be implemented with latching high behavior."

This is the "Rx LP idle received" bit.

SuggestedRemedy

Change bit name per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #92

Cl **22** *SC* **22.2.2.9a** *P* **33** *L* **4** # 94

CHOU, JOSEPH REALTEK SEMICON

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

Need to modify the Figure 22-9a and the third paragraph of this subclause to comply to baseline proposal by extending several clocks after the assertion of LP IDLE command of MII.

SuggestedRemedy

Add the following statements in subclause as follows and modify Fig 22-9a accordingly.
"The MAC device may halt RX_CLK at any time more than 9 clock cycles after the start of the low power
idle state as shown in Figure 22-9a if the RX_CLK_stoppable bit is asserted"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See text from #242.

Modify the figure to show (at least) 9 cycle delay.

Cl **25** *SC* **25.3** *P* **54** *L* **9** # 95

CHOU, JOSEPH REALTEK SEMICON

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

Need to describe clearly where rx_lpi comes from and how it interact with PMD sublayer.

SuggestedRemedy

The signal rx_lpi comes from PCS sublayer and is defined as the primitive PMA_RXLPI.request (rx_lpi).
It is generated by PCS is intended to pass to PMD sublayer to control the duration of Signal_Detect assertion and deassertion time. Modify Table 25-1 (by adding this primitive), subclause 25.4.11.3, and 25.4.11.4 to clarify the functions.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.2.3a** *P* **96** *L* **52** # 96

Koenen, David Hewlett Packard

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

Should bit 1.1.4 indicat the the transmit PFA/PMD is currently transmitting low power idles signal instead of receiving them?

SuggestedRemedy

Change "receiving" to "transmitting" in this paragraph.

Response *Response Status* **C**

REJECT.

This is a matter of semantic preference. The sublayer is receiving and transmitting low power idles. The current wording is unambiguous, so the editor suggests no change is necessary.

Cl **45** *SC* **Table 45-145** *P* **98** *L* **18** # 97

Koenen, David Hewlett Packard

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

Missing support for 1000Base-KX. Please add to table.

SuggestedRemedy

Change definition of bit 7.60.4 to read:

1000BASE-KX | 1 = EEE is supported for 1000BASE-KX | R/W
| 0 = EEE is not supported for 1000BASE-KX |

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.7.13a** *P* **98** *L* **40** # 98

Koenen, David Hewlett Packard

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

Missing section on definition for 1000BASE-KX, please add.

SuggestedRemedy

Add a section under 45.2.7.13a for

"1000BASE-KX EEE Supported (7.60.4)"

If the device supports EEE operation for 1000BASE-KX as defined in 70.3a, and EEE operation is desired, this bit shall be set to 1.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **Table 45-146** *P* **99** *L* **31** # 99

Koenen, David Hewlett Packard

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

Support for 1000BASE-KX in the EEE mode control register.

SuggestedRemedy

For bit 7.62.2 Change to:

1000BASE-KX | 1 = Reduced energy refresh for 1000BASE-KX LPI | R/W
| 0 = Normal engergy refresh for 1000BASE-KX LPI |

Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **45** *SC* **45.2.7.15a** *P* **100** *L* **12** # 100

Koenen, David Hewlett Packard

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

Need to add description for 1000BASE-KX reduced energy bit

SuggestedRemedy

Add the following section in 45.2.7.15a:

1000BASE-KX reduced energy (7.62.2)

If the device supports reduced energy refresh cycle for 1000BASE-KX LPI as define in 70.3.x, this bit shall be set to 1. If this bit is set for both the local device and the link partner then both shall operate LPI using the reduced energy method.

Response *Response Status* **C**

REJECT.

Withdrawn by commenter

Cl **45** *SC* **45.2.7.15a** *P* **100** *L* # 101

Koenen, David Hewlett Packard

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

Several paragraphs have duplicate "the the" in the last sentence.

SuggestedRemedy

Fix.

Response *Response Status* **C**

ACCEPT.

ACCEPT ACCEPT.

Cl **78** *SC* **78.1.2** *P* **188** *L* **35** # 102

Koenen, David Hewlett Packard

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

Missing 1000BASE-KX PHY in objectives.

SuggestedRemedy

Add 1000BASE-KX to a sub-bullet under a.)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #249

Cl **78** *SC* **78.1.3** *P* **189** *L* **1** # 103

Koenen, David Hewlett Packard

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

Capitalize Low Power mode.

SuggestedRemedy

Change from low to Low.

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.3** *P* **189** *L* **39** # 104

Koenen, David Hewlett Packard

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

Make case for signal names in paragraph 78.1.3 consistance with definitions in 78.2.2.

SuggestedRemedy

Make signal name case consistant for:
LP_SLEEP & LP_WAKE

Response *Response Status* **C**

ACCEPT.

"LP_SLEEP" will be replaced with "LP_Sleep"
"LP_WAKE" will be replaced with "LP_Wake"

Cl **78** *SC* **78.3** *P* **191** *L* **46** # 105

Koenen, David Hewlett Packard

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

Paragraph should include backplane PHYs: KX, KX4, KR for Auto-Negotiation.

SuggestedRemedy

Include sentence for backplane PHY's Autonegotiation method. Allow editor to include as they see fit.

Response *Response Status* **C**

ACCEPT.

Editor will include clause 73 AN overview to cover backplane PHY's.

Cl **78** *SC* **78.3** *P* **102** *L* **1** # 106

Koenen, David Hewlett Packard

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

Many typos and grammatical errors in top paragraph, looks rushed.

SuggestedRemedy

Fix grammatical errors as editor sees fit to do so.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See reponses to comments ## 253, 254.

Editor would appreciate more constructive approach - comment-wise and suggested remedy as one - next time around.

Cl **78** *SC* **78.4.2.2** *P* **193** *L* **47** # 107

Hajduczenia, Marek ZTE Corporation

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

"Receive Tw_sys, 2 octets, is the time, in microseconds, that the system is requesting that the link partner wait before it starts to transmit data following Low Power Idle." poor English ...

SuggestedRemedy

Change to "Receive Tw_sys (2 octets wide) is the time (expressed in microseconds) that the system is requesting the link partner to wait before it starts transmitting data following the Low Power Idle."

Response *Response Status* **C**

ACCEPT.

Cl **70** *SC* **70.6.10.2** *P* **152** *L* **7** # 108

Hajduczenia, Marek ZTE Corporation

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

On page 152 there are two tables without numbers and without indication whether they modify any existing table or are completely new tables

SuggestedRemedy

Either add titles and reference them in the text, or point to table which they replace / modify.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor will add proper table title & number and provide introductory sentence or paragraph to reference the table.

Cl **72** *SC* **72.6.11.4.1** *P* **179** *L* **31** # 109

Hajduczenia, Marek ZTE Corporation

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

Missing space between definitions of "tx_ts_timer_done" and "wake_alert" blocks. Please insert it

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.2.2** *P* **191** *L* **19** # 110

Hajduczenia, Marek ZTE Corporation

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

This subclause is said to define certain codewords and signals. It would be nice to provide a reader with references to locations where they are defined / described.

SuggestedRemedy

As per comment

Response *Response Status* **C**

REJECT.

Comment is not clear. It is about of referencing reader to the associated subclauses where 78.2.2 definitions appear first?

Cl **78** *SC* **78.4.2.1** *P* **193** *L* **40** # 111

Hajduczenia, Marek ZTE Corporation

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

"Transmit Tw_sys, 2 octets, is the time, in microseconds, that the system is capable of waiting before it starts to transmit data following Low Power Idle." poor English ...

SuggestedRemedy

Change to "Transmit Tw_sys (2 octets wide) is the time (expressed in microseconds) that the system is capable of waiting before it starts transmitting data following the Low Power Idle."

Response *Response Status* **C**

ACCEPT.

Cl **71** *SC* **71.3a** *P* **160** *L* **4** # 112

Hajduczenia, Marek ZTE Corporation

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

Unresolved references "48.2.x", "71.6.x", "71.6.x", "70.6.x". Need to be resolved to a specific location in the draft or any other specification.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

References will be resolved.

Cl **00** *SC* **0** *P* **00** *L* **00** # 113

Hajduczenia, Marek ZTE Corporation

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

File 3av_0811_hajduczenia_1.pdf contains a series of minor editorial changes, style alignments, etc. Putting them into separate comments is pointless. Please consider the etorial changes proposed therein.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Cl **00** *SC* **0** *P* **11** *L* **7** # 114

Hajduczenia, Marek ZTE Corporation

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

802.3av extended the list of special symbols and operators. You might want to include the latest version. I am not sure whether it is already published, though please contact Glen Kramer for a copy.

SuggestedRemedy

Update the list of special symbols and operators as per changes introduced in P802.3av.

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.3a** *P* **171** *L* **50** # 115

Hajduczenia, Marek ZTE Corporation

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

I think it is not very common to use "a" and "b" in the subclause numbers.
There are other locations in the draft where a similar comment would apply.

SuggestedRemedy

Please avoid using "a" and "b" in subclause numbers. Either create one major subclause and then create two lower level ones or change "72.3a PCS requirements for Low Power Idle" to "72.4 PCS requirements for Low Power Idle" and "72.3b PMA requirements for Low Power Idle" to "72.5 PMA requirements for Low Power Idle", renumbering the remaining subclauses appropriately.

Response *Response Status* **C**

REJECT.

Cl **00** *SC* **0** *P* **00** *L* **0** # 116

Hajduczenia, Marek ZTE Corporation

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

Term "Low Power Idle" is used heavily in this document, making it an ideal target for inclusion in the list of abbreviations (1.5)

SuggestedRemedy

Add "LPI<tab>Low Power Idle" to Subclause 1.5. Create 1.5 as necessary.

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.6.4** *P* **173** *L* **1** # 117

Hajduczenia, Marek ZTE Corporation

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

Table 72-3 cuts into a block of text. Beat on Frame and avoid doing that.
Either divide the section into two paragraphs or enable orphan control and make sure the table is not aligned to the top of the page.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Those type of edits will be performed when all sections are re-numbered.

Cl **72** *SC* **72.6.4a** *P* **173** *L* **32** # 118

Hajduczenia, Marek ZTE Corporation

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

Simplyfing "is used as an indicator of signal presence." to "is used to indicate signal presence.".
Also applicable on:
page 151, line 20
page 161, line 31

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.6.11.4.1** *P* **178** *L* **1** # 119

Hajduczenia, Marek ZTE Corporation

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

(1) I have not found any precedence for the use of term "enumerated variable". There are some use cases in 802.3-2008 though in the management section and all possible values are enumerated and described. Is the list of possible values complete or any other values can be asserted ?
(2) what is a "variant" variable ? This terms is somehow alien to me in the context of 802.3

SuggestedRemedy

(1) clarify the use of "enumerated variables"
(2) define what a "variant variable" is ...

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Will drop "enumerated" and "variant" as qualifiers to the variables

Cl **72** *SC* **72.6.11.4.1** *P* **179** *L* **12** # 120

Hajduczenia, Marek ZTE Corporation

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

"A variant variable that contains the state of the transmitters current coefficient values and other values." this sentence is way off the edge. Please clarify it, define "other values" are

SuggestedRemedy

As per comment.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Cl **72** *SC* **72.6.11.4.3** *P* **180** *L* **9** # 121

Hajduczenia, Marek ZTE Corporation

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

"This counter counts the number of training frames during the training frames sent." - this sentence is either incomplete or I am missing something.

SuggestedRemedy

Either complete the sentence or clarify it.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Will change to:

"This counter counts the number of training frames sent during the TX_WAKE and REFRESH states.

Cl **00** *SC* **0** *P* **00** *L* **0** # 122

Hajduczenia, Marek ZTE Corporation

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

Figures in this draft contain "<=" characters instead of proper "Assignment operator", which can be found in the Symbols' table.
Affected figures 71-1, 71-2, 72-1, 72-2, 70-1, 70-2 (problem spots marked in the 3az_0811_hajduczenia_1.pdf)

SuggestedRemedy

Please check all the newly added / modified figures and replace "<=" characters with the proper "Assignment operator", which can be found in the Symbols' table.

Response *Response Status* **C**

ACCEPT.

Editor will use symbol instead of "<=".

Cl **72** *SC* **72.7.4.4** *P* **187** *L* **29** # 123

Hajduczenia, Marek ZTE Corporation

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

(1) Empty element CF48 in the PICS table in 72.7.4.4.
(2) missing references and descriptions for elements CF43 - CF47

SuggestedRemedy

(1) Either remove or fill in with appropriate text, if needed.
(2) correct the missing references and fill in the text descriptions, as necessary

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.1** *P* **188** *L* **22** # 124

Hajduczenia, Marek ZTE Corporation

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

"10 Megabit" should be probably "10 Mb/s". The same in line 45 on the same page.

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.1** *P* **188** *L* **23** # 125

Hajduczenia, Marek ZTE Corporation

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

"legacy" - avoid using this term. It make readers feel that the refereenced technology is outdated.

SuggestedRemedy

IMHO strike it out. It is not necessary. Can be replaced with reference to specific clause which defined 100BASE-T PHY. Search globally and eliminate any "leagy" keywords (there are in total 4 occurences in the draft, all added to the existing specifications).

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Page 188 line 23, modify sentence to read:
In addition to the above, EEE defines 10 Mb/s PHY (10BASE-Te) with reduced transmit amplitude requirements.
10BASE-Te is fully interoperable with 10BASE-T PHYs over 100 m of class D (Category 5) or better cabling. (wording may be adjusted to accommodate responses to other comments)

Page 188, near line 45, modify item (f) to read:
Define a 10 Mb/s PHY with reduced transmit amplitude requirements such that it is fully interoperable with 10BASE-T PHYs over 100 m of class D (Category 5) or better cabling to enable reduced power implementation.

Page 188, near line 48, modify item (b) to read:
Any twisted-pair and/or backplane PHY for EEE must support auto negotiation with non-EEE PHYs.

Cl **00** *SC* **0** *P* **00** *L* **0** # 126

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **A** *lp terminology*

Consistency in definitions:
"low Power Mode"
"Low Power mode"
"Low Power Mode"
Pick one and stick to it consistently ...

SuggestedRemedy

IMHO pick "Low Power Mode", add it to list of abbreviations and use "LPM" consistently to avoid repeating this term everywhere (LPM is free in 1.5 in 802.3-2008)

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Terminology will be rationalized as follows:
A) the term "state" will be used when referring to a defined state in the state diagram
B) The term "lower power mode" or "low power mode" can be used as a descriptive term to indicate that the transmitter or receiver is conserving power relative to normal operation. Normal rules of capitalization and grammar shall be followed. Don't use "Low Power Idle mode" for this purpose.
C) "Low Power Idle" will be used to refer to the signal used.

Attempting to harmonize terminology on state names, variables etc across PHY clauses is putting us in conflict with the attempt to harmonize terminology within a clause and we will emphasise consistency in naming within the clause.

Cl **00** *SC* **0** *P* **00** *L* **0** # 127

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **A** *lp terminology*

Consistency in definitions
"quiet mode"
"Quiet mode"
Pick one and stick to it consistently ...

SuggestedRemedy

IMHO, "Quiet Mode" since it is something specific to EEE and should be emphasized.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Stick with:
Quiet Mode

Cl **00** *SC* **0** *P* **00** *L* **0** # 128

Hajduczenia, Marek ZTE Corporation

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

When refering to an Idle codeword, it should be named "Idle" and not "IDLE". "Idle" is what is used currently in 802.3

SuggestedRemedy

Global search & destroy: "IDLE" > "Idle" when referring to an idle character / symbol.

Response *Response Status* **U**

REJECT.

There is inconsistent capitalization in 802.3

See:
24.2.2.1.
IDLE
The IDLE code-group, as specified in 24.2.2.1.
IDLES
A code-group pair comprised of /I/I/; /I/ as specified in 24.2.2.1.

Cl **78** *SC* **78.1.3** *P* **189** *L* **50** # 129

Hajduczenia, Marek ZTE Corporation

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

What is the difference between "Low Power Mode" and "Low Power operation" ? If none, why create two terms to refer to the same thign ?

SuggestedRemedy

As per comment.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Elliminate "Low Power operation" term, use "Low Power Mode" of operation.

Will be reconciled after discussion on terminology with editorial team

Cl **78** *SC* **78.1.3** *P* **190** *L* **22** # 130

Hajduczenia, Marek ZTE Corporation

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

Figure 78-2 has very large gaps between accompanying text and the figure. Eliminate them. Additionally, the text in the figure could be larger. It is hard to read on a print-out.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.5** *P* **194** *L* **45** # 131

Hajduczenia, Marek ZTE Corporation

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

By "defacement" do You mean "The act of damaging the appearance or surface of something" ?? I suspect it is a typo. Does not seem to make any sense in this case.

SuggestedRemedy

Change into something appropriate in this case (various, different etc.)

Response *Response Status* **U**

ACCEPT.

See response to comment #325

Cl **71** *SC* **71.6.5** *P* **160** *L* **50** # 132

Hajduczenia, Marek ZTE Corporation

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

"71.6.5 PMD lane-by-lane signal detect function during normal operations" vs "72.6.4 PMD signal detect function during normal operation"

SuggestedRemedy

Change title of 71.6.5 to read "PMD lane-by-lane signal detect function during normal operation". Need to define also what "normal operation" is ...

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Editor will change to "PMD lane-by-lane signal detect function during baseline operation".

Cl **71** *SC* **71.6.5a** *P* **161** *L* **37** # 133

Hajduczenia, Marek ZTE Corporation

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

"assertion threshold as defined in TBD" ... this TBD needs to be replaced with correct reference to the location where Signal_Detect assertion threshold is defined.
The same is true for page 161, line 43.
The same is true for page 173, line 37 & 43.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The KX4 signal detect should be similar as that defined for CX4 in clause 54.5.4.

Cl **71** *SC* **71.6.12.2** *P* **162** *L* **23** # 134

Hajduczenia, Marek ZTE Corporation

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

On page 162 and 163 there are two tables without numbers and without indication whether they modify any existing table or are completely new tables

SuggestedRemedy

Either add titles and reference them in the text, or point to table which they replace / modify.

Response *Response Status* **C**

ACCEPT.

Editor will add proper table title & number and provide introductory sentence or paragraph to reference the table.

Cl **00** *SC* **0** *P* **00** *L* **0** # 135

Hajduczenia, Marek ZTE Corporation

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

Plethora of unresolved references throughout the draft. Scrutinize the draft and update all references with xx characters in them.
Here is the list of missing references:
page 149, line 48, 53
page 150, line 1
page 154, line 48, 54
page 160, line 4, 5, 11, 14
page 163, line 7
page 165, line 20, 23
page 176, line 30
page 187, line 18, 20, 22, 24, 27

SuggestedRemedy

As per comment.

Response *Response Status* **U**

ACCEPT.

.x will be replace with actual references.

Cl **00** *SC* **0** *P* **00** *L* **0** # 136

Hajduczenia, Marek ZTE Corporation

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

There are several locations, where cross-references are not live e.g. page 149, line 49.

SuggestedRemedy

As per comment. Make all cross-references in this draft live.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

We will do this, but it will be a continuing exercise as the draft changes so the commenter is requested to maintain a vigilant eye on any non-live cross references that remain.
Editor needs help in linking crossreferences to times not in the draft but in the larger 802.3 document.

Cl **00** *SC* **0** *P* **00** *L* **0** # 137

Hajduczenia, Marek ZTE Corporation

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

There are several locations in the draft e.g. page 172, line 6, where "state machines" are referenced. Per 802.3 guidelines, there are no "state machines" but "state diagrams".

SuggestedRemedy

Global hunt & destroy: all references to "state machine" must be replaced with "state diagram".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor will perform global hunt and remove state machine and replace with either "state" or "state diagram" where appropriate.

Cl **00** *SC* **0** *P* **00** *L* **0** # 138

Hajduczenia, Marek ZTE Corporation

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

In the draft, there are several references to "<units>", e.g. page 173, line 37. What does this mean and why is it here ?

SuggestedRemedy

Either replace with appropriate units or remove altogether if it is only some editorial marker.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Will be removed

Cl **72** *SC* **72.6.11.1** *P* **176** *L* **30** # 139

Hajduczenia, Marek ZTE Corporation

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

"Auto-negotiation as described in 73.x.x.x." - some reference is missing. This missing reference is repeated several time throughout the draft. Make sure You capture them all ...

SuggestedRemedy

Update the missing reference.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor will replace with appropriate Auto-negotiation reference(s).

Cl **72** *SC* **72.6.11.2** *P* **177** *L* **0** # 140

Hajduczenia, Marek ZTE Corporation

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

On page 177, there are two tables without numbers and without indication whether they modify any existing table or are completely new tables

SuggestedRemedy

Either add titles and reference them in the text, or point to table which they replace / modify.

Response *Response Status* **C**

ACCEPT.

Editor will add proper table title & number and provide introductory sentence or paragraph to reference the table.

Cl **00** *SC* **0** *P* **00** *L* **0** # 141

Hajduczenia, Marek ZTE Corporation

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

"nsec" as a unit is not used anywehere else in the draft. "ns" is.
"usec" as a unit is not used anywehere else in the draft. "us" is.
"msec" as a unit is not used anywehere else in the draft. "ms" is.

SuggestedRemedy

Global search & destroy: replace all occurences of offending abbreviations as suggested in the comment field.

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **72.6.11.4** *P* **178** *L* **1** # 142

Hajduczenia, Marek ZTE Corporation

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

Consider usign the format of variable defintion adopted by 802.3av in D2.1, Clause 77/76. It is much more readable and presents the size of teh variable as well as potential default values.

SuggestedRemedy

As per comment

Response *Response Status* **U**

REJECT.

Cl **72** *SC* **72.6.11.4.1** *P* **178** *L* **1** # 143

Hajduczenia, Marek ZTE Corporation

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

Definitions of the variables need (probably) more careful consideration. They are given value only during the autonegotiation process. What happens if the negotation process fails ? EEE will not work ? If it will start anyway, then variables need default values.

SuggestedRemedy

Add default values to variables if under link negotation failure EEE mechanism can still operate.

Response *Response Status* **C**

REJECT.

Some of these values need to be deleted as they will not be negotiated during Auto-Neg. There is only two sets of Quiet/Refresh ratios that can be negotiated now.

If autonegotiation does not result in an operational link, management intervention is required.

Cl **78** *SC* **78.1.3** *P* **190** *L* **25** # 144

Hajduczenia, Marek ZTE Corporation

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

There is some naming inconsistency. When both link partners enter the mode, it is "synchronous". I would expect the opposite situation to be called "asynchronous" and not "asymmetric"

SuggestedRemedy

Change "asymmetric" in line 27 to read "asynchronous".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Adopt following terminology - as per resolution to comment # 39 to draft 0.9:

When link partners can only enter the Low Power Mode simultaneously, this mode is called "symmetric".
When link partners can enter the Low Power Mode independently of each other, it is called "asymmetric".

Cl **78** *SC* **78.1.4** *P* **190** *L* **33** # 145

Hajduczenia, Marek ZTE Corporation

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

"EEE defines Low power operational modes for the following six 802.3 protocols, use Table 78-1 for the associated clauses." change to "EEE defines the Low Power Mode of operation for the following six 802.3 PHYs. Table 78-1 lists the clauses associated with each PHY."

Table 78-1 does not list protocols but PHYs. Change caption of table 78-1 to read "Relation between EEE and IEEE PHYs"

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT.

"EEE defines Low power operational modes for the following six 802.3 protocols, use Table 78-1 for the associated clauses."

will be replaced by

"EEE defines the Low Power Idle mode of operation for the following six 802.3 PHYs. Table 78-1 lists the clauses associated with each PHY."

Cl **78** *SC* **78.4.1** *P* **193** *L* **11** # 146

Hajduczenia, Marek ZTE Corporation

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

(1) "shall support the EEE Type, Length, Value (TLV) defined in 78.1.2." - there are no TLVs defined in 78.1.2 as far as I can say.
(2) "the corresponding MIB objects defined in TBD" ... - TBD in a reference. Cannot resolve it in any way ...

SuggestedRemedy

(1) Update the reference to point to the appropriate location (78.4.2 ???).
(2) reslove this missing reference to some subclause

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change reference to 78.4.2.

Cross reference to Clause 30 will be added when Clause 30 is completed.

Cl **78** *SC* **78.4.2** *P* **193** *L* **18** # 147

Hajduczenia, Marek ZTE Corporation

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

The whole first paragraph is repeated from 78.4.1. Seems unnecessary, strike the first paragraph in 78.4.2

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT.

Delete the first paragraph in 78.4.2

Cl **78** *SC* **78.5** *P* **195** *L* **1** # 148

Hajduczenia, Marek ZTE Corporation

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

Table 78-2 is full of TBDs

SuggestedRemedy

Change the TBDs with at least temporary values You have been working on. Leaving TBDs sends a wrong message. You can always change these values later on if that is the TF's consensus.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

TBD will be replaced by real values after TF discussion on draft 1.0

Cl **71** *SC* **71.5** *P* **160** *L* **36** # 149

Hajduczenia, Marek ZTE Corporation

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

Comparing tables 71-2 and 72-2, it is hard to say why they have different format (one is centered, the other one left aligned) and why the added entry is named differently in both cases, if after all, it is the same. Either name it "LPI enable" or "Low Power Idle" - IMHO "LPI enable" is OK but need to add an abbreviation in section 1.5

SuggestedRemedy

As per comment.
Align the style of all tables in the draft into a consistent form.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The LPI enable will be deleted per comment #227

Table formatting may be deferred to the publication editors

Cl **71** *SC* **71.6.5** *P* **161** *L* **5** # 150

Hajduczenia, Marek ZTE Corporation

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

It is really inconsistent to use "LPI" in some places and "LP Idle" in others.

SuggestedRemedy

Replace "LP Idle" with "LPI". Add "LPI<tab>Low Power Idle" to 1.5. Make sure only the first use in the Clause of LPI is expanded i.e. has the form "Low Power Idle (LPI)". The remaining uses should be already based on the abbreviation. Scrub the whole draft

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Should be E not T.

Terminology will be cleaned up.

Cl **72** *SC* **72.7.4.2** *P* **184** *L* **30** # 151

Hajduczenia, Marek ZTE Corporation

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

TBD in FS12 in 72.7.4.2 PICS. Needs an update

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"Enters LowPower_st when requested"

Cl **55** *SC* **55.1** *P* **114** *L* **13** # 152

Tidstrom, Rick Broadcom

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

References the Energy Efficient Clause as Clause 72.

Clause 72 is titled "Physical Medium Dependent Sublayer and Baseband Medium, Type 10GBASE-KR".

SuggestedRemedy

Change from Clause 72 to Clause 78.

Clause 78 is titled "Energy Efficient Ethernet (EEE)".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.1.1** *P* **114** *L* **36** # 153

Tidstrom, Rick Broadcom

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

References the Energy Efficient Clause as Clause 72.

Clause 72 is titled "Physical Medium Dependent Sublayer and Baseband Medium, Type 10GBASE-KR".

SuggestedRemedy

Change from Clause 72 to Clause 78.

Clause 78 is titled "Energy Efficient Ethernet (EEE)".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.1.3** *P* **114** *L* **43** # 154

Tidstrom, Rick Broadcom

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

References the Energy Efficient Clause as Clause 72.

Clause 72 is titled "Physical Medium Dependent Sublayer and Baseband Medium, Type 10GBASE-KR".

SuggestedRemedy

Change from Clause 72 to Clause 78.

Clause 78 is titled "Energy Efficient Ethernet (EEE)".

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **116** *L* **24** # 155

Tidstrom, Rick Broadcom

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

The following sentence is vague with regards to how many LP_IDLE codewords are required for a transition to Low Power Idle:

"In the transmit direction the transition to the LPI transmit state is initiated by the reception of LP_IDLE codewords on the XGMII interface."

SuggestedRemedy

Change the sentence to define the number of LP_IDLE codewords required for a transition to LPI.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor will rewrite the text to make it explicit that a complete 64/65 block is required to initiate the transition.

Cl **55** *SC* **55.1.3.3** *P* **117** *L* **4** # 156

Tidstrom, Rick Broadcom

Comment Type **T** *Comment Status* **A** *55 state machine*

The senetence below indicates that the EEE Receive state machine is in the PCS.

"The EEE Receive state machine is contained in the PCS Receive function and is specified in Figure 55-TBD."

SuggestedRemedy

The EEE Receive state machine as currently defined is in the PMA sublayer.

Possible remedies:

1. Change PCS to PMA.
2. Redefine the state machine to be in the PCS.
3. The state machine location is vender determined.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Modify state diagrams as per tidstrom_2_1108.pdf

Cl **55** *SC* **55.3.5.2** *P* **128** *L* **16** # 157

Tidstrom, Rick Broadcom

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

In the Edititor's notes, the following question is asked:

"Do we need a test mode, and what should be tested?"

SuggestedRemedy

Currently, there are three test mode bits, and 8-modes defined. If test modes are required for EEE, then another test mode bit will need to be added.

Response *Response Status* **C**

ACCEPT.

If we need extra test modes then we need other test mode bits.

At least one presentation on test modes will be made at the November meeting.

Cl **55** *SC* **55.3.5.4** *P* **132** *L* **1** # 158

Tidstrom, Rick Broadcom

Comment Type **TR** *Comment Status* **A** *55 sync*

The state machines in the current draft have a hole with regards to the synchronization of a link partners. The state machines will not be updated upon resolution of this draft.

SuggestedRemedy

The details for resolution of this issue to be submitted in a presentation for the November Plenary meeting.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to Comment #310

Cl **35** *SC* **35.2.2.9a** *P* **69** *L* **32** # 159

Hajduczenia, Marek ZTE Corporation

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

Missing reference in "as shown in .... if"

SuggestedRemedy

Provide the missing reference

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See #206

Cl **36** *SC* **36** *P* **72** *L* **1** # 160

Hajduczenia, Marek ZTE Corporation

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

Extra bracket at the end of title in clause 36.

SuggestedRemedy

Remove it

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.3.4** *P* **84** *L* **1** # 161

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **A** *40_svc_to_humanity*

Figure 40-10a has several problems as marked in 3az_0811_hajduczenia_3.pdf
Make sure
(1) lines do not cross (hard to guess which goes where) - see Figure 76-20 in 802.3av D2.1 for an example of how to solve it in a clear manner
(2) lines are not broken in the middle
(3) arrows do not meet as it happens on the left side of the figure (marked with a red box)
Similar problems also exist in Figure 40-15a on page 89

SuggestedRemedy

As per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
The referenced figures are largely as they appear in the current revision of IEEE Std. 802.3. The modifications required to realize optional Energy Efficient Ethernet features were minor in nature.

We will do our best to make sure the changes made to these figures are implemented carefully and follow style guidelines as closely as possible but will not undertake large scale changes as they create the opportunity for errors to creep in.

See also comment #162.

Cl **40** *SC* **40.4.6.2** *P* **91** *L* **1** # 162

Hajduczenia, Marek ZTE Corporation

Comment Type **ER** *Comment Status* **A** *40_svc_to_humanity*

Figure 40-16a has some problems:
(1) arrows should not meet as marked in 3az_0811_hajduczenia_3.pdf (red box)
(2) NOTEs are too close to each other and become hard to read when printed - add some space

SuggestedRemedy

As per comment

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Refer to #161.

Cl **40** *SC* **40.5.1.1** *P* **91** *L* **50** # 163

Hajduczenia, Marek ZTE Corporation

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

Table 40-4 is empty

SuggestedRemedy

Any contents will be inserted after this recirculation ? This comment is to make sure You do not miss it ...

Response *Response Status* **U**

ACCEPT.
Refer to #212
Subject to management being stable enough to populate the table.

Cl **40** *SC* **40.12** *P* **93** *L* **1** # 164

Hajduczenia, Marek ZTE Corporation

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

This comment is to make sure You do not forget to fill in PICS for clause 40

SuggestedRemedy

As per comment.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
PICS will be entered per Draft 1.0 and the adopted responses to comments against Draft 1.0.

Cl **45** *SC* **45.2.7.15a.2** *P* **100** *L* **1** # 165

Hajduczenia, Marek ZTE Corporation

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

Missign references in 45.2.7.15a.2, 45.2.7.15a.3, 45.2.7.15a.4 and 45.2.7.15a.5 - define them and provide explicitly.

SuggestedRemedy

As per comment

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

There is no function to reference, therefore the registers should be deleted. See #216

Cl **45** *SC* **45** *P* **101** *L* **1** # 166

Hajduczenia, Marek ZTE Corporation

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

This comment is to make sure You do not forget to fill in PICS for clause 45

SuggestedRemedy

As per comment

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

The editor's note indicates we will fill in the PICS

Cl **00** *SC* **0** *P* **00** *L* **0** # 167

Hajduczenia, Marek ZTE Corporation

Comment Type **T** *Comment Status* **A** *lp terminology*

Term clutter
I already saw "low power idle mode", "low power state", "low power idle state", "low power mode" etc. Do all of these refer to the same thing ? If so, why have several names for the same thing ? Scrub the draft accordingly

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Editors will rationalize terminology

Cl **46** *SC* **46.3.1.2** *P* **103** *L* **40** # 168

Hajduczenia, Marek ZTE Corporation

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

Text says "In the absence of errors or low power idle," but should probably say "In the absence of errors and low power idle,", since TXC
signals are de-asserted by the RS for each octet of the preamble only when there is no transmission going on
Similar comment on page 105, line 26.

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The commenter is correct to highlight the ambiguity, but the addition of "or low power idle" is unnecessary for that sentence. Low power idle cannot be signaled during a frame.

Change "In the absence of errors or low power idle," back to "In the absence of errors,"

Also on page 105, line 26

Cl **46** *SC* **46.3.1.5a** *P* **104** *L* **41** # 169

Hajduczenia, Marek ZTE Corporation

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

Reference missing; also on page 107, line 12

SuggestedRemedy

Please update

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See #218

Cl **25** *SC* **25.4.11.1** *P* **55** *L* **50** # 170

Hajduczenia, Marek ZTE Corporation

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

I am not sure I understand "25.4.11.1 Change to 7.1.2 "Encoder""

SuggestedRemedy

What do You want to do in here ? Please clarify. The same is applicable to page 57, line 26

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is referring to section 7.1.2 of the TP-PMD specification.

Will change title to read:
Change to TP-PMD 7.1.2

Cl **30** *SC* **30** *P* **63** *L* **1** # 171

Hajduczenia, Marek ZTE Corporation

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

Clause 30 is missing - it would be good to have at least a rough look at it before the next recirculation of the draft.

SuggestedRemedy

As per comment

Response *Response Status* **C**

ACCEPT.

Cl **35** *SC* **35** *P* **65** *L* **1** # 172

Hajduczenia, Marek ZTE Corporation

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

In clause 35, there are again references to subclauses using "a" and "b" in the number. Avoid it. Insert a new subclause if needed and call for renumbering of the remaining subclauses.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

REJECT.

IEEE Standards Association staff editors have instructed the editors of 802.3 amendments to use this approach when added clauses between existing clauses of the base document. To renumber all the clauses of the base document would open too much of the base to changes and would cause confusion about what was being changed.

The clauses will all be renumbered during the next revision, when all amendments are gathered together and brought into the main document (along with maintenance changes).

Cl **35** *SC* **35.2.2.7** *P* **68** *L* **42** # 173

Hajduczenia, Marek ZTE Corporation

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

In Table 35-2, row 4 should be marked as insertion (underlined). It is not currently

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.1.3** *P* **114** *L* **43** # 174

Taich, Dimitry Teranetics

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

1The text reads:
"10GBASE-T PHYs optionally provide support for Low Power Idle (LPI) as part of Energy Efficient Ethernet (see Clause 72). This extension allows PHYs to enter a low-power idle state of operation when the MAC requests low power operation."

Since 10GBASE-T supports assymetrical LPI operational mode PHY can enter LPI state also when Link Partner has entered LPI and sent "Sleep" signal.

SuggestedRemedy

Update text to include possibility to enter LPI mode also when Link Partner has entered LPI mode

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The text needs to clarify that the transition to LPI state can occur in transmit and receive directions.

The editor will change the text appropriately.

Cl **55** *SC* **55.5.2** *P* *L* # 175

Taich, Dimitry Teranetics

Comment Type **TR** *Comment Status* **A** *55 test modes*

We need to define additional test modes to verify:
1. Alert pattern implementation
2. LPI cycle implementation - for all possible Tr values
3. Transmit path frequency stability in LPI mode

SuggestedRemedy

See "10GBASE-T LPI Test modes" Teranetics' presentation

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Put in proposal in taich_01_1108.pdf as an editors note into the next draft inviting scrutiny.

Cl **55** *SC* **55.3.2.2.21** *P* **124** *L* **32** # 176

Taich, Dimitry Teranetics

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

Editorial comment reads:
"The process by which PCS scrambler synchronization is maintained during quiet signaling has not been specified. Simple solutions would be to freeze the scramblers during quiet. [scramblers are not used for the alert sequence]."

I suspect that freezing scramblers during Quiet Time and enabling them for Refresh/Data is unnecessary transition process sophistication and can raise yet another sync concern. Typical scramblers implementation takes virtually no power, why don't we leave them running all the time, during Quiet periods as well?

SuggestedRemedy

Editor to put specific note in the text that PCS scrambler should be running constantly and not be affected by LPI mode states/transitions

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **124** *P* *L* # 177

Taich, Dimitry Teranetics

Comment Type **TR** *Comment Status* **A** *55 thp*

THP state is not defined at the beggining of the WAKE signal Transmission.

SuggestedRemedy

At the start of each WAKE signal the THP feedback delay line shall be initialized with zeros

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Update the alert signal to that shown in tellado_01_1108.pdf

The change there will resolve this issue

Cl **55** *SC* *P* *L* # 178

Taich, Dimitry Teranetics

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

EEE is clause 78. There are multiple places in clause 53 when EEE is referenced as clause 72.

SuggestedRemedy

Update references to EEE according to the comment

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.1.3.3** *P* **116** *L* **52** # 179

Taich, Dimitry Teranetics

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

Text reads:
"The MAC is responsible for controlling transitions to and from the LPI state via XGMII signaling."

MAC is only responsible for transitions to and from LPI state of the Transmit path. Receive path operational mode depends on the Link Partner Operational Mode (Normal or LPI).

SuggestedRemedy

Update text accordingly

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.4.1.5** *P* **50** *L* **33** # 180

GUPTA, SUJAY Infosys Technologies

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

This primitive is generated by the Receive Process of PCS, when Low Power Idle mode is implemented, to
indicate that the transmitter is in Low Power Transmit state and the line is in Quiet state. See Clause 24.2.4.2 and Figure 24-8.

SuggestedRemedy

>> Should it not be the Transmit Process ,
>>the clause reference is not traceable and it makes better to refer to figure 24-4 and not 24-11 or 24-8

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.3** *P* **189** *L* **36** # 181

GUPTA, SUJAY Infosys Technologies

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

In the transmit direction entrance to Low Power mode of operation is triggered by the reception of LP_IDLE
codewords on the MAC interface.

SuggestedRemedy

It would be more clear to mention at as " .. reception of LP_IDLE
codewords on the MII interface."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

No change needs to be made

Proposed remedy is already in the text, lines 37-38 on the same page

Cl **78** *SC* **78.2.4.3** *P* **194** *L* **3** # 182

GUPTA, SUJAY Infosys Technologies

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

In each direction, the Resolved Transmit Tw_sys is the lesser of the local Transmit Tw_sys and the received
(from the link partner) Receive Tw_sys.

>> Assuming Recvd Tw_sys implies the partner may drop packets if an attempt is made to send data before the expiry of Recvd Tw_sys.
The statement here, of choosing lesser of the two, could make the peer drop packets.

SuggestedRemedy

Response *Response Status* **C**

REJECT.

Firstly, there is no remedy.

The receive Tw_sys that each LP sends to its peer is a request. Both link partners know how the negotiation will resolve in both directions, therefore if a device understands that its LP will send data after a certain delay then it can choose a sleep mode that wakes in the appropriate time to avoid packet loss.

The standard requires that all devices have the ability to wake in the minimum time, negotiation to a longer wake-up time must be limited by the least capable device.

Cl **24** *SC* **24.2.2.5** *P* **41** *L* **32** # 183

GUPTA, SUJAY Infosys Technologies

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

SLEEP state. The start of a Low Power Idle stream is indicated by a series of SLEEP code-groups
with fixed amount of time denoted

SuggestedRemedy

SLEEP state. The start of a Low Power Idle stream is indicated by a series of SLEEP code-groups
for fixed amount of time denoted

Response *Response Status* **C**

ACCEPT.

Also, use "Sleep" rather than "SLEEP"

Cl **24** *SC* **24.2.2.5** *P* **41** *L* **48** # 184

GUPTA, SUJAY Infosys Technologies

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

Upon successfully receiving SLEEP code-groups, the 100BASE-X PCS will enter Low Power Receive state
if the Energy Efficient Ethernet option is implemented.

SuggestedRemedy

Upon successfully receiving SLEEP code-groups, the 100BASE-X PCS will enter Low Power Receive state
>>(if the Energy Efficient Ethernet option is implemented.)<< this part is understood in the larger context may be omitted at frequent places.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.2.3.4** *P* **43** *L* **10** # 185

GUPTA, SUJAY Infosys Technologies

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

24.2.3.4 Timers

SuggestedRemedy

in this section all the timers description begins with ;
"In the low power receive state", this makes some defintions not so clear.
without the state diagram right next.
They could be better started off as "In the low power receive state, when it is in the Quite state... etc.."

Response *Response Status* **C**

REJECT.

Suggested remedy looks reasonable but does not seem substantially different from existing text

Cl **24** *SC* **24.2.2.5** *P* **41** *L* **41** # 186

GUPTA, SUJAY Infosys Technologies

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

c) WAKE state. At the end of the Low Power Idle state, the stream is terminated by a series of IDLE
code-groups with default or negotiated amount of time denoted by Tw.

SuggestedRemedy

c) WAKE state. At the end of the Low Power Idle state, the stream is terminated by a series of IDLE
code-groups for the default or negotiated amount of time denoted by Tw.

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.3** *P* **192** *L* **4** # 187

GUPTA, SUJAY Infosys Technologies

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

Each PHY advertises most energy-efficient combination (combination with lowest Tr/Tq ratio value) supported
and negotiates to lowest common value to ensure robust and quality link.
>> A least negotiated value would guarentee maximum power savings, is there any relation with "robust" and "quality link". If robust and link quality are meant here to be technical terms.

SuggestedRemedy

Suggest to remove it.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #236

Cl **78** *SC* **78.1.3** *P* *L* **25** # 188

GUPTA, SUJAY Infosys Technologies

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

What is the idea behind introducing the concept (of asynchronous, symmetric)? If it is relevant it would be under the scope of Control Plane, which will trigger and stop LPI.

SuggestedRemedy

Perhaps can be added as an Optional Control Plane behavior in a separate Appendix section. Further a symmetric behaviour could be better described as a scheme where both partners enter LPI (may not be at the same time) and contrary for asymmetric (If there is no relation that with both going into LPI simultaneously would cause a different behaviour other than the what is specifed in the draft elsewhere)

Response *Response Status* **U**

REJECT.

Symmetric and asymmetric modes of operations are different in their nature.

When both link partners can only enter Low Power Mode simultaneously, this mode is called symmetric. That is, after link partner-1 indicates that it is ready for Low Power Mode (by sending LP_Sleep codeword), it has to wait for link partner-2 to do the same before both can enter Low Power Mode.

On contrary, when asymmetric mode is supported, link partner-1 enters Low Power Mode immediately following LP_Sleep codeword transmission, while link partner-2 can still stay in normal operational mode.

Suggest commenter contacts Dimitry Taich to discuss this

Cl **40** *SC* **40.4.5.2** *P* **87** *L* **22** # 189

Grimwood, Michael Broadcom Corporation

Comment Type **TR** *Comment Status* **A** *40_signal_detect*

Currently, signal detect assertion and signal detect deassertion times are not specified. Timers and values needed.

SuggestedRemedy

Define signal_detect_assertion_time and a requirement that it be no longer than 0.5 µs.

Define signal_detect_deassertion_time and a requirement that it be no longer than 1.0 µs.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Refer to #82.

Cl **40** *SC* **40.4.5.2** *P* **88** *L* **6** # 190

Grimwood, Michael Broadcom Corporation

Comment Type **TR** *Comment Status* **A** *40_signal_detect*

In order to accommodate the new requirement for signal_detect_deassertion_time (comment submitted separately), the lpi_waketx_timer value needs to be modified such that (lpi_wakemz_timer - lpi_waketx_timer) >= signal_detect deassertion time. So for the minimum value of lpi_wakemz_timer (2 µs), the signal detect deassertion time must be <= 1.0 µs.

SuggestedRemedy

Change:

This timer shall have a period between 1.2 µs and 1.4 µs.

To:

This timer shall have a period between 0.8 µs and 1.0 µs.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Refer to #82.

Cl **40** *SC* **40.4.6.1** *P* **90** *L* **20** # 191

Grimwood, Michael Broadcom Corporation

Comment Type **TR** *Comment Status* **A** *40_PHY_Control*

The state diagram in figure 40-15b has an exit condition from the wake_silent state that depends on scr_status. scr_status is ambiguous and therefore this condition can lead to interoperability issues. Also, allowing the wake_silent state in LPI mode to be executed under some conditions and bypassed under others unnecessarily introduces additional combinations of state transition sequences that also can contribute to interoperability issues.

SuggestedRemedy

A presentation will be submitted proposing a remedy.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
In favor of Adopting state machine changes shown in chou_01_1108.pdf slide 6 qualified with the change on slide 11

Yes: 7
No: 1
Abstain: 11

Motion passes.

In favor of accepting the proposed response as shown below:
Yes: 6
No: 4
Abstain: 11

Motion to accept proposed response fails.

Adopt the state diagrams in healey_03_1108.pdf with the following changes:
1) Remap all transition conditions that say zero_detect to signal_detect

2) Remove the terms highlighted in blue from the quiet to wake transition in the state diagram on slide 15

3) The branch condition from update to send idle or data changes to:
loc_lpi_req = False + (rem_upd_done =False * rem_lpi_req = False)

Cl **40** *SC* **40.4.5.2** *P* **87** *L* **51** # 192

Grimwood, Michael Broadcom Corporation

Comment Type **TR** *Comment Status* **A** *40_tw_negotiation*

lpi_wake_time is specified to be less than or equal to 16 µs. However, under best-case implementation assumptions and propagation delays, it is still possible that wake can take up to 3.8 µs since this is the sum of the minimum lpi_wakemz_timer and lpi_waitwt_timer values. Therefore, the parameter range and associated allowable autonegotiation values should be constrained such that wake time is greater than or equal to 3.8 µs and less than or equal to 16 µs. Because the wake time is negotiated in 1 µs increments, the allowable range for lpi_wake_time should be 4 µs to 16 µs.

SuggestedRemedy

Change:

Duration: This timer is a negotiated parameter [add reference] not to exceed 16 µs.

To:

Duration: This timer is a negotiated parameter [add reference] with a value greater than or equal to 4 µs and less than or equal to 16 µs.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Refer to #209.

Cl **45** *SC* **45.2.7.13a** *P* **98** *L* **10** # 193

Grimwood, Michael Broadcom Corporation

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

In Table 45-145 EEE advertisement register, bit 7.60.10 is specified as "Next page Always set to 1...". Since this is always set to 1, do we need to send this indication? Recommend changing the bit to reserved for potential future use.

SuggestedRemedy

Change:

7.60.15:11 Reserved Ignore on read

To:

7.60.15:7 Reserved Ignore on read

Delete the following two rows in the table:

7.60.10 Next page Always set to 1, indicating that another page follows

7.60.9:7 Reserved Ignore on read

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.7.15a** *P* **99** *L* **23** # 194

Grimwood, Michael Broadcom Corporation

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

In Table 45-146 EEE mode control register, bit 7.62.10 is specified as "Next page Always set to 0...". Since this is always set to 0, do we need to send this indication? Recommend changing the bit to reserved for potential future use.

SuggestedRemedy

Change:

7.62.15:11 Reserved Ignore on read

To:

7.62.15:10 Reserved Ignore on read

Delete the following:

7.62.10 Next page Always set to 0, indicating that no page follows

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.52** *P* **128** *L* **8** # 195

Grimwood, Michael Broadcom Corporation

Comment Type **TR** *Comment Status* **A** *55 sync*

As pointed out in the editor's comment number 4): "If both PHYs enter LPI at the same time, how do they resolve who was the first to enter LPI in order to ensure appropriate synchronization of refresh periods? This seems to require additional signaling."

This is a critical issue to resolve. Also we need to not only resolve the "first to enter" issue, but also ensure a mechanism exists to synchronize and align refresh periods for each of the respective link partners.

SuggestedRemedy

The details for resolution of this issue to be submitted in a presentation for the November Plenary meeting.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #310

Cl **55** *SC* **55.6.3** *P* **146** *L* **39** # 196

Grimwood, Michael Broadcom Corporation

Comment Type **TR** *Comment Status* **A** *55 timer values*

The 100BASE-TX and 1000BASE-T EEE specifications include an overall maximum PHY wake time (30 us for 100BASE-TX and negotiated up to 16 us for 1000BASE-T). There is no equivalent specification for 10GBASE-T EEE.

Instead, for 10G, there is an lpi_wake_time negotiated in the range of 1 to 9 frames. However, this is not the actual wake time (Tw_phy as defined in Clause 78) as it is only a portion of the overall wake time. The Tw_PHY time and associated requirement needs to be explicit to ensure implementations meet this overall PHY wake time requirement and also to make Tw_PHY explicit for system-level implementations.

SuggestedRemedy

Add a requirement for Tw_PHY for 10GBASE-T. The details and values for this requirement to be submitted in a presentation for the November Plenary meeting.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Follow proposed changes/additions on slide 5 of grimwood_03_1108.pdf. Leave the exact naming of the terms to the discretion of the editor.

Cl **55** *SC* **3.2.2.21** *P* **124** *L* **19** # 197

Graba, Jim Broadcom

Comment Type **TR** *Comment Status* **A** *55 thp*

The first normal idle codeword in the first wake frame after an alert is likely to contain errors and should not be used as a criterion for any wake frame error detection.

SuggestedRemedy

Reword so as not to include the first idle code word after an alert in any wake frame error detection.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #177

Cl **24** *SC* **24.1.1** *P* **36** *L* **10** # 198

Barrass, Hugh Cisco

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

There is no enable for LPI.

SuggestedRemedy

Replace

"When this capability is implemented and enabled"

with

"When this capability is implemented and utilized"

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.1** *P* **36** *L* **12** # 199

Barrass, Hugh Cisco

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

This seems to indicate that 100BASE-TX is the only supported PHY - it needs to be made clearer.

SuggestedRemedy

Change

This capability is currently only supported in 100BASE-TX.

to

The only 100BASE-X PHY that supports this capability is 100BASE-TX.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.2** *P* **36** *L* **33** # 200

Barrass, Hugh Cisco

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

The use of the words "option and "mode" is misleading.

SuggestedRemedy

Change

Support the option of Energy Efficient Ethernet with the function of Low Power Idle mode as described in Clause 78 for the embodiment of 100BASE-TX.

to

Support Energy Efficient Ethernet with the optional function of Low Power Idle as described in Clause 78 for the embodiment of 100BASE-TX.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.4.1** *P* **36** *L* **53** # 201

Barrass, Hugh Cisco

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

The use of the words "optionally" and "mode" is misleading.

SuggestedRemedy

Change

Interpret and generate MII opcodes to optionally enable or disable the Low power Idle mode.

to

Interpret and generate MII opcodes to signal Low Power Idle.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Please refer to comment #2

Cl **24** *SC* **24.2.3.4** *P* **43** *L* **27** # 202

Barrass, Hugh Cisco

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

There doesn't seem to be any point in negotiating the value of the lpi_rx_tw_timer. The transmitter must wait for at least 30us before it can send data, so there's no benefit to negotiating a smaller value (and it's very small anyway). Negotiating a longer wakeup time would not allow any extra power savings as the transmitter has already started sending IDLE or /P/P/.

SuggestedRemedy

Change

This timer is set to a default value 30us and can be negotiated during Auto-negotiation or with LLDP.

to

The value of this timer is fixed to 24us.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Would like to keep the timer vaue to 30us since it is used to determine if the link fails.

Cl **25** *SC* **25.4.11** *P* **55** *L* **41** # 203

Barrass, Hugh Cisco

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

There is no enable for the LPI function.

SuggestedRemedy

Change

implemented and enabled

to

implemented

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.4.11.3** *P* **59** *L* **14** # 204

Barrass, Hugh Cisco

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

There is no enable for LPI.

SuggestedRemedy

Change "enabled" to "implemented"

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.4.11.4** *P* **59** *L* **22** # 205

Barrass, Hugh Cisco

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

There is no enable for LPI.

SuggestedRemedy

Change "enabled" to "implemented"

Response *Response Status* **C**

ACCEPT.

Cl **35** *SC* **35.2.2.9a** *P* **69** *L* **33** # 206

Barrass, Hugh Cisco

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

The editor's note indicates that a control bit is needed to indicate "clock stoppable"

SuggestedRemedy

Add a control bit in Clause 45 PCS registers (separate comment)

Change

While the PHY device is indicating low power idle the PHY device may halt the RX_CLK as shown in .... if the RX_CLK_stoppable bit is asserted [Editor's note add reference].

With

While the PHY device is indicating low power idle the PHY device may halt the RX_CLK as shown in [figure 35-9a] if and only if the RX_CLK_stoppable bit is asserted [45.2.3.1.3a].

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept the remedy for this comment, additionally replace similar paragraph in 35.2.2.6a (page 66 line 32) as follows:

Change

The MAC device may halt GTX_CLK at any time more than 9 clock cycles after the start of the low power idle state as shown in Figure 35-6a if the GTX_CLK_stoppable bit is asserted [Editor's note add reference].

With

The MAC device may halt GTX_CLK at any time more than 9 clock cycles after the start of the low power idle state as shown in Figure 35-6a if and only if the TX_CLK_stoppable bit is asserted [45.2.3.1.3a].

Cl **35** *SC* **35.2.2.4** *P* **65** *L* **48** # 207

Barrass, Hugh Cisco

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

There is no enable for LPI.

SuggestedRemedy

Replace

When LPI mode is enabled (see [Editor's note add reference]), the PHY shall interpret...

with

The PHY shall interpret...

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.1.3** *P* **74** *L* **18** # 208

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A** *40_mr_enable*

There is no enable for LPI.

SuggestedRemedy

Change

When this capability is enabled, the assertion of low power...

to

The assertion of low power...

Response *Response Status* **C**

ACCEPT.
It is true that there is no enable for low-power idle.

Cl **40** *SC* **40.4.5.2** *P* **87** *L* **51** # 209

Barrass, Hugh Cisco

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

The programmable wake timer seems to be too complex for a very small benefit.

The timer should be fixed to the smallest value that is generally acceptable.

SuggestedRemedy

Change

Duration: This timer is a negotiated parameter [add reference] not to exceed 16 us.

to

Duration: This timer shall have a period of 16 us.

Response *Response Status* **C**

ACCEPT.

See also #62.

Cl **40** *SC* **40.4.5.2** *P* **88** *L* **14** # 210

Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A** *40_tw_negotiation*

The programmable wake timer is unnecessary (addressed in a separate comment)

If the programmable wake timer is fixed to 16uS then the duration of lpi_wakemz_timer can also be fixed.

SuggestedRemedy

Change

Duration: The period of lpi_wakemz_timer is related to the resolved value of lpi_wake_timer and shall have the nominal period shown in Table 40-3

to

Duration: This timer shall have a period of 5 us.

Also, delete Table 40-3

Response *Response Status* **C**

ACCEPT.
Refer to #209.

Cl **40** *SC* **40.5.1** *P* **91** *L* **40** # 211
Barrass, Hugh Cisco

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

This clause should reference the new autonegotiation requirements for EEE.

SuggestedRemedy

Add the following:

Insert below bullet item b):

c) To negotiate Energy Efficient Ethernet capabilities as specified in 28C.12.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.5.1.1** *P* **91** *L* **50** # 212
Barrass, Hugh Cisco

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

New registers defined in 45.2.1.2 need to be added to the table

SuggestedRemedy

Add the register descriptions into the table.

Response *Response Status* **C**

ACCEPT.
Table will be filled in with Energy Efficient Ethernet management register definitions and values defined in 45.2.1.2 as modified by adopted responses to comments against Draft 1.0.

Cl **40** *SC* **40.5.1.2** *P* **92** *L* **12** # 213
Barrass, Hugh Cisco

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

New registers defined in 45.2.7 need to be added to the table

SuggestedRemedy

Add the register descriptions into the table.

Response *Response Status* **C**

ACCEPT.
Table will be filled in with Energy Efficient Ethernet next page bits and assignments defined 45.2.7 as modified by adopted responses to comments against Draft 1.0.

Cl **45** *SC* **45.2.3** *P* **97** *L* **10** # 214
Barrass, Hugh Cisco

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

A bit is required for "clock stoppable" as used in Clause 22 etc.

SuggestedRemedy

Add the following:

Change Table 45-83 to add "clock stoppable" bit

(change 3.0.10:7 Reserved to 3.0.9:7 Reserved)

Add subclause 45.2.3.1.3a

45.2.3.1.3a Clock Stoppable (3.0.10)

A PHY that supports low power idle signaling may stop the derived xMII receive clock while it is signaling low power idle in the receive direction. If bit 3.0.10 is set to 1 then the PHY may stop the receive MII clock while it is signaling low power idle otherwise it shall keep the clock active. If the PHY does not support low power idle signaing or is not able to stop the receive clock then this bit has no effect (see 22.2.2.9a, 35.2.2.9a, 46.3.2.4a).

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45** *P* **96** *L* **12** # 215
Barrass, Hugh Cisco

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

Table designation is wrong

SuggestedRemedy

Change 45-1 to 45-5

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.7.15a** *P* **99** *L* **46** # 216

Barrass, Hugh Cisco

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

The editor's note suggests that this register is a placeholder awaiting a definition for reduced energy settings in the PHY clauses. There is no such definition, therefore delete this and the link partner register.

SuggestedRemedy

Delete clause 45.2.7.15a and 45.2.7.15b (mis-numbered as 45.2.7.15a.6)

Response *Response Status* **C**

REJECT.

Cl **45** *SC* **45.2.7.15b** *P* **100** *L* **31** # 217

Barrass, Hugh Cisco

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

sub-clause is mis-numbered

SuggestedRemedy

Change 45.2.7.15a.6 to 45.2.7.15b

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.2.4a** *P* **106** *L* **12** # 218

Barrass, Hugh Cisco

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

The editor's note indicates that a control bit is needed to indicate "clock stoppable"

SuggestedRemedy

Add a control bit in Clause 45 PCS registers (separate comment)

Change

While the PHY device is indicating low power idle the PHY device may halt the RX_CLK as shown in .... if the RX_CLK_stoppable bit is asserted [Editor's note add reference].

With

While the PHY device is indicating low power idle the PHY device may halt the RX_CLK as shown in [figure 46-8a] if and only if the RX_CLK_stoppable bit is asserted [45.2.3.1.3a].

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Accept the remedy for this comment, additionally replace similar paragraph in 46.3.1.5a (page 104 line 40) as follows:

Change

The MAC device may halt TX_CLK at any time more than 128 clock cycles after the start of the low power idle state as shown in Figure 46-7a if the TX_CLK_stoppable bit is asserted [Editor's note add reference].

With

The MAC device may halt TX_CLK at any time more than 128 clock cycles after the start of the low power idle state as shown in Figure 46-7a if and only if the TX_CLK_stoppable bit is asserted [45.2.3.1.3a].

Cl **46** *SC* **46.3.1.2** *P* **103** *L* **52** # 219
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Replace

When LPI mode is enabled (see [Editor's note add reference]), the PHY shall interpret...

with

The PHY shall interpret...

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

Cl **55** *SC* **55.2.1** *P* **118** *L* **43** # 220
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
The editor's note asks a question.

The answer is that the resolution of the negotiable timer parameters will be defined in Annex 28C, no definition of the negotiation is required in this section.

SuggestedRemedy
Delete the editor's note.

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

The editor will remove the note.

[to clarify: the note was not asking whether the resolution/negotiation needs to take place in the 10GBASE-T PHY, but whether the resolved value should be passed across the Technology Dependent Interface and a definition of the parameters included in this clause].

Cl **70** *SC* **70.1** *P* **149** *L* **30** # 221
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Replace

When this capability is enabled, the assertion of low power...

with

The assertion of low power...

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

Cl **70** *SC* **70.3a** *P* **149** *L* **54** # 222
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
replace

...if the Low Power Idle feature is enabled and the PCS transmit function receives...

with

...if the PCS transmit function receives...

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

Editor will change per suggested remedy.

Cl **70** *SC* **70.5** *P* **150** *L* **27** # 223
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Delete the row from Table 70-2

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

Cl **70** *SC* **70.5** *P* **150** *L* **40** # 224
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There are separate status bits for Tx & Rx.

SuggestedRemedy
Modify Table 70-3 to match 45.2.1.2 (Table 45-5).

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

Table 70-3 will be modified to match 45.2.1.2

Cl **71** *SC* **71.1** *P* **159** *L* **10** # 225
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Replace

When this capability is enabled, the assertion of low power...

with

The assertion of low power...

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

Cl **71** *SC* **71.3a** *P* **160** *L* **10** # 226
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Replace

If the Low Power Idle feature is enabled and the PCS...

with

The PCS...

Two instances - lines 10 and 13

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

Cl **71** *SC* **71.5** *P* **160** *L* **36** # 227
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Delete the row from Table 71-2

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

Cl **71** *SC* **71.5** *P* **161** *L* **8** # 228
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There are separate status bits for Tx & Rx.

SuggestedRemedy
Modify Table 71-3 to match 45.2.1.2 (Table 45-5).

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

Table 71-3 will be modified to match Table 45-5.

Cl **72** *SC* **72.1** *P* **171** *L* **36** # 229
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Replace

When this capability is enabled, the assertion of low power...

with

The assertion of low power...

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

Cl **72** *SC* **72.3a** *P* **171** *L* **5** # 230
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Replace

If the Low Power Idle feature is enabled and the PCS...

with

The PCS...

Two instances - lines 5 and 8

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

Cl **72** *SC* **72.5** *P* **172** *L* **35** # 231
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There is no enable for LPI.

SuggestedRemedy
Delete the row from Table 72-2

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

Cl **72** *SC* **72.5** *P* **173** *L* **8** # 232
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
There are separate status bits for Tx & Rx.

SuggestedRemedy
Modify Table 71-3 to match 45.2.1.2 (Table 45-5).

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

Table 71-3 will be modified to match Table 45-5

Cl **78** *SC* **78.1.3** *P* **189** *L* **40** # 233
Barrass, Hugh Cisco

Comment Type **T** *Comment Status* **A**
Typo - 10BASE-T, should be 100BASE-TX

SuggestedRemedy
Change 10BASE-T to 100BASE-TX.

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

Cl **78** SC **78.1.4** P **190** L **41** # 234
Barrass, Hugh Cisco

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

100BASE-T - should be TX

SuggestedRemedy

Change 100BASE-T to 100BASE-TX

Response *Response Status* **C**

ACCEPT.

Cl **78** SC **78.1.5** P **190** L **45** # 235
Barrass, Hugh Cisco

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

Missing clause number

SuggestedRemedy

Insert clause number 70

Response *Response Status* **C**

ACCEPT.

Cl **78** SC **78.3** P **192** L **1** # 236
Barrass, Hugh Cisco

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

The first 2 paragraphs are incorrect.

SuggestedRemedy

Replace first 2 paragraphs of this page with

During the link establishment process, both link partners indicate their EEE capabilities. If EEE is supported by both link partners for the negotiated PHY type then the EEE function may be used independently in either direction.

The autonegotiation process uses next page messages or extended next page messages as defined in 28C.12, 28C.13 and 73A.4.

Response *Response Status* **C**

ACCEPT.

Cl **14** SC **14.3.1.2.1** P **23** L **43** # 237
Barrass, Hugh Cisco

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

"for10BASE-Te" missing space

SuggestedRemedy

Insert space after "for"

Response *Response Status* **C**

ACCEPT.

Cl **14** SC **14.4.2.1** P **27** L **3** # 238
Barrass, Hugh Cisco

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

The editor's note appears to be out of date - there are changes in the clause.

SuggestedRemedy

Delete the editor's note.

Response *Response Status* **C**

ACCEPT.

Cl **14** SC **14.8** P **27** L **22** # 239
Barrass, Hugh Cisco

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

The editor's note appears to be out of date - there are changes in the clause.

SuggestedRemedy

Delete the editor's note.

Response *Response Status* **C**

ACCEPT.

Cl **22** *SC* **22.2.2.6.a** *P* **31** *L* **23** # 240

Barrass, Hugh Cisco

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

The commenter wishes to thank the editor for rectifying the error.

The editor's note is no longer necessary.

SuggestedRemedy

Delete the editor's note.

Response *Response Status* **C**

ACCEPT.

Cl **22** *SC* **22.2.2.7** *P* **31** *L* **13** # 241

Barrass, Hugh Cisco

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

The use of "may" implies that the indication is optional. It needs to be clear that the indication is mandatory when the LPI signaling is received.

SuggestedRemedy

Replace

"While RX_DV is de-asserted, the PHY may indicate that it is receiving..."

With

"While RX_DV is de-asserted, a PHY that supports low power idle operation shall indicate that it is receiving"

Response *Response Status* **C**

ACCEPT.

Cl **22** *SC* **22.2.2.9a** *P* **33** *L* **4** # 242

Barrass, Hugh Cisco

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

The editor's note indicates that a control bit is needed to indicate "clock stoppable"

SuggestedRemedy

Add a control bit in Clause 45 PCS registers (separate comment)

Change

While the PHY device is indicating low power idle the PHY device may halt the RX_CLK as shown in .... if the RX_CLK_stoppable bit is asserted [Editor's note add reference].

With

While the PHY device is indicating low power idle the PHY device may halt the RX_CLK as shown in [figure 22-9a] if and only if the RX_CLK_stoppable bit is asserted [45.2.3.1.3a].

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Merge the resolution of this comment and #94 to produce:

While the PHY device is indicating low power idle it may halt the RX_CLK at any time more than 9 clock cycles after the start of the low power idle state as shown in [figure 22-9a] if and only if the RX_CLK_stoppable bit is asserted [45.2.3.1.3a].

Cl **00** *SC* **0** *P* *L* # 243
Bennett, Michael LBNL

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

at the risk of getting the 8-ball, I think we should be consistent about capitalization of Low Power Idle. For example:

page 30:
line 13 Low Power Idle
line 38 low power idle

page 36:
line 10 low power idle
line 33 Low Power Idle
line 53 Low power Idle

SuggestedRemedy

Use "Low Power Idle" in sentences. Use "low power idle" in labels in figures and tables.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Capitalize and use "Low Power Idle" when it is refers to a standard defined state or signal. Leave it in lower case when it is just normal English.

Also see response to comment #126 on the consensus on terminology in EEE

Cl **14** *SC* **3.1.2.1** *P* **232** *L* **43** # 244
Bennett, Michael LBNL

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

there needs to be a space between the words "for" and 10BASE-Te

SuggestedRemedy

insert a space

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate of comment #237.

Cl **25** *SC* **3** *P* **54** *L* **16** # 245
Bennett, Michael LBNL

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

The cable plant specifications for untwisted shielded pair (UTP) of TP-PMD 11.1 are actually in 25.4.6.

SuggestedRemedy

change the reference to 25.4.6

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Note: This error exists in the original text.

Cl **45** *SC* **2.7.13a** *P* **98** *L* **5** # 246
Bennett, Michael LBNL

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

there is no EEE advertisement bit definition to 1000BASE-KX in Table 45-145

SuggestedRemedy

define a bit for 1000BASE-KX EEE

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **1.7** *P* **103** *L* **25** # 247
Bennett, Michael LBNL

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

It looks like an editor's note follows the primative PLS_DATA_VALID.indication on the same line

SuggestedRemedy

move the note to it's own line

Response *Response Status* **C**

ACCEPT.

Cl **72** *SC* **6.4a** *P* **173** *L* **37** # 248

Bennett, Michael LBNL

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

the Signal_Detect units are already included so <units> should be removed. The same is true for line 41

SuggestedRemedy

remove <units> from lines 37 and 41

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **1.2** *P* **188** *L* **35** # 249

Bennett, Michael LBNL

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

The PHY ojective for 1000BASE-KX is missing

SuggestedRemedy

Insert 1000BASE-KX below objective 3) 10GBASE-T and renumber remaining objectives as shown:

4) 1000BASE-KX
5) 10GBASE-KR
6) 10GBASE-KX4

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.5** *P* **195** *L* **10** # 250

Bennett, Michael LBNL

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

In the protocol column of Table 78-2, 10GBASE-KX should be 1000BASE-KX

SuggestedRemedy

replace 10GBASE-KX with 1000BASE-KX

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **1.3** *P* **190** *L* **29** # 251

Bennett, Michael LBNL

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

We should be consistent in the use of terms such as Low Power mode (see line 25), Low Power Idle mode and EEE mode. Since the method we use to reduce energy use is called Low Power Idle, that is the term we should use.

SuggestedRemedy

replace EEE mode with Low Power Idle mode

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Low Power Idle mode will be used instead of Low Power mode.

Cl **78** *SC* **5** *P* **195** *L* **4** # 252

Bennett, Michael LBNL

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

there are no units associated with Tw_phy

SuggestedRemedy

add "nsec" after Tw_phy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

"ns" and not "nsec"

Cl **78** *SC* **3** *P* **192** *L* **1** # 253

Bennett, Michael LBNL

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

Depends should be Depending

SuggestedRemedy

Replace Depends with Depending

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **3** *P* **192** *L* **7** # 254

Bennett, Michael LBNL

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

"advertisement.See Annexes 28A and 73A on additional details" needs a space after the peroid and "on" should be "for"

SuggestedRemedy

replace "advertisement.See Annexes 28A and 73A on additional details" with

"advertisement. See Annexes 28A and 73A for additional details"

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.6.1** *P* **146** *L* # 255

Tellado, Jose Teranetics

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

Comment regarding last row of table 55-10: No need for reset PMA training. This was for inital PAM2 aquisition. The current draft claims the PAM2 PRBS33 will be continuously operating since start-up. This generates full power repeating sequence which could have EMI issues

SuggestedRemedy

Response *Response Status* **C**

ACCEPT.

See response to comment 303

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **35** # 256

Tellado, Jose Teranetics

Comment Type **T** *Comment Status* **A** *55 alert*

Comment concerning Editor note: This is an implementation detail of the rx. Alert signal is easy to detect with very low latency. Filter/timing updates per lane are happening every 128x4 frames. Making the update a couple of frames later (<<512) will have no effect

Regarding coruption of subsequent LDPC codeword:
This is implementation detail also. We will have several Wake LDPC codewords and will be transitioning rx from LPI to normal data mode. First LDPC Frame will likely be corrupted anyway and has no unique information. See presentation

SuggestedRemedy

Response *Response Status* **C**

ACCEPT.

Editor's note will be removed.

Cl **55** *SC* **55.3.2.2.21** *P* **124** *L* # 257

Tellado, Jose Teranetics

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

If link partner in LPI then offset by~1/2 LPI super-frame, othewise Master starts refresh cycle~1/2 frame after Quiet and Slv 1 frame after. This prevents case where both enter simultanously without knowing what LP is doing.

SuggestedRemedy

Response *Response Status* **C**

REJECT.

This comment was WITHDRAWN by the commenter.

More details are needed to support this comment and the synchronization mechanism. It is not clear what text is required in the standard to make this scheme work.

At least one synchronization proposal will be presented at the November meeting.

Cl **55** *SC* **55.3.2.2.21** *P* **124** *L* # 258

Tellado, Jose Teranetics

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

Comment about editor note: Make Tq+Tr = 128. This way LPI cycle period is independent of Tr and a power of 2. Less implementation headaches. Keeps multple modems in a switch allgined (otherwise random based on LP)

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor suggests changing the allowed Tq/Tr values to the following {Tq, Tr} pairs, with Tq+Tr=128

{4,124}, {8, 120}, {16, 112}, {32, 96}

Cl **55** *SC* **55.3.5.1** *P* **126** *L* # 259

Tellado, Jose Teranetics

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

-53dBm is too low. It's 58dB below the PBO=0 tx level and below tx PSD mask.

SuggestedRemedy

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Replace first sentence in 55.3.5.1 by following:
During the quiet period the transmitters on all four pairs shall be turned off. Average Launch Power (as measured 28 LDPC frames after Refresh period and 28 LDPC frames before the next Refresh period on
the same lane) for each Transmitter shall be less than -41dBm. This requirement does not apply to the periods when alert signal is transmitted as defined in Clause 55.4.2.2.1

Add editors note alerting readers to look at these numbers.

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **19** # 260

Tellado, Jose Teranetics

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

Comment concerning Editor note: Set TBD=0. No need for extra symbols.

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor will remove the requirement.

Cl **99** *SC* *P* **3** *L* **4** # 261

Diab, Wael Broadcom

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

The abstract still has a TBD for Backplane Ethernet.

SuggestedRemedy

Suggest language similar to what is already there for TP Ethernet

Response *Response Status* **C**

ACCEPT.

Cl **99** *SC* *P* **3** *L* **5** # 262

Diab, Wael Broadcom

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

The LLDP scheme is not covered in the abstract or keywords.

SuggestedRemedy

Suggest adding some language to cover LLDP in the For example: "A new LLDP TLVs is defined for negotiation system level energy efficiency parameters" and "TLV, LLDP" to the keyword list

Response *Response Status* **C**

ACCEPT.

Cl **99** *SC* *P* **7** *L* **13** # 263

Diab, Wael Broadcom

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

Font on the TF Chair and Editor seems to be smaller and different than WG officer names.

SuggestedRemedy

Please adjust font to match list above

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **5** *P* **18** *L* **1** # 264

Diab, Wael Broadcom

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

There are several abreviations that seem to be missing for example LPI

SuggestedRemedy

Please add the abbreviations

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **0** *P* *L* # 265

Diab, Wael Broadcom

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

There are several instances throughout the document where parameters are defined in multiple places, values are given in multiple places or different terminology is used for the same thing.

This can be more difficult to maintain and if there are subtle differences then it creates a potential conflict. Here are some examples:
- Table 78-2 summarizes key parameters and they are listed as TBD. However, a subset of these values are defined in the various PMD clauses that are being modified
- Section 78.1.3 overviews the LPI procedure. This text or portions of it are repeated in other places with inconsistent terminology. For instance, C78 used the terminology synchronous, while C55 uses the terminology symmteric.

SuggestedRemedy

Please consolidate to normative requirements in one place and consistant terminology. If readability is desired, a suggestion would be to make use of cross references.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Harmonization of terms will be carried out by the editorial team.

Clause 78 will contain a summary of key parameters for different PMDs but the normative text will be left to the specific PMDs

Cl **22** *SC* **Figure 22-20a** *P* **34** *L* **12** # 266

Diab, Wael Broadcom

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

As drawn, the figure seems to violate the layering conventions we use, specifically the system behaviour signals. I believe that the intent is for the system's management to be able to access LP_IDLE.request and the LP_IDLE.indicate not that there signals which are going around the MAC.

SuggestedRemedy

Please delete the system transmit and receive behaviour arrows. The management access can be explained in the text.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

See #282

The station management will be shown as the origin of these signals.

Cl **48** *SC* **2.4.2** *P* **110** *L* **18** # 267

Diab, Wael Broadcom

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

It is unclear how frequently the /D20.5/ has to be inserted for all the XGMII colums to respond LPI. Conversly, it is also unlceat how long of an absence of the /D20.5/ character for the XGMII to respond as Idle.

SuggestedRemedy

Please specify the duration / rate that the /D20.5/ character has to appear

Response *Response Status* **U**

REJECT.

The text seems to be clear. Every time the XGMII coding of TXC/TXD indicates LPI, the PCS encodes K.28.0, K28.3 or K28.5 in all columns except one (chosen randomly) that is encoded K.20.5.

There is nothing to suggest that any "rate" or "frequency" is suggested other than the XGMII clock frequency.

Cl **00** *SC* **0** *P* *L* # 268

Diab, Wael Broadcom

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

Has the TF decided how to handle TPPMD? There seems to be several references in the editor's notes that there is a possibility to pull in TPPMD. There is significant technical content in editor's notes related to this.

SuggestedRemedy

Suggest that a a decision is made on this prior to WG preview so that document can be cleaned up one way or the other.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

While we originally considered pulling TPPMD into 802.3, we were unable to find the resources to take on this task.

Editors notes indicating that we will pull in TPPMD will be removed.

Cl **01** *SC* **4** *P* **17** *L* **1** # 269

Diab, Wael Broadcom

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

There are several definitions that seem to be missing for example LPI, LPI mode wake signal, refresh signal, 10BASE-TE etc.

SuggestedRemedy

Please add the definitions

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Editors will implement this response

Cl **00** *SC* **0** *P* *L* # 270

Diab, Wael Broadcom

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

For management, we will also need to work on the contents of the C30 Annexes like 30A.

SuggestedRemedy

Please add the Annexes prior to WG ballot

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

If the 802.3.1 PAR is approved, they will take responsibility for these Annexes

Cl **78** *SC* **78.4** *P* **193** *L* **1** # 271

Diab, Wael Broadcom

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

Once 802.3bc is completed, we will need to move the new TLVs into that section of the draft C77 (and any associated Annexes).

SuggestedRemedy

Please use this comment as a placeholder to do that prior to WG ballot. I will be happy to work with the editrors as needed.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Editor will add editorial note to capture this comment

Cl **24** *SC* **24.1.1** *P* **36** *L* **13** # 272

Booth, Brad AMCC

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

Currently should not be stated. EEE only supports 100BASE-TX.

SuggestedRemedy

Remove currently from sentence.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.1** *P* **36** *L* **8** # 273

Booth, Brad AMCC

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

Sentence construct is confusing as may implies that it is optional.

SuggestedRemedy

Delete the word optionally from the sentence.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.2** *P* **36** *L* **33** # 274

Booth, Brad AMCC

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

Item g needs to be better stated to avoid confusion.

SuggestedRemedy

Change to read:
g) Optionally support Energy Efficient Ethernet as described in Clause 78.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Please refer to the remedy and response to comment #200

Cl **24** *SC* **24.1.4.1** *P* **36** *L* **53** # 275

Booth, Brad AMCC

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

Placement of optionally in e) is confusing. Needs clarification.

SuggestedRemedy

Change to read:
e) Optionally, interpret (generate) MII opcodes to enter or exit low power idle state.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Please refer to comment #2

Cl **24** *SC* **24.1.4.2** *P* **37** *L* **14** # 276

Booth, Brad AMCC

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

The PCS should avoid the statement about power reduction.

SuggestedRemedy

Change to read:
e) Optionally, receive and process low power idle state control signals from the PCS; and

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In order to make the phrase style consistent with other text, change to
"Optionally, receiving and processing low power idle state control signals from the PCS; and"

Cl **24** *SC* **24.2.2** *P* **37** *L* **39** # 277
Booth, Brad AMCC

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

Use of the term option is confusing.

SuggestedRemedy

Change to read:
The Receive process may support the low power idle state by...

Apply the change also to the Transmit:
The Transmit process may support the low power idle state by...

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Actual wording used ("mode" or "state") is subject to final consensus on terminology to be used in the EEE draft.

See response to comment #126

(note: similar change will also be made on page 39 line 1)

Cl **24** *SC* **24.1.1** *P* **36** *L* **10** # 278
Booth, Brad AMCC

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

Eliminate the use of will.

SuggestedRemedy

Change will enter to enters.

Response *Response Status* **C**

ACCEPT.

Cl **14** *SC* **14** *P* **20** *L* **6** # 279
Booth, Brad AMCC

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

I have some concern about using a lower case letter with a port type. Does the port type naming convention require upper case?

SuggestedRemedy

Change the port type from 10BASE-Te to 10BASE-TE.

Response *Response Status* **U**

REJECT.

There is not a port type naming convention defined. During an earlier meeting, this issue was discussed and the preference at that time was for using a lower case for 10BASE-Te.

Cl **14** *SC* **14.3.1.2** *P* **22** *L* **41** # 280
Booth, Brad AMCC

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

Cabling should be referred to as Class D, not class D. And the referenced specification for Class D cabling is ISO/IEC 11801.

SuggestedRemedy

Change class to Class and reference 11801.

Response *Response Status* **C**

ACCEPT.

Cl **22** *SC* **22.2.2.9a** *P* **33** *L* **4** # 281
Booth, Brad AMCC

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

Second paragraph is missing two references. RX_CLK_stoppable bit is undefined. Third paragraph is not required.

SuggestedRemedy

Change to read:
... as shown in Figure 22-9a if the...

Define RX_CLK_stoppable bit and add reference to 22.2.2.9a.

Delete third paragraph.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See resolution to #242. The third paragraph matches the style of the base document for all of the figures in this subclause.

Cl **22** *SC* **22.7.1** *P* **34** *L* **1** # 282
Booth, Brad AMCC

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

Figure 22-20a conflicts with Figure 22-3.

SuggestedRemedy

PLS_DATA.request arrow is in the wrong direction. TX_CLK and RX_CLK are missing. RX_DV mapping to PLS_DATA_VALID.indicate mapping is not shown. COL and CRS are not shown, and while not used in full duplex, they should be shown in the mapping. The LP_IDLE's should come from Station Management.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The diagram needs redrawing, with the following:

1.PLS_DATA.request arrow is in the wrong direction in Figure 22-3 in 802.3-2008 - make the change as part of this amendment as a service to humanity.

2. Add in TX_CLK and RX_CLK.

3. Add a note that RX_DV, COL & CRS mapping is unchanged and not shown.

4. The LP_IDLE's should come from Station Management.

Cl **99** *SC* **99** *P* **5** *L* **5** # 283
Booth, Brad AMCC

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

Period in front of Section Four.

SuggestedRemedy

Please remove period.

Response *Response Status* **C**

ACCEPT.

Cl **14** *SC* **14.1** *P* **20** *L* **17** # 284
Booth, Brad AMCC

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

It is misleading to refer to the 10BASE-Te as being the Energy-Efficient PHY type as this does not use the protocol described in Clause 78.

SuggestedRemedy

Remove reference to Energy-Efficient relative to 10BASE-Te and stipulate that this port type has reduced voltage range requirements.

Response *Response Status* **U**

REJECT.

10BASE-T, by its original definition, implements the low power idle concept being proposed in Clause 78.

When there is no data to send, there is no signal being transmitted.

10BASE-Te uses the same signaling method as 10BASE-T and makes it energy efficient by lowering transmit voltage range.

Cl **22** *SC* **22.2.1** *P* **30** *L* **14** # 285
Booth, Brad AMCC

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

Why is it Low Power Idle here but low power idle elsewhere in the clause.

SuggestedRemedy

The lowercase version, low power idle, should be used.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.1** *P* **36** *L* **10** # 286
Booth, Brad AMCC

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

Terms seem to be mixed up again.

SuggestedRemedy

There are various forms of low power mode, low power idle mode, Low power Idle mode, low power idle state, etc. Use the term low power idle state.

For example, ... the PHY will enter the low power idle state during periods...

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Pending on the consensus of the terminology used in EEE draft.

Cl **48** *SC* **48.2.4.2** *P* **110** *L* **18** # 291
McClellan, Brett Solarflare

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

I'm concerned about the choice to break up XAUI coded idle columns with the /D20.5/ character to indicate LPI. From my limited knowledge of the XGXS PCS receiver it appears to me that breaking the ||A|| columns will prevent the PCS from finding or maintaining column alignment and breaking the ||R|| column may prevent the PCS from performing clock rate compensation, thus causing fault conditions which would be indicated by local fault at the XGMII and requiring additional recovery time.

SuggestedRemedy

I would like to hear comment from vendors of the XGXS PCS on whether this change is of any concern. Or, if this has already been reviewed within the task force perhaps the editor can direct me to a presentation justifying the change.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See #63

Cl **55** *SC* **55.3.2.2.21** *P* **129** *L* **51** # 292
McClellan, Brett Solarflare

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

Sentence is awkward: The SLEEP signal is signaled using 9 full LDPC frames

SuggestedRemedy

The SLEEP signal uses 9 full LDPC frames

Response *Response Status* **C**

ACCEPT.

The editor will clarify the text as suggested.
Also change to "Sleep"

Cl **55** *SC* **55.3.5.2.1** *P* **131** *L* **21** # 293
Lundy, Sean Aquantia

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

lpi_quiet_period should be replaced with lpi_quiet_time

SuggestedRemedy

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.1** *P* **131** *L* **31** # 294
Lundy, Sean Aquantia

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

lpi_wake_period is not defined

SuggestedRemedy

Change to lpi_wake_time

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.4.2.2.1** *P* **143** *L* **24** # 295
Lundy, Sean Aquantia

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

PHY Frame should be LDPC Frame. This occurs on line 24 and line 25.

SuggestedRemedy

Response *Response Status* **C**

ACCEPT.

The editor will replace PHY frame with LDPC frame.

Cl **55** *SC* **55.2.2.3.1** *P* **119** *L* **10** # 296
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

Sentence is not grammatically correct

SuggestedRemedy

Remove 'and' from '..and the transmit function...'

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.1.4** *P* **118** *L* # 297
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

Figure 55-4 contains two descriptions 'dashed rectangles are used to indicate signals...'

SuggestedRemedy

Delete one description

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **Many** *P* *L* # 298
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

Sleep and SLEEP are used throughout the document. Similar capitalization for other LPI states.

See for example 55.3.2.2.21 and 55.3.5

SuggestedRemedy

Standardise on one. Suggest Sleep.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **23** # 299
Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

Active pair is not defined.

SuggestedRemedy

State that the active pair defines only which pair will be used for the next refresh.

[Some earlier alert proposals also used active pair to determine where the alert would appear but this is no longer the case].

Response *Response Status* **C**

ACCEPT.

The editor will clarify the text as suggested.

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **30** # 300
Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **R** *55 alert*

I am concerned that receivers may synchronize training to a refresh signal which is replaced by the alert sequence. In the present proposal alert is pam-2, but not precoded, and therefore cannot be used to update coefficients in the same manner as the pam-2 precoded refresh signal. Therefore the alert could corrupt coefficients / timing. This is particularly a concern if the alert replaces a refresh signal. The alert is followed immediately by PAM-16 so there is little opportunity to recover the coefficients.

[however, alert corrupts only 1 pair]

SuggestedRemedy

See presentation.

Response *Response Status* **C**

REJECT.
withdrawn by commenter
No presentation was submitted

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **30** # 301
Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *55 alert*

What happens if an alert occurs at the same time as a refresh on another pair? None of the proposals make clear whether this refresh is transmitted or not.

If the refresh is not transmitted, this could cause problems with adaptive filters, which are expecting valid PAM-2 precoded data at that time.

SuggestedRemedy

See presentation

Response *Response Status* **C**

ACCEPT.

Resolved by change made in response to comment #177

When an alert occurs, the refresh transmission should be halted on all lanes.

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **40** # 302

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *55 sync*

This paragraph is vague.

Imprecise synchronization could limit power savings opportunity, make testing more difficult and cause interoperability problems.

See also items 4) and 5) on page 128

SuggestedRemedy

Use the synchronization scheme proposed in presentation submitted to the November meeting.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment # 310

Cl **55** *SC* **55.3.5.2** *P* **128** *L* **12** # 303

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

Editor's note recommends that we require LPI capable PHYs to support the long LFSR PAM-2 training sequence.

This seems sensible, as it reduces the number of options in the standard.

SuggestedRemedy

Make it a requirement that LPI capable PHYs support the long LFSR PAM-2 training sequence.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor will add a requirement that EEE capable PHYs shall support the long LFSR PAM-2 training sequence after initial training. The long LFSR training sequence will be used for refresh signals during the LPI state. It is not a requirement that EEE capable PHYs use the long LFSR sequence during initial training.
The long LFSR sequence starts at the PAM2/PAM16 boundary for cases where the long LFSR sequence is not used during startup.

Cl **55** *SC* **55.3.5.2** *P* **129** *L* **42** # 304

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

tx_lpi_state_active should be defined more rigorously.

When does the LPI state start and end ?

SuggestedRemedy

Define that the LPI state begins immediately after the sleep finishes and lasts until the alert is sent (on the tx side) / detected (on the rx side).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor will clarify that the LPI state begins immediately after the sleep finishes and lasts until the alert is sent completely (on the transmit side) and on the receive side lasts from when the sleep is detected until the alert is detected.

Cl **55** *SC* **55.3.5.2.1** *P* **131** *L* **632** # 305

Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The timer names do not match those used in other clauses (e.g. Clause 40).

Though this is unavoidable to some extent, it can be improved.

SuggestedRemedy

Replace lpi_tx_phy_wake_timer with lpi_wake_timer

There may be other similar changes.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor will attempt to match terms as much as possible in next draft.

Cl **55** SC **55.3.5.4** P **133** L # 306
Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *55 state diagrams*

The state diagrams are old.

They should be updated.

SuggestedRemedy

See presentation at November meeting

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #156

Cl **55** SC **55.3.5.4** P **135** L # 307
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The dashed box linestyle does in the proposed Figure 55-15 does not match that in the proposed Figure 55-17 on page 137.

Several figures are missing text specifying that the transitions/states in the dashed boxes are for EEE capable PHYs only

SuggestedRemedy

Use the linestyle on page 137 throughout the text for eee states.

Add text to the figures.

Response *Response Status* **C**

ACCEPT.

Cl **55** SC **55.3.5.4** P **140** L # 308
Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *55 state diagrams*

Proposed Figure 55-9

This state machine should not be in the PCS. Move it to the PMA.

The wake state is not required.

SuggestedRemedy

See presentation.

Move the state machine into the PMA Rx, remove the wake state.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #156

Cl **55** SC P L # 309
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

General.

Check capitalization of auto-negotiation

SuggestedRemedy

Use a consistent capitalization.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2** *P* **139** *L* # 310

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *55 sync*

Proposed Figure 55-19

With the current state machine the sleep signal could be sent for 9 or 10 frames [since up to 1 complete frame could be transmitted in state TX_NORMAL].

The last sleep frame may not be detected by the PCS if it powers down the PMA as soon as it detects sleep.

If the end of the sleep signal is used to time refreshes then this ambiguity needs to be eliminated. There is still an ambiguity if the start of the sleep signal is used to time refreshes.

SuggestedRemedy

Use the synchronization mechanism described in the submitted presentation.

If the synchronizatioin mechanism depends on timing based on the sleep signal then this problem needs to be solved another way.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the synchronization mechanism as per parnaby_1_1108.pdf

---

Cl **55** *SC* **55.1.3.1** *P* **116** *L* **11** # 311

Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The PMA supports both a low power idle transmit state and a low power idle receive state. The current statement suggests there is only one PMA low power idle state.

SuggestedRemedy

Change the text to '...the PMA supports a low power idle transmit state and a low power idle receive state.'

Response *Response Status* **C**

ACCEPT.

The editor will rewrite the text to make the transmit and receive states clear.

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **24** # 312

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

The clause does not define what quiet means for a non-active pair.

SuggestedRemedy

State that pairs that are not transmitting the refresh signal must meet the tx power requirements of clause 55.3.5.1, except if the alert signal is being transmitted.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2** *P* **126** *L* **37** # 313

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **R** *55 thp*

The editor's note states that the non-THP encoded signal could corrupt following symbols.

If we require that the delay line of the THP is initialized appropriately then this problem goes away. [this initialization is required during link training so the capability already exists].

SuggestedRemedy

Require that the delay line of the THP is initialized during the alert signal.

Response *Response Status* **C**

REJECT.

Issue gets resolved by change made to resolve comment #177

Cl **55** *SC* **55.3.5.2.2** *P* **129** *L* **52** # 314

Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The definition suggests that the request goes away once the PHY transitions to LPI state.

SuggestedRemedy

Rewrite :

'Set to True when the MAC is requesting that the PHY operate in the LPI transmit state.'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Cl **55** *SC* **55.3.5.2.1** *P* **131** *L* **21** # 315
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The lpi_tx_refresh_timer is defined as using a period equal to lpi_quiet_period LDPC frames. This is incorrect.

SuggestedRemedy

State that the lpi_tx_refresh_timer uses a period equal to lpi_refresh_period LDPC frames.

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.4** *P* **133** *L* # 316
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The symbols in the state diagrams are not correct (see page 11 of the draft).
This applies to pages pages 136, 139, 140,141.

SuggestedRemedy

Ensure that the state diagrams use the symbol set described on page 11.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor will check the state diagrams and update them to use the appropriate symbols.

Cl **55** *SC* **55.3.5.4** *P* **135** *L* # 317
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The transitions from the TX_INIT block cross inappropriately.

SuggestedRemedy

Redraw the transition lines so that they do not cross.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

New state diagrams will be presented at the November meeting.

Cl **55** *SC* **55.3.5.4** *P* **138** *L* # 318
Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *55 state diagrams*

The transition out of RX_W should not be 'R_TYPE(rx_coded)=C', since in this case the state machine can exit back to data mode with an error condition.

SuggestedRemedy

The transition should be R_TYPE(rx_coded) = I

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #156

Cl **55** *SC* **55.3.5.4** *P* **132** *L* **14** # 319
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The editor's comment looks for a better way to detect C but not L or I.

SuggestedRemedy

Describe it as a member of C and not /I/ and not /L/

Response *Response Status* **C**

ACCEPT.

Cl **55** *SC* **55.3.5.2.2** *P* **129** *L* **51** # 320
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The text refers to low power idle mode; everywhere else it is described as a state.
Furthermore the text does not state whether this is a transmit or a receive lpi state.

Same for rx_lpi_req

SuggestedRemedy

Change mode to state. Clarify that the state is the low power idle transmit state for tx_lpi_reg.
Clarify that the state is the low power idle receive state for rx_lpi_reg.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

[The editor assumes tx_lpi_reg is a typo for tx_lpi_req.]

Cl **55** *SC* **55.6.3** *P* **146** *L* **39** # 321

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **R** *55 timer values*

According to this text, lpi_wake_time is chosen from 1 to 9 PHY frames.

I think we need to look closely at this requirement, to ensure that in the worst conditions PHYs are able to return to an error free PAM-16 data mode after the wake frames, without compromising PHY and system power savings.

The exact requirements for this parameter are dependent on Tq/Tr/ frequency drift limits.

SuggestedRemedy

Increase the number of frames allowed for the wake time.
Exact number TBD, needs more discussion.

A presentation will be submitted for the November meeting.

Response *Response Status* **C**

REJECT.
No presentation submitted by presenter.
Withdrawn by presenter

Cl **78** *SC* **78.2.3** *P* **191** *L* **37** # 322

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

Tw_Phy as defined does not match the description in Clause 55.

The first idles transmitted on the MDI do not indicate that real data is capable of being transmitted. My understanding was that the first idles are the wake signal, during which time it is guaranteed that idles are transmitted by the MAC and no data may be sent.

Also, in clause 55, the wake time is defined as the time the wake signal is sent.

Why does the definition here include the MDI interface?

SuggestedRemedy

Define Tw_PHY as the time between IDLE appearing on the XGMII interface and when the the first codewords on the XGMII are guaranteed to be received by the remote PHY, assuming error-free operation.

Clarify definition of wake time / phy wake time.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Agree in general, Tw_PHY should be defined as period of time between reception IDLE signal on xxMII interface and moment PHY is ready to transmit Data.

Define Tw_PHY as the time between IDLE appearing on the xxMII interface and when the first data codewords are permitted on the xxMII.

Cl **78** *SC* **78.4.2.1** *P* **193** *L* **40** # 323

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

The minimum system wake time also needs to be bounded.

e.g. for 10GBASE-t the minimum wake has to allow for sleep, alert, phy wake at a minimum before data will be passed. [this is at least 9+4+1=14 LDPC frames with the current draft]

SuggestedRemedy

Add a description of the minimum wake time for each PHY type.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This is good point - but these parameters are not necessarily negotiable but rather fixed per each PHY type. Thus they should be defined first in the appropriate Clauses and then reflected in the subclause 78.5

Cl **78** *SC* **78.4.2.4** *P* **194** *L* **29** # 324

Parnaby, Gavin Solarflare Communica

Comment Type **T** *Comment Status* **A** *Late email*

The sentence regarding refresh duty cycle changes is very vague.

What is 'reasonably sure'?

In 10GBASE-T the timing of this parameter change is critical.

SuggestedRemedy

Clarify when the parameter change takes place on the link; is it only after a link retrain?

If there is another case, it may be problematic to time the change on both sides of the link.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Paragraph 78.4.2.5 will be modified as following:

1) Sending 4 LLDP frames will be a mandatory requirement
2) Systems shall not initiate transition to LPI state within a 10sec period following sending or receiving LLDP frames that change any LPI parameters.
3) LLDP frames with parameter change requests can be sent during active period only
4) It will be clarified that LPI request within a 10sec period after an LLDP request will use the prior set of parameters that is in place.

The earlier part of the paragraph recommends sending at least 4 LLDP messages to ensure that the link partner has received them.

Also, none of these parameters have any effect unless LPI is being asserted therefore it seems clear that the new parameters will be used during the next assertion of LPI. LLDP messages cannot be sent when LPI is being asserted.

Cl **78** *SC* **78.5** *P* **194** *L* **45** # 325

Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

'The maximal PHY recovery time is defacement for different protocols' seems to be a typo.

SuggestedRemedy

change to 'A maximum PHY recovery time is defined for each physical protocol'

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.1.4** *P* **190** *L* **33** # 326

Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

There are 7 protocols listed in the table. The text says 6 protocols.

SuggestedRemedy

Change text to '...the following seven...'

Response *Response Status* **C**

ACCEPT.

Cl **78** *SC* **78.2.1** *P* **191** *L* **6** # 327
Parnaby, Gavin Solarflare Communica

Comment Type **E** *Comment Status* **A** *Late email*

The subclause defines an LPI state. For PHYs that support asymmetric lpi, there are lpi transmit and receive states.

SuggestedRemedy

Add LowPowerTx_st and LowPowerRx_st to the description, for PHYs that support asymmetric LPI states.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.2.3.4** *P* **43** *L* **22** # 328
Dove, Daniel ProCurve Networking

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

Spelling - continuos

SuggestedRemedy

Spelling - change continuos to continuous.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.2.3.4** *P* **43** *L* **43** # 329
Dove, Daniel ProCurve Networking

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

Grammar: "is waked up"

SuggestedRemedy

Change to "is woken up"

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.4.11.1** *P* **57** *L* **16** # 330
Dove, Daniel ProCurve Networking

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

Figure 25-1 has a spelling error in the PLUS_V state. "Positove"

SuggestedRemedy

Change to "Positive"

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.6.1** *P* **88** *L* **44** # 331
Dove, Daniel ProCurve Networking

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

Spelling

SuggestedRemedy

Change "PHY Contrl" to "PHY Control"

Response *Response Status* **C**

ACCEPT.

Corrected multiple mis-spellings in the change instructions

Cl **48** *SC* **48.2.4.2** *P* **110** *L* **12** # 332
Dove, Daniel ProCurve Networking

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

There is and Angstrom symbol in the text

SuggestedRemedy

Replace with proper symbol which I believe is an "@".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace with +/- symbol.

Good catch

Cl **46** *SC* **46.3.2.4a** *P* **107** *L* **20** # 333

Dove, Daniel ProCurve Networking

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

Figure 46-8a shows wake time being 4 bit times long

SuggestedRemedy

Insert squiggly "some time later" symbols into the figure to indicate that the time duration of wake time is variable.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.1.5a** *P* **105** *L* **6** # 334

Dove, Daniel ProCurve Networking

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

Figure 46-7a shows wake time being 4 bit times long

SuggestedRemedy

Insert squiggly "some time later" symbols into the figure to indicate that the time duration of wake time is variable.

Response *Response Status* **C**

ACCEPT.

Cl **25** *SC* **25.4.11.5** *P* **60** *L* **19** # 335

Dove, Daniel ProCurve Networking

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

Table values for Assert Time and Deassert Time are set to 5uS. These periods of time are inconsistent with the Assert Threshold of 1000mV pk/pk and the Deassert Threshold of 200mV.

Those thresholds apply for 350uS because the 100BASE-T encoding of IDLE guarantees a "fat pulse" (pulse duration of 10 bits) will arrive at the receiver in this timeframe.

If we are to reduce the Assert/Deassert times, we cannot guantee the "fat pulse" arrival any more, and need to change the thresholds.

SuggestedRemedy

Since we want to keep the 5uS timers, my recommendation is to analyze the amplitude requirements and change the Assert/Deassert thresholds

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Note: Will add the following statements and modify Table 25-3.

25.4.11.6 Changes to 10.1.1.1 "Signal_Detect assertion threshold"

The TP-PMD subclause 10.1.1.1 is applicable during the normal operation. During the Low Power Idle mode, when rx_lpi is asserted, Signal_Detect shall be asserted per 25.4.11.3 for any valid peak to peak signal, VSDA, of >400 mV.

25.4.11.7 Changes to 10.1.1.2 "Signal_Detect deassertion threshold"

The TP-PMD subclause 10.1.1.2 is applicable during the normal operation. During the Low Power Idle mode, when rx_lpi is deasserted, Signal_Detect shall be deasserted per 25.4.11.4 for any valid peak to peak signal, VSDA, of <200 mV.

Add editors note saying: Further analysis of hysteresis is required to make sure that transients of signal turning off do not trigger the thresholds.

Cl **35** *SC* **35.2.2.6a** *P* **67** *L* **12** # 336

Dove, Daniel ProCurve Networking

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

Incorrect code shown in TXD[7:0]

SuggestedRemedy

Change from "0001" to "01"

Response *Response Status* **C**

ACCEPT.

Cl **48** *SC* **48.2.4.2** *P* **110** *L* **18** # 337

Dove, Daniel ProCurve Networking

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

The words column and row are transposed

SuggestedRemedy

Replace with "randomly in one row of each column during |||I||.

Response *Response Status* **C**

ACCEPT.

Cl **24** *SC* **24.1.6** *P* **37** *L* **18** # 338

CHOU, JOSEPH REALTEK SEMICON

Comment Type **TR** *Comment Status* **A** *on time, overlooked by editor*

Figure 24-4 needs to modify to include the signal connection rx_lpi from PCS to PMD as described in the Editor's Notes.

SuggestedRemedy

Modify Figure 24-4.

Response *Response Status* **C**

ACCEPT.

Cl **40** *SC* **40.4.6.1** *P* **90** *L* **1** # 339

CHOU, JOSEPH REALTEK SEMICON

Comment Type **TR** *Comment Status* **A** *40_PHY_Control*

The current state diagram and timer parameters chosen may cause corner case which results in out of synchronization between two parties.

SuggestedRemedy

1. Change the condition of branch from WAKE_SILENT to WAKE_TRAINING
   old: (config=MASTER * lpi_wakemz_timer_done) + scr_status = OK
   proposed: (config=MASTER + scr_status = OK) * lpi_wakemz_timer_done
2. Add new signal rem_lpi_mode as described in chou_01_1108.pdf, which was also mentioned in chou_01_0908.pdf on page 10 item 1, page 11, and page 12 case 1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment was received before the deadline but overlooked by the editor.

It is similar to comment #191.
See response to Comment # 191