Cl **00** *SC* **0** *P* *L* # 205

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

149.11.4.4.3 Transmitter electrical specifications
Item Feature Subclause Value/Comment Status Support
TES1 AC-coupling to the MDI

SuggestedRemedy

Means? See another comment

Proposed Response *Response Status* **O**

Cl **149** *SC* *P* *L* # 138

DiMinico, Christopher MC Communications

Comment Type **T** *Comment Status* **X**

The transmission characteristics between the Tx Function and Rx Function including the host PCB are not defined.

SuggestedRemedy

Create an annex to provide information on channel transmission characteristics defined between the Tx function to Rx function inclusive of the host PCB, MDI and link segment that might not be testable in an implemented system. ide

Commentor to provide draft annex.

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **1** *L* **8** # 122

Carlson, Steven High Speed Design, Inc; Marvell; Robert Bosch

Comment Type **E** *Comment Status* **X**

The admendment title may cause confusion now that IEEE 802.3 has a study group focused on 10 Gb/s and greater automotive electrical PHYS. Amendment titles must be within the scope of the PAR. See [1] Subclause 4.2.3.2 'Review of draft standards' of the IEEE-SA Standards Board Operations Manual <https://standards.ieee.org/develop/policies/opman/sb_om.pdf> states 'Title of Document. The title on the draft document and submittal form shall be within the scope as stated on the most recently approved PAR, or action(s) shall be taken to ensure this.'.

[2] The IEEE-SA 2014 Style manual <https://development.standards.ieee.org/myproject/Public/mytools/draft/styleman.pdf> has similar text in subclause 9.2 'Title' that reads 'Per 4.2.3.2 of the IEEE-SA Standards Board Operations Manual, the title on the draft document shall be within the scope as stated on the most recently approved PAR.'. The proposed change is within the scope of the PAR.

[3] Item 2 Of the RevCom check list <https://development.standards.ieee.org/myproject/Public/mytools/approve/subchklst.pdf> reads 'Is the Title of the submitted draft within the Scope of the PAR?'. The proposed change is within the scope of the PAR.

SuggestedRemedy

Change: "Draft Standard for Ethernet Amendment:Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet" To: Draft Standard for Ethernet Amendment:Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s and 10 Gb/s Automotive Ethernet."

Proposed Response *Response Status* **O**

Cl **FM** *SC* *P* **1** *L* **13** # 96

Marris, Arthur Cadence Design Systems

Comment Type **T** *Comment Status* **X**

I think the name of the amenedment could be improved from "Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet".

This is an amendment for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s PHYs and the title should state that.

Also there is likely to be a project for a 25G automotive PHY in the future and this would also be greater than 1G.

SuggestedRemedy

Change the title of the amendment to:
"Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Automotive Ethernet"

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **1** *L* **18** # 88

Trowbridge, Steve Nokia

Comment Type **E** *Comment Status* **X**

Now that there is another effort that will likely become a project for greater than 10 Gb/s operation, the title may not be sufficiently unique

SuggestedRemedy

Consider a title listing 2.5 Gb/s, 5 Gb/s, 10 Gb/s operation to make it clear that the >10 Gb/s interfaces are not included

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **2** *L* **2** # 259

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

"operation on automotive cabling in an automotive application". Other definitions in the spec refer to "single balanced pair". It seems useful to make the abstract consistent with that.

SuggestedRemedy

Change to: "operation over single balanced pair cabling and suitable for automotive applications."

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **10** *L* **50** # 83

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Extraneous comma.

SuggestedRemedy

Replace, "amendments, and adds" with "amendments and adds".

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **10** *L* **52** # 82

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

802.3cg is specified for operation over a single balanced pair of conductors.

SuggestedRemedy

Replace, "operation on a single balanced pair copper cable" with "operation over a single balanced pair of conductors".

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **19** *L* **34** # 89

Trowbridge, Steve Nokia

Comment Type **E** *Comment Status* **X**

In the ToC, 3rd level headings from 149.11.1 onwards run together with the text. This may be the first time 6 digits appeared in a 3rd level heading.

SuggestedRemedy

Adjust the ToC format to provide space between the number and the text for these headings.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.5** *P* **23** *L* **44** # 95

Marris, Arthur Cadence Design Systems

Comment Type **E** *Comment Status* **X**

Delete 1.5 if no new abbreviations are being added

SuggestedRemedy

Delete 1.5

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.5** *P* **23** *L* **44** # 3

Hajduczenia, Marek Charter Communications

Comment Type **E** *Comment Status* **X**

Empty section 1.5

SuggestedRemedy

Please remove, no content

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.5** *P* **23** *L* **44** # 10

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

As no new abbreviations are being added, remove 1.5

SuggestedRemedy

Remove 1.5 from the draft

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.2** *P* **25** *L* **12** # 236

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

It appears that the entry "Single balanced pair of conductors..." is a smaller font size (9pt) than the "2.5GBASE-T1"(10pt) - it should be the same. Same comment for 5GBASE-T1 and 10GBASE-T1 entries

SuggestedRemedy

fix the font size/style of "Single balanced pair of conductors" in the three entries to match the name of the aMAUType.

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.4.4** *P* **30** *L* **7** # 97

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Autonegotiation column is not in table 44-1.
In Table 125-2 (page 67) there is a column 98 showing Auto-Negotiation is optional for both 2.5GBASE-T1 and 5GBASE-T1.
However there isn't one for 10GBASE-T1.

Also note that autonegotiation is missing for 10GBASE-T as well.

SuggestedRemedy

Add column for clause 98 Auto-Negotiation to table 44-1 and put O in the 10GBASE-T1 row.
Add to the footnote
O = Optional

As a service to humanity we can optionally fix this for 10GBASE-T by putting a column for clause 28 Auto-Negotiation and put M in the 10GBASE-T row.

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.3** *P* **31** *L* **3** # 237

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

Editing instruction says to insert "a" row - three rows are inserted. Also, the row for 2x interleave is overly tall.

SuggestedRemedy

Change "a row" to "new rows" in editing instruction, and adjust the height of the row for 2x interleave to match the others.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.16** *P* **32** *L* **47** # 34

Remein, Duane Futurewei Technologies, Inc.

Comment Type **ER** *Comment Status* **X**

Given this is a change to Table 45-19 the new rows should be underlined and the Editing Instruction should not be "Change ... and insert … ".
Same issue Table 45-21.
I note that other tables (ex 45-176) are marked properly.

SuggestedRemedy

per comment

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18** *P* **33** *L* **12** # 98

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

The 2 bits 1.21.5 and 1.21.4 are redundant since they are already defined in 1.18.5 and 1.18.4. Note that 1.11.11 states register 1.18 is for BASE-T1 ability.

Note that register 1.21 causes some issues in that it is for 2.5G/5G abilities and 2.5/5GBASE-T1 fits the critera for both 1.18 and 1.21.

Nevertheless I don't think any other PHY capabilities are advertised twice and I think it is best if we advertise only in one location instead of 2.

SuggestedRemedy

Delete content in page 33 lines 11 to 48

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18** *P* **33** *L* **24** # 260

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

What's the purpose to duplicate BASE-T1 abilities to register 21, as these are already covered by the BASE-T1 extended ability register 18. Register 11 indicates whether there are BASE-T1 extended abilities or 2.5G/5G extended abilities. Why would a 2.5G/5GBASE-T1 need to indicate 2.5G/5G extended abilities next to BASE-T1 extended abilities?

SuggestedRemedy

Propose to remove BASE-T1 abilities from register 21.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18aa** *P* **33** *L* **36** # 189

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Misspelling

SuggestedRemedy

Change: "abilitiy", To: "ability"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18.aa** *P* **33** *L* **37** # 8

Kolesar, Paul CommScope

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

change abilitiy to ability

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18.aa** *P* **33** *L* **37** # 169

Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

ability misspelled as "abilitiy" in 4 places: titles of clause 45.2.1.18.aa and 45.2.1.18.ab as well as the two related entries in the Table of Contents

SuggestedRemedy

change all occurances of "abilitiy" to "ability"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18ab** *P* **33** *L* **43** # 190

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Misspelling

SuggestedRemedy

Change: "abilitiy", To: "ability"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18.ab** *P* **33** *L* **43** # 9

Kolesar, Paul CommScope

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

change abilitiy to ability

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.7.4** *P* **33** *L* **54** # 239

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **T** *Comment Status* **X**

Transmit fault descriptions are in 45.2.1.7.4, Table 45-9, and Receive fault descriptions are in 45.2.1.7.5, Table 45-10. These need to be brought into the draft and updated to include the clause 149 references for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1. Additionally, I cannot find the reference to Transmit and Receive Faults in clause 149, although the abilities are referenced in 1.2310.

SuggestedRemedy

Bring 45.2.1.7.4 and Table 45-9, adding rows for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1 referencing the appropriate section of clause 149 for transmit faults.
Bring 45.2.1.7.5 and Table 45-10, adding rows for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1 referencing the appropriate section of clause 149.

Add text, if necessary, for transmit and receive faults to clause 149.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192** *P* **34** *L* **36** # 261

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

It might be wise to keep some reserved registers after 2308 for future extension instead of directly abutting the multi-gig register addresses to 1Gbps addresses. Note that for other IEEE 802.3 PHYs there is also some reserved address between PHY types.

SuggestedRemedy

The 1000BASE-T1 starts at address 2304 which equals 0x0900. Propose to start multi-gig register addresses at 0x0910, which would be 2320 decimal.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.1** *P* **35** *L* **18** # 114

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **X**

It isn't clear what all MultiGBASE-T1 PMA/PMD resgisters means.

SuggestedRemedy

Be more specific as to which registers this applies to.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.4** *P* **36** *L* **9** # 238

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

"Bits 1.2309.10:9 control the current precoder setting of the transmitter," - because "current" can have meaning both as time and as an electrical parameter, this isn't a great way to say this. The rest of the paragraph, particularly the sentence "Setting these bits forces the precoder to the mode set." is clarity enough, and the word "current" is unneeded.

SuggestedRemedy

Delete "current" on P36 L9

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.193.5** *P* **37** *L* **28** # 43

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing article.

SuggestedRemedy

Change: that the polarity of receiver is reversed.
To: that the polarity of the receiver is reversed.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194** *P* **38** *L* **13** # 277

Souvignier, Tom Broadcom

Comment Type **TR** *Comment Status* **X**

In D2.0, the "Precoder requested" bit values are configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField. It may be more robust to optionally allow the PHY to choose the precoder on-the-fly based on channel and noise conditions.

SuggestedRemedy

See page 3 of "tu_3ch_01_0719.pdf".

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194.2** *P* **38** *L* **32** # 279

Souvignier, Tom Broadcom

Comment Type **TR** *Comment Status* **X**

In D2.0, the "Precoder requested" bit values are configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField. It may be more robust to optionally allow the PHY to choose the precoder on-the-fly based on channel and noise conditions.

SuggestedRemedy

See page 4 of "tu_3ch_01_0719.pdf".

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194.2** *P* **38** *L* **36** # 245

den Besten, Gerrit NXP Semiconductors

Comment Type **TR** *Comment Status* **X**

Slow wake request is an indication in one direction, which leaves the option open that it would still require to support regular wake-up in the other direction. I think it would be better to specify that if one of the transceivers on a link request slow-wake, that the slow-wake is applied in both directions.

SuggestedRemedy

Add the sentence to the paragraph:
If either this PHY or its link partner request slow wake, the PHY may only transmit alert immediately following refresh.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194.3** *P* **38** *L* **40** # 278

Souvignier, Tom Broadcom

Comment Type **TR** *Comment Status* **X**

In D2.0, the "Precoder requested" bit values are configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField. It may be more robust to optionally allow the PHY to choose the precoder on-the-fly based on channel and noise conditions.

SuggestedRemedy

See page 4 of "tu_3ch_01_0719.pdf".

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.195** *P* **39** *L* **9** # 35

Remein, Duane Futurewei Technologies, Inc.

Comment Type **TR** *Comment Status* **X**

Does the following statement imply that once the device has seen an link up the bits in register 1.2112 are then valid forever? "The values in this register are not valid until link is up."

SuggestedRemedy

Change:
"The values in this register are not valid until link is up." to
"The values in this register are not valid when the link is down."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.195.2** *P* **39** *L* **53** # 246

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

Link partner slow wake request is an indication in one direction, which leaves the option open that it would still require to support regular wake-up in the other direction. I think it would be better to specify that if one of the transceivers on a link request slow-wake, that the slow-wake is applied in both directions.

SuggestedRemedy

Add the sentence to the paragraph:
If either this PHY or its link partner request slow wake, the PHY may only transmit alert immediately following refresh.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.196** *P* **40** *L* **30** # 38

Farjadrad, Ramin Aquantia

Comment Type **T** *Comment Status* **X**

[JITTER TEST MODE] The jitter test in 149.5.2.3.1 is designed for the low-frequency square wave signal used in BASE-T PHYs and the test in 149.5.2.3.2 is designed for the at-speed test patterns (JP03A & JP03B) used in backplane phys. A control bit is needed to allow test mode 2 to support both tests, and additional language is needed specifying which signals to use in which tests.

Comments tagged JITTER TEST MODE should be treated as a group.

SuggestedRemedy

Table 45-155e: Add new rows after Reserved row, and adjust reserved row to allocate bits 0,1 of register 1.2313 (Test mode control) register based: 1.2313.1:0= 00 (Normal Sqaure Wave), 1.2313.1:0= 01 (JP03A pattern), 1.2313.1:0= 10 (JP03B pattern), 1.2313.1:0= 11 (Reserved),

Insert new subclause 45.2.1.196.2 as follows:

45.2.1.196.2 Jitter test control (1.2313.1:0)
When the transmitter is in test mode 2, bits 1.2313.1:0 control the pattern of the jitter test signal. A value of 0 0 transmits a square wave from the transmitter, a value of 0 1 transmits the JP03A pattern, and a value of 1 0 transmits the JP03B pattern. See 149.5.1 for more information.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.197** *P* **40** *L* **53** # 196

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

This register should contain "the current SNR operating margin measured at the slicer input ... to an accuracy of 0.5 dB", yet there is no indication of what "SNR operating margin" means (is the PHY supposed to measure the noise of the signal!? or infer it from FEC errors? or...) nor is "the slicer input" defined. Trying to set an accuracy on something so vague is not appropriate. Anyway, providing that accuracy at the extremes of the range is probably difficult and unnecessary.

SuggestedRemedy

Delete "to an accuracy of 0.5 dB"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.197** *P* **41** *L* **1** # 99

Lo, William Axonne Inc.

Comment Type **T** *Comment Status* **X**

The intent of registers 1.2314 and 1.2315 is to represent -12.7 dB to +12.7dB as an 8 bit number. However the description is a little confusing for the uninitiated in that these registers are described as 16 bits registers.

SuggestedRemedy

2 ways to fix this. Pick one. My preference is method 1.
1) Define the registers to be 8 bits only. Hence these 2 registers are 1.2314.15:8 and 1.2315.15:8 respectively.
Set 1.2314.7:0 and 1.2315.7:0 to reserved.
2) There is an example stating 0.0dB is 0x8000. Add 2 more examples where 12.7dB is 0xFF00 and -12.7dB is 0x0100. Note that this solution is not as clean as in theory bits 7:0 can show more resolution and we are now mixing decimal and binary representations with fractional 0.1dB.

Editor has editorial license to word and format either of the options above.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.198** *P* **41** *L* **8** # 36

Remein, Duane Futurewei Technologies, Inc.

Comment Type **TR** *Comment Status* **X**

It strikes mea odd that 1.2314 (SNR) is in "offset binary notation" and Register 1.2315 is in "is in offset two's complement notation". Furthermore I could find no reference for "offset two's complement notation" (hence the "Must Be Satisfied = YES) while offset binary notation is at least informally described in Wikipedia.

SuggestedRemedy

Change
"offset two's complement notation" to
" offset binary notation"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.74.4** *P* **44** *L* **50** # 100

Lo, William Axonne Inc.

Comment Type **E** *Comment Status* **X**

There is no change to this clause from 802.3bp so it should not show up in the document.

SuggestedRemedy

Remove clause

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.75** *P* **45** *L* **14** # 123

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

Table 45-244 contains message data received from the link partner, but the description says "transmitted first". Seems mis-leading / inconsistent.

SuggestedRemedy

Replace "transmitted first" with "received first" for all occurrences in the table.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.76** *P* **45** *L* **50** # 11

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Table 45-244a is split across two pages with only one body row on the first page.

SuggestedRemedy

Increase the Orphan rows setting in Table Designer to 4

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.77** *P* **46** *L* **15** # 12

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"The Link partner MultiGBASE-T1" should be "The link partner MultiGBASE-T1" (lower case l in link).

SuggestedRemedy

Change "Link" to "link"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.77** *P* **46** *L* **16** # 250

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

Missing reference to 149.3.9.2.12 like in sub-clause 45.2.3.76

SuggestedRemedy

Add the same reference to 45.2.3.77

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.77** *P* **46** *L* **19** # 13

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"Link Partner" should be "Link partner" (lower case p in partner) in the title of Table 45-244b and also in the Name column (4 instances)

SuggestedRemedy

Change "Partner" to "partner" in the title of Table 45-244b and also in the Name column (4 instances)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.77** *P* **46** *L* **22** # 124

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

Table 45-244b contains message data received from the link partner, but the description says "transmitted first". Seems mis-leading / inconsistent.

SuggestedRemedy

Replace "transmitted first" with "received first" for all occurrences in the table.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.78** *P* **46** *L* **39** # 4

Hajduczenia, Marek Charter Communications

Comment Type **TR** *Comment Status* **X**

Is this really intended to be an optional requirement? "The default value for each bit of the MultiGBASE-T1 PCS control register should be chosen so that the initial state of the device upon power up or reset is a normal operational state without management intervention."

SuggestedRemedy

Suggest to rewrite as an informative text, which I believe it is.
There are at least 28 instances of the keyword "should" in the draft (excludign front page), none of which strikes me as intended optional requirement. Each and every istance of the keyword "should" ought to be reviewed and if the given statement is not intended as an optional requirement, text ought to be rewritten as informative instead.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.80.2** *P* **49** *L* **31** # 191

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Duplicate text

SuggestedRemedy

Change: "is detecting is detecting", To: "is detecting"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.80.2** *P* **49** *L* **31** # 44

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

Change: PCS receiver is detecting is detecting
To: PCS receiver is detecting

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.80.4** *P* **49** *L* **47** # 192

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Description of non-latched source is wrong.

SuggestedRemedy

Change: "...PCS high BER status bit (3.2324.9)."
To: "...PCS high RFER status bit (3.2324.9)."

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.4.4** *P* **50** *L* # 204

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **X**

Need to add 10GBASE-T1 and Clause 98 Auto-Negotiation to Table 44-1, Nomenclature and clause correlation

SuggestedRemedy

Add 10GBASE-T1 and Clause 98 Auto-Negotiation to Table 44-1, Nomenclature and clause correlation

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **52** *L* **8** # 14

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

IEEE P802.3cg D3.0 is inserting PICS items MM152 through MM204 so the items being inserted by this draft should start at MM205

SuggestedRemedy

Change the editing instruction to:
"Insert PICS Items MM205 through MM227 after MM204 (inserted by IEEE Std 802.3cg-201x) in the table in 45.5.3.3 as follows:"
Renumber the PICS items accordingly.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **52** *L* **49** # 15

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

When tables split across pages, the bottom ruling of the table on the first page should be "very thin"

SuggestedRemedy

Make the bottom ruling "very thin" for:
the table in 45.5.3.3 at the foot of page 52
the table in 45.5.3.7 at the foot of page 54
Table 78-4 on page 57
the table in 149.11.4.2.1 at the foot of page 173
the table in 149.11.4.3.4 at the foot of page 179
the table in 149.11.4.4.3 at the foot of page 184

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **53** *L* **22** # 45

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

PICS for 45.2.194.4 when there is no shall.

SuggestedRemedy

Do one of the following:
On P38L48 Change "should be set to zero" to "shall be set to zero"
OR
Delete PICS MM222

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **53** *L* **25** # 46

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

PICS for 45.2.194.4 when there is no shall.

SuggestedRemedy

Do one of the following:
On P39L4 Change "should be set to zero" to "shall be set to zero" AND on P53L25 Change Subclause from 45.2.1.194.4 to 45.2.1.194.5.
OR
Delete PICS MM223

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **53** *L* **28** # 47

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

Incorrect reference

SuggestedRemedy

Change Subclause from 45.2.1.194.5 to 45.2.1.195.4.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **53** *L* **29** # 170

Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

advertising misspelled as "advertisingg"

SuggestedRemedy

change "advertisingg" to "advertising"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **53** *L* **31** # 48

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

Incorrect reference

SuggestedRemedy

Change Subclause from 45.2.1.194.5 to 45.2.1.195.5.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.7** *P* **54** *L* **7** # 49

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

Incorrect reference. This is not what is in P802.3:2018.

SuggestedRemedy

Change Subclause from 45.2.3.172.1 to 45.2.3.172.2.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.7** *P* **54** *L* **13** # 16

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

In the editing instruction "after Item RM184" should be "after Item RM190"

SuggestedRemedy

In the editing instruction change "after Item RM184" to "after Item RM190"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.7** *P* **55** *L* **4** # 171

Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

"the" is repeated as "the the" in 2 places in the draft

SuggestedRemedy

change all occurances of "the the" to "the"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.7** *P* **55** *L* **4** # 86

Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **X**

"the the"

SuggestedRemedy

Change to single "the"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.7** *P* **55** *L* **14** # 87

Laubach, Mark Broadcom

Comment Type **E** *Comment Status* **X**

"the the"

SuggestedRemedy

Change to single "the"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.1.4** *P* **56** *L* **7** # 17

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Comment #65 against P802.3cj D2.0 defined the order of items in Table 78-1. See http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14
Sort the result in "speed/reach" order using the following set of rules.
1. Increasing speed.
2. Increasing reach (maximum supported distance over the medium).
3. Decreasing number of lanes

The following supplemental rules address are included to address special cases.
4. PHY "family designations, by convention, are assigned a reach of 0.
5. "Copper" PHYs precede "Fiber" PHYs (all else being equal).
6. Alphanumeric sort (all else being equal).

Applying these rules puts 2.5GBASE-T1 before 2.5GBASE-T, 5GBASE-T1 before 5GBASE-T, and 10GBASE-T1 before 10GBASE-T.

SuggestedRemedy

Change the editing instruction to:
"Insert a row for 2.5GBASE-T1 after 2.5GBASE-KX (as inserted by IEEE Std 802.3cb-2018), insert a row for 5GBASE-T1 after 5GBASE-KR (as inserted by IEEE Std 802.3cb-2018), and insert a row for 10GBASE-T1 after 10GBASE-KR in Table 78-1 as follows (unchanged rows not shown):"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.2** *P* **56** *L* **29** # 18

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Comment #66 against P802.3cj D2.0 defined the order of items in Table 78-2. See http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14
This defined the sort order to be the same as for Table 78-1
Applying these rules puts 2.5GBASE-T1 before 2.5GBASE-T, 5GBASE-T1 before 5GBASE-T, and 10GBASE-T1 before 10GBASE-T.

SuggestedRemedy

Change the editing instruction to:
"Insert a row for 2.5GBASE-T1 after 2.5GBASE-KX (as inserted by IEEE Std 802.3cb-2018), insert a row for 5GBASE-T1 after 5GBASE-KR (as inserted by IEEE Std 802.3cb-2018), and insert a row for 10GBASE-T1 after 10GBASE-KR in Table 78-2 as follows (unchanged rows not shown):"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.2** *P* **56** *L* **49** # 19

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Table 78-2 is missing an ellipsis row at the bottom after the row for 10GBASE-T1

SuggestedRemedy

In Table 78-2 add an ellipsis row with default ruling at the bottom after the row for 10GBASE-T1

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.2** *P* **56** *L* **50** # 50

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing bottom row

SuggestedRemedy

Add row to bottom of table with single column and "…" in the cell.

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.3** *P* **57** *L* **5** # 5

Hajduczenia, Marek Charter Communications

Comment Type **ER** *Comment Status* **X**

New shall statements were added, PICS were not updated

SuggestedRemedy

Add PICS statements to address new "shall" statements in the added text

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.5** *P* **57** *L* **18** # 20

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

There are nine paragraphs in 78.5 of the base standard, so the additional paragraph is number 10.
Case-1 and Case 2 start with "Case-x of the PHY in the MultiGBASE-T set applies when …" but cases 3 and 4 start with "Case-x in MultiGBASE-T1 is the same as ..."

SuggestedRemedy

Change the editing instruction to:
"Insert a 10th paragraph in 78.5 as follows:"
For Case-3 and Case-4, change:
"Case-x in MultiGBASE-T1 is the same as ..." to:
"Case-x of the PHY in the MultiGBASE-T set is the same as …"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.5** *P* **57** *L* **26** # 21

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Comment #66 against P802.3cj D2.0 defined the order of items in Table 78-4. See http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14
This defined the sort order to be the same as for Table 78-1
Applying these rules puts 2.5GBASE-T1 before 2.5GBASE-T, 5GBASE-T1 before 5GBASE-T, and 10GBASE-T1 before 10GBASE-T.

SuggestedRemedy

Change the editing instruction to:
"Insert a row for 2.5GBASE-T1 after 2.5GBASE-KX (as inserted by IEEE Std 802.3cb-2018), insert a row for 5GBASE-T1 after 5GBASE-KR (as inserted by IEEE Std 802.3cb-2018), and insert a row for 10GBASE-T1 after 10GBASE-KR in Table 78-4 as follows (unchanged rows not shown):"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.5** *P* **57** *L* **38** # 22

Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

The cells for Tphy_shrink_tx (max) and Tphy_shrink_rx (max) in Table 78-4 should not be blank.
If the values for these parameters are 0, then these cells should all contain 0

SuggestedRemedy

Populate the cells for Tphy_shrink_tx (max) and Tphy_shrink_rx (max) in Table 78-4 for the new rows with "0"

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.1** *P* **61** *L* **11** # 224

McClellan, Brett Marvell

Comment Type **T** *Comment Status* **X**

Figure 149-34 references 'mGigT1'.
10GigT1 , 5GigT1 , and 2.5GigT1 are never referenced.

SuggestedRemedy

change:
"— 2.5GigT1;represents that the 2.5GBASE-T1 PMA is the signal source.
— 5GigT1; represents that the 5GBASE-T1 PMA is the signal source.
— 10GigT1; represents that the 10GBASE-T1 PMA is the signal source. "
to
"— mGigT1;represents that the 10/5/2.5GBASE-T1 PMA is the signal source."

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.1.3** *P* **62** *L* **10** # 240

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

Capitalization of "type F PSE" is missing

SuggestedRemedy

Change "type F PSE" to "Type F PSE"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.4.6.3** *P* **62** *L* **54** # 266

Stewart, Heath Analog Devices

Comment Type **TR** *Comment Status* **X**

Type F systems include a NGAUTO PHY. The PSE power supply ripple currently in the standard was reused from 1000BASE-T1 (Type B) systems. This needs to be changed for the higher data transmission speed.

SuggestedRemedy

See "stewart_3ch_01_0719" Slides 5,6, and 7

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.5.6.4** *P* **63** *L* **27** # 241

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

All the "VPD", "PPD" references should have the "PD" in subscript.

SuggestedRemedy

Editor to check and make "PD" and "PSE" subscript where appropriate. (I think it's just PD)

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.5.6.4** *P* **63** *L* **40** # 267

Stewart, Heath Analog Devices

Comment Type **TR** *Comment Status* **X**

Type F systems include a NGAUTO PHY. The PD ripple currently in the standard was reused from 1000BASE-T1 (Type B) systems. This needs to be changed for the higher data transmission speed.

SuggestedRemedy

See "stewart_3ch_01_0719" Slides 8 and 9

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.6** *P* **64** *L* **8** # 6

Hajduczenia, Marek Charter Communications

Comment Type **ER** *Comment Status* **X**

Multiple "shall" statements were revised (extended) and one new was added, but the text of PICS was not updated

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1.4** *P* **67** *L* **33** # 42

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Incorrect table border on cell "149"

SuggestedRemedy

Change right side boarder on last cell in 2nd ro to be the wider outside border.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1.4** *P* **67** *L* **33** # 23

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The right hand ruling for the second heading row in Table 125-2 should be set to the default.

SuggestedRemedy

Change the right hand ruling for the second heading row in Table 125-2 to the default.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.2.4.3** *P* **68** *L* **28** # 7

Hajduczenia, Marek Charter Communications

Comment Type **ER** *Comment Status* **X**

New shall statements were added, PICS were not updated

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.3** *P* **68** *L* **30** # 133

Grau, Olaf Robert Bosch GmbH

Comment Type **E** *Comment Status* **X**

Titel on pg 68, Tabel on pg. 69

SuggestedRemedy

Headline and Table shouldn't be separated by a page break

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.3** *P* **68** *L* **33** # 77

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Table 125-3 does not match IEEE802.3's 2018 guidline for "Presentation of numbers".

SuggestedRemedy

Change Editorial instruction to be" Replace Table 125-3 (as modified by IEEE Std 802.3cb-2018) with the updated table, which adds 2.5GBASE-T1 and 5GBASE-T1 and corrects the number format and alignment to match IEEE 802.3 WG editorial guidelines, as follows:" Correct Table 125-3 to match latest IEEE 802.3 WG editorial guidelines.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.3** *P* **69** *L* **8** # 90

Trowbridge, Steve Nokia

Comment Type **E** *Comment Status* **X**

Other clauses have the pause quanta centered in the 3rd column. In the 4th column, some of the ns numbers are left aligned and some are centered

SuggestedRemedy

Use consistent alignment in the columns of Table 125-3

Proposed Response *Response Status* **O**

Cl **149** *SC* **149** *P* **70** *L* **1** # 37

Remein, Duane Futurewei Technologies, Inc.

Comment Type **E** *Comment Status* **X**

It is customary to include an editing Instruction prior to new clauses as noted in the WG Template v3.9.

SuggestedRemedy

Insert before Clause 149
"Insert new clauses and corresponding annexes as follows:"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1** *P* **70** *L* **12** # 251

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

The word 'type' seems strange and unnecessary in this sentence.

SuggestedRemedy

Remove the word 'type'

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.1** *P* **70** *L* **32** # 175

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

"PHYs" should be possessive as "PHY's"

SuggestedRemedy

Change "...PHYs data rate..." to "...PHY's data rate..."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.1** *P* **70** *L* **37** # 93

D'Ambrosia, John Futurewei, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

The use of "S" to represent scaling parameter is not advisable. Trying to see where this comes into play throughout the document on a search of "S" reveals so many instances that it is useless.

SuggestedRemedy

Change "S" to "Scale"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **71** *L* **27** # 242

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

In other diagrams the PCS is referred to as 64B/65B RS-FEC PCS. Here it is just RS-FEC PCS. We should be consistent.

SuggestedRemedy

Change "RS-FEC PCS" to "64B/65B RS-FEC PCS" in Figure 149-1.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **71** *L* **27** # 193

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

PCS layer label is inconsistent with Figure 44-1 and Figure 125-1.

SuggestedRemedy

Change: "RS-FEC PCS"
To: "64B/65B RS-FEC PCS"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **72** *L* **3** # 243

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **T** *Comment Status* **X**

"The MASTER and SLAVE are synchronized by the PHY Link Synchronization function in the PHY (see 149.4.2.6)." - this sentence stands alone from the previous sentence, and needs to be qualified or linked - else it is incorrect (149.4.2.6 only applies in FORCE mode). It is only true when Auto-Negotiation is not used.

SuggestedRemedy

Change "PHYS. The MASTER and SLAVE are..." to "PHYS, and the MASTER and SLAVE are..."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **72** *L* **14** # 105

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Contradicting statement whether OAM in-band or out-of-band:
page 72 line 14 says "out-of-band", page 120 line 12 says "in-band"

SuggestedRemedy

Change page 72 line 14 from out-of-band to in-band.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.1** *P* **72** *L* **30** # 225

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

text in this section appears to be a different font size than other text.

SuggestedRemedy

adjust font

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.1** *P* **72** *L* **38** # 184

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Missing dashes.

SuggestedRemedy

Change: "3260 bit block"
To: "3260-bit block", in 2 locations

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.1** *P* **72** *L* **41** # 104

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

"L x 320 S ns" should be corrected as "L x 320 / S ns"

SuggestedRemedy

"L x 320 S ns" should be corrected as "L x 320 / S ns"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.1** *P* **72** *L* **41** # 176

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

The scale factor "S" looks like units (Siemens)

SuggestedRemedy

Change "L x 320 S ns" to "L x 320 x S ns" (add the multiply operator 'x') as done in other areas of the draft (including line 54 of the same page)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.1** *P* **72** *L* **48** # 226

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

The PMA interface is defined in 149.2, not 149.4.

SuggestedRemedy

change '149.4' to '149.2'

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.3** *P* **73** *L* **24** # 252

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

It is stated here that the the LPI transmit mode starts when there is an LPI character in the last 64B/65B block of the RS-frame. In contrast to how to exist LPI, it interestingly doesn't say how this is initiated by XGMII.

SuggestedRemedy

Propose to add a sentence before the referred one:
A request for LPI mode starts with LPI characters on the XGMII.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.3** *P* **73** *L* **24** # 227

McClellan, Brett Marvell

Comment Type **ER** *Comment Status* **X**

This section has too much detail for a non-normative summary sections and is prone to have conflicts with the normative sections. The section sounds normative but has no 'shall' statements. It should provide a brief summary and refer to section 149.3.2.2.21 for normative details.

SuggestedRemedy

delete the two paragraphs starting with:
"In the transmit direction the transition to the LPI transmit mode begins..."
and
"In the receive direction the transition to the LPI mode is triggered when .."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.3** *P* **73** *L* **34** # 228

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

"The quiet-refresh cycle continues until the PCS function detects IDLE characters on the XGMII."
This statement is in conflict with normative text in 149.3.2.2.21 which states that any non-LPI symbol will trigger an exit from LPI.
This section has too much detail for a non-normative summary sections and is prone to have conflicts with the normative sections.

SuggestedRemedy

delete the two paragraphs starting with:
"In the transmit direction the transition to the LPI transmit mode begins..."
and
"In the receive direction the transition to the LPI mode is triggered when .."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.4** *P* **74** *L* **8** # 229

McClellan, Brett Marvell

Comment Type **ER** *Comment Status* **X**

This section has too much detail for a non-normative summary sections and is prone to have conflicts with the normative sections. The section sounds normative but has no 'shall' statements. It should provide only a summary and refer to section 149.4.2.6 for normative details.

SuggestedRemedy

change text to:
"The Link Synchronization function is used when Auto-Negotiation is disabled or not implemented to detect the presence of the link partner, time and control link failure, and act as the data source for the PHY control state diagram. Link Synchronization operates in a half-duplex fashion. The MASTER PHY sends a synchronization sequence. If there is no response from the SLAVE, the MASTER repeats sending a synchronization sequence. If the slave detects the
sequence, it responds with a synchronization sequence. If no other detection happens after the SLAVE response then Link Synchronization is successfully complete, link monitor timers are started, and the PHY Control state machine starts Training. Link synchronization is defined in 149.4.2.6."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.4** *P* **74** *L* **15** # 85

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Use preferred terminology for state diagrams.

SuggestedRemedy

Replace "state machine" with "state diagram" in the following locations: P74-L15, P126-L35, P132-L4, P132-L5, P132-L6, P133-L3, P133-L10, and P144-L43 and replace "state machines" with "state diagrams" on P74-L15.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.4** *P* **75** *L* **13** # 51

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

fix crooked line

SuggestedRemedy

Make the horizontal line under "tx_mode" straight.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.4** *P* **75** *L* **23** # 230

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

Figure 149–2 has superfluous arrow heads pointing to a signal line that continues along the same path as the arrow.

SuggestedRemedy

replace arrows with lines at line 23 and line 29

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.4** *P* **76** *L* **13** # 231

McClellan, Brett Marvell

Comment Type **T** *Comment Status* **X**

"Ability to signal the status of the local receiver to the remote PHY to indicate that the local receiver
is not operating reliably and requires retraining."
I don't think the signaling can convey the need for a retraining.

SuggestedRemedy

delete item g

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.6** *P* **76** *L* **43** # 197

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

This is not a test specification.

Implementers (or testers) take responsibility for the accuracy of their test equipment. If someone wants to use 2%-accurate equipment and apply appropriate guard bands, that's OK.
In "The values of all components in test circuits shall be accurate to within ± 1% unless otherwise stated", the "shall" is inappropriate.

Remarks about % tolerance muddy the water: Does 1 V mean 1 V any more? If asked for e.g. <1 V, and measured with 0.1%-accurate equipment, is 1.008 V acceptable?

Anyway, this topic does not fit with "conventions in this clause", and does not relate to the PCS.

SuggestedRemedy

Delete this sentence from here. If any substitute is needed, put it within 149.5 PMA electrical specifications, and use the language of a parameter definition, not a test requirement.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2** *P* **76** *L* **50** # 94

D'Ambrosia, John Futurewei, U.S. Subsidiary of Huawei

Comment Type **E** *Comment Status* **X**

The following statement is incorrect:
MultiGBASE-T1 transfers data and control information across the following four service interfaces:
a) 10 Gigabit Media Independent Interface (XGMII)
b) Technology Dependent Interface
c) PMA service interface
d) Medium dependent interface (MDI)
MDI is not a service interface See definition 1.4.324.

SuggestedRemedy

Reword
MultiGBASE-T1 transfers data and control information across the following three service interfaces:
a) 10 Gigabit Media Independent Interface (XGMII)
b) Technology Dependent Interface
c) PMA service interface

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.1** *P* **77** *L* **9** # 198

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

According to Table 125-2, Nomenclature and clause correlation, Clause 98 Auto-Negotiation is optional. The Technology Dependent Interface is used to communicate with Auto-Negotiation - I don't think it has any other purpose.

SuggestedRemedy

Say that the Technology Dependent Interface is required if Auto-Negotiation is implements (so, not if it's not)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2** *P* **78** *L* **23** # 232

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

"send_s_sigdet" appears in Figure 149–2 as a service interface (apparently for EEE alert detection), but does not appear in 149.2.2.
PMA_ALERTDETECT.indication(alert_detect) is a defined service interface for EEE alert detection, but does not appear in 149.2.2.

SuggestedRemedy

delete "send_s_sigdet" from Figure 149–2.
add "alert_detect" as a dotted line service interface from the PMA receiver in Figure 149–2 and Figure 149–3
add "PMA_ALERTDETECT.indication(alert_detect)" to the list in 149.2.2.
change " to "alert_detect" in 149.3.2.3 on page 101 line 45.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2** *P* **78** *L* **32** # 101

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Clause 149.2.2.12 talks about PMA_ALERTDETECT.indication but it is not mentioned in 4 places.

SuggestedRemedy

1) Page 78 line 32 add
PMA_ALERTDETECT.indication(alert_detect)
2) Page 79 line 28
Draw left dotted arrow labeled PMA_ALERTDETECT.indication
3) Page 75 figure 149-2.
Need a left dotted line from PMA RECEIVE to PCS RECEIVE, line is labeled alert_detect. (I'm not sure about this change. Ask for feedback from the group)
4) Page 86 line 12
Need a up dotted line to PCS RECEIVE labeled alert_detect

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2.12.3** *P* **85** *L* **17** # 24

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"149.3.2.3" and "Figure 149-17" should be cross-references.

SuggestedRemedy

Make "149.3.2.3" and "Figure 149-17" cross-references.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **87** *L* **14** # 209

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

"RS_FEC" is inconsistent with other text using "RS-FEC"

SuggestedRemedy

change "RS_FEC" to "RS-FEC"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **87** *L* **38** # 178

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Mispelling "fame"

SuggestedRemedy

Change "FEC fame" to " FEC frame"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **87** *L* **39** # 177

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

I think it would be useful to indicate that the block of 3600 bits are encoded into a block of 1800 PAM4 symbols.

SuggestedRemedy

Change:
"The 3600 bits in this frame are then encoded into PAM4 symbols and transferred to the PMA."
to:
"The 3600 bits in this frame are then encoded into 1800 PAM4 symbols and transferred sequentially to the PMA."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **87** *L* **48** # 81

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **X**

How the number of interleave frames is decided upon is not defined anywhere. So for 10G if one side requests 2-way, other 4-way which do you do? The shall in this line implies theres some definition on how to resolve that but I don't see any text for that (which is where the shall should be).

SuggestedRemedy

Change the text from "which shall be determined" to "which is determined".
Add a sub-clase in the appropriate place which defines the priority resolution of the interleave request fields for 5G and 10G operations.
Change PCT6 to refer to new sub-clause

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.2** *P* **88** *L* **40** # 210

McClellan, Brett Marvell

Comment Type **T** *Comment Status* **X**

"In addition, the code enables the receiver to achieve PCS synchronization alignment on the incoming PHY bit stream."
This text is not correct. Alignment is found during training.

SuggestedRemedy

delete this sentence.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.3** *P* **89** *L* **8** # 52

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing Oxford comma.

SuggestedRemedy

Change: Contents of block type fields, data octets and control characters are shown as hexadecimal values.
To: Contents of block type fields, data octets, and control characters are shown as hexadecimal values.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.4** *P* **89** *L* **24** # 185

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Figure 149-6 lacks arrow ends on TXD<32> and TXD<63>.

SuggestedRemedy

Add arrow ends on TXD<32> and TXD<63>.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.4** *P* **89** *L* **44** # 136

Wu, Peter Marvell

Comment Type **E** *Comment Status* **X**

Some arrows in the diagram are too long

SuggestedRemedy

Need to be aligned

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.2** *P* **90** *L* **38** # 211

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

Figure 149–7 does not show how the receive path works with de-interleaving.

SuggestedRemedy

Either change to the figure to include de-interleaving or add a note indicating that this figure only applies to L=1.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.4** *P* **90** *L* **43** # 91

Trowbridge, Steve Nokia

Comment Type **E** *Comment Status* **X**

Many elements of Figure 149-7 don't quite line up

SuggestedRemedy

Use the recommended Pete Anslow tricks of exact pixel position and size to get everything to align

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.13** *P* **94** *L* **13** # 212

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

change "transcoder/scrambler" to "transcoder and scrambler"

SuggestedRemedy

change "transcoder/scrambler" to "transcoder and scrambler"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.14** *P* **94** *L* **23** # 213

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

"For both x and c the encoder shall follow the notation described in 149.3.2.2.2 where the LSB (leftmost element of the vectors x and c) is the first bit into the RS-FEC encoder and the first transmitted bit."
x and c are not yet defined and need a reference. Notation is defined in 149.3.2.2.3, not 149.3.2.2.2.

SuggestedRemedy

change "149.3.2.2.2" to "149.3.2.2.3"
change "For both x and c" to "For both x and c (in 149.3.2.2.15)"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **94** *L* **41** # 179

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Reference to equation 149-3 is incorrect. The referenced equation does not have an alpha term.

SuggestedRemedy

reference "Equation (149-1)"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **94** *L* **41** # 214

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

page 94 line 41
alpha does not appear in equation 149-3.

SuggestedRemedy

change "In Equation (149–3)," to "In Equation (149–1),"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **94** *L* **41** # 53

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

Incorrect reference

SuggestedRemedy

Change: In Equation (149-3)
To: In Equation (149-1)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **94** *L* **51** # 137

Wu, Peter Marvell

Comment Type **T** *Comment Status* **X**

The equation is wrong
mi,j = tx_RSmessage <(359 - i) 10 + j>, i = 0 to 325, j = 0 to 9. index out of range

SuggestedRemedy

It should be changed to:
mi,j = tx_RSmessage <(325 - i) 10 + j>, i = 0 to 325, j = 0 to 9.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **94** *L* **52** # 180

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Equation m sub(i,j) could be written a bit more clear.

SuggestedRemedy

Change:
"tx_RSmessage <(359-i) 10 +j>,i = 0 to 325,j = 0 to 9."
To:
"tx_RSmessage <(359-i) x 10 +j>, for i = 0 to 325, and j = 0 to 9."
(Add multiply operator "x", "for", and "and")

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **95** *L* **6** # 125

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

There is an orphan statement containing that mentions tx_scrambled, but makes no other mention to tx_scrambled in the sub-clause. Also, the cross-reference is wrong since 149.3.2.2.14 says nothing about tx_scrambled.

SuggestedRemedy

Remove the statement "tx_scrambled<3599:0> is defined in 149.3.2.2.14."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **95** *L* **45** # 126

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

Sub-clauses 149.3.2.2.13 through 149.3.2.2.20 appear to be walking through the Tx functions in order. However, 149.3.2.2.16 is in the wrong place. The superframe formation and interleaving (if present) occurs before the RS encoder.

SuggestedRemedy

Move sub-clause "149.3.2.2.16 RS-FEC superframe and round robin interleaving" before sub-clause "149.3.2.2.15 Reed Solomon encoder"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.15** *P* **96** *L* **1** # 78

Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **X**

Table 149-3 spans over two pages. It'd be useful to have all information on a single page.

SuggestedRemedy

Make Table 149-3 have 4 columns so the table can fit on a single page

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **97** *L* **20** # 215

McClellan, Brett Marvell

Comment Type **ER** *Comment Status* **X**

Using m as the variable for frame message and superframe message bits may be confusing to the reader.
same issue for p

SuggestedRemedy

Define and use another variable for superframe message bits and also for superframe parity bits.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **97** *L* **21** # 80

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **X**

The phrase "Compared to the non-interleaving case," is not very straightforward.

SuggestedRemedy

Change "Compared to the non-interleaving case, each RS-FEC encoder receives one out of every L message symbols. Otherwise the RS FEC encoder operates exactly the same as specified in 149.3.2.2.15." to "When L > 1 each RS-FEC encoder receives one out of every L message symbols from the superframe, otherwise the RS FEC encoder operates exactly the same as specified in 149.3.2.2.15."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **97** *L* **25** # 127

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

The sentence "The L encoded RS-FEC frames are recombined into an interleaved RS-FEC superframe" and onward talk about functions that happen after RS encoder. I think this text should be in its own section located after RS encoder.

SuggestedRemedy

Propose to add a new sub-clause "RS-FEC Recombine" before "149.3.2.2.17 PCS Scrambler". In the new sub-clause put the text "The L encoded RS-FEC frames are recombined ... " and all that follows it, currently found in 149.3.2.2.16

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **97** *L* **49** # 79

Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **X**

In Figure 149-10 the message symbols in and out for RS Encoder #L begins and ends with m325 instead of m326 for both in and out.

SuggestedRemedy

Change the m325 and m324 for both the input and output side of RS ENCODER #L to be m326 and m325

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.17** *P* **98** *L* **3** # 128

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

The sub-clause talks about the payload of the PCS PHY frame without having yet defined a PCS PHY frame or what constitutes its payload. The sub-clause also mentions tx_encoded<3599:0> but it is not found anywhere else in the document.

SuggestedRemedy

Propose to add tx_encoded<3599:0> to the output of RS-FEC(360,326) encoder in sub-clause 149.3.2.2.16. Propose to define the term tx_encoded<3599:0> somewhere after the text "The L encoded RS-FEC frames are recombined into an interleaved RS-FEC superframe". However, it's really "L x tx_encoded<3599:0>" at that point!

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.21** *P* **99** *L* **30** # 217

McClellan, Brett Marvell

Comment Type **T** *Comment Status* **X**

"The PHY also transitions back to the normal operation mode if an error condition occurs. This error condition is defined as the detection of any characters other than LPI or IDLE at the XGMII."
this statement is redundant if wake is triggered by 'other than LP_IDLE'

SuggestedRemedy

delete "The PHY also transitions back to the normal operation mode if an error condition occurs. This error condition is defined as the detection of any characters other than LPI or IDLE at the XGMII."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.21** *P* **99** *L* **33** # 218

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

"After the alert signal," is unclear

SuggestedRemedy

change "After the alert signal," to "After transmitting the alert signal,"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.21** *P* **99** *L* **36** # 219

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

"Lpi_wake_time" is a variable and should not be capitalized

SuggestedRemedy

change "Lpi_wake_time" to "lpi_wake_time"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.21** *P* **99** *L* **41** # 220

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

"lpi_wake_timer" is not a defined variable. Is this supposed to be lpi_tx_wake_timer?

SuggestedRemedy

change lpi_wake_timer to lpi_tx_wake_timer

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.21** *P* **99** *L* **49** # 253

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

"When the last 64B/65B block of LPI characters is generated by the PCS transmit function, the PHY ..." seems inconsistent with 149.1.3.3

SuggestedRemedy

Replace by:
When the PCS transmit function detects an LPI character in the last 64B/65B block of an RS frame, the PHY ...

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.21** *P* **99** *L* **49** # 216

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

"When the last 64B/65B block of LPI characters is generated by the PCS transmit function," This statement is unclear and likely incorrect about when the sleep signal is triggered.

SuggestedRemedy

change this paragraph to:
"In the transmit direction the transition to the LPI transmit mode begins when the PCS transmit function detects an LPI control character in the last 64B/65B block of a Reed-Solomon frame. Following this event the PMA transmits the sleep signal starting at the beginning of the next superframe to indicate to the link partner that it is transitioning to the LPI transmit mode. The sleep signal is composed of eight Reed-Solomon frames that contain only LP_IDLE 64B/65B blocks. Once initiated, the complete sleep signal consisting of 8 RS-FEC frames of LP_IDLE shall be transmitted."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3** *P* **101** *L* **18** # 221

McClellan, Brett Marvell

Comment Type **T** *Comment Status* **X**

block_lock flag de-assertion is described for data mode, but re-assertion is not described.

SuggestedRemedy

insert "The block_lock flag is re-asserted upon detection of a valid RS-FEC frame."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3** *P* **101** *L* **27** # 222

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

"The PMA training frame includes 1 bit pattern every 450 PAM2 symbols, which is aligned with the PCS partial PHY frame boundary" is unclear

SuggestedRemedy

change to "The PMA training frame includes an alignment bit every 450 PAM2 symbols, which is aligned with the PCS partial PHY frame boundary"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3** *P* **101** *L* **31** # 223

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

"PHYs with the EEE capability support transition to the LPI mode when the PHY has successfully completed training and pcs_data_mode is TRUE."
46.1.7 states that LPI will not be asserted until one second after link is up.

SuggestedRemedy

change text to "PHYs with the EEE capability support transition to the LPI mode when the PHY has successfully completed training and pcs_data_mode is TRUE and subject to the timing requirement of 46.1.7."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3.3** *P* **102** *L* **12** # 129

Nicholl, Shawn Xilinx

Comment Type **E** *Comment Status* **X**

Sub-clause 149.3.2.3 PCS Receive function is missing section that describe the following:
- de-construction of the unscrambled Rx stream into pieces for each RS-FEC decoder
- RS-FEC decoder
- round robin de-interleaving

SuggestedRemedy

Propose to add sub-clauses before "149.3.2.3.3 Invalid blocks" that are akin to sub-clauses in the Tx direction, but in the opposite order.
- Rx De-construction (akin to Tx Recombine)
- Rx RS-FEC decoder (akin to Tx FEC encoder)
- Rx De-interleaving (akin to Tx Superframe and round robin interleaving)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **31** # 254

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

typo: raining

SuggestedRemedy

Replace by: training

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **31** # 233

McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

change "raining" to "training"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **31** # 54

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

Change: among raining frame
To: among training frame

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **31** # 115

Dudek, Mike Marvell

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

change "raining" into training"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **32** # 25

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"are shown in 149–12" should be "are shown in Figure 149–12"

SuggestedRemedy

Change the cross-reference format to "FigureNumber"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **48** # 55

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Subject verb agreeement

SuggestedRemedy

Change: The first 96 bits of the 16th partial PHY frame is
To: The first 96 bits of the 16th partial PHY frame are

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **103** *L* **48** # 255

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

typo: (bits of) PHY frame is

SuggestedRemedy

Replace by: (bits of) PHY frame are

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.6.1** *P* **105** *L* **45** # 84

Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Use preferred terminology for mandatory criteria.

SuggestedRemedy

Replace, "EEE-capable PHYs must synchronize" with, "EEE-capable PHYs shall synchronize" and adjust PICS, if necessary.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.6** *P* **106** *L* **26** # 256

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

"do not overlap" is not really correct, because the alignment of the link partners is allowed to be non-perfect.

SuggestedRemedy

Replace by "can only have a small overlap"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.7.2.1** *P* **108** *L* **4** # 282

Souvignier, Tom Broadcom

Comment Type **TR** *Comment Status* **X**

RFER_CNT_LIMIT and RFRX_CNT_LIMIT are not defined

SuggestedRemedy

See page 2 of "tu_3ch_03_0719.pdf".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.7.2.2** *P* **109** *L* **22** # 174

Regev, Alon Keysight Technologies

Comment Type **TR** *Comment Status* **X**

"rs-fec_frame_done" should be "rs_fec_frame_done"

SuggestedRemedy

change "rs-fec_frame_done" to "rs_fec_frame_done"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **113** *L* **42** # 162

Law, David Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Change the text '... time RFER_BAD_RF of the ...' to read '... time the RFER_BAD_RF state of the ...'.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **113** *L* **46** # 163

Law, David Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **X**

I'm struggling to find the definition of the RFER_CNT_LIMIT and RFRX_CNT_LIMIT.

SuggestedRemedy

Please add a cross-reference to where RFER_CNT_LIMIT and RFRX_CNT_LIMIT are defined.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **114** *L* **3** # 164

Law, David Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **X**

Subclause 149.3.7.2.2 'Variables' defines pcs_reset as a Boolean variable with no further definition of the values, which I understand to mean that the two possible values default to true and false. This seems to be confirmed in subclause 149.3.2.1 'PCS Reset function' which states that ' PCS Reset sets pcs_reset = TRUE while any of the above ...' and its use in the PCS 64B/65B Transmit and receive State diagrams where the open arrow entry is based on ' pcs_reset + ..'. Based on its use in the open arrow entry to the RFER_MT_INIT state in Figure 149–15 'RFER monitor state diagram' needs to be changed from 'pcs_reset = ON + ...' to 'pcs_reset + ...'.

SuggestedRemedy

Change 'pcs_reset = ON + ...'. to read 'pcs_reset + ...'.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **114** *L* **48** # 165

Law, David Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **X**

There is no transition condition on the transition from the INC_CNT2 state to the HI_RFER state in Figure 149–15 'RFER monitor state diagram'.

SuggestedRemedy

Add a transition condition on the transition from the INC_CNT2 state to the HI_RFER state.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **115** *L* **5** # 166

Law, David Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Please vertically and horizontally centre align all state names.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **115** *L* **20** # 102

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Technically this is really clause 149.3.7.3 but for some reason the state diagrams appears after clause 149.3.8.2.
Figure 149-16 (page 115) has 3 L transitions into Figure 149-17 (Page 116).
There is a corner case that makes things behave a little ugly that people may implement slight differently depending on interpretation. This change avoids the corner case.
Scenario:
T_TYPE(tx_raw) initially = LI at exactly a time lp_low_snr = true.
When this happens the state machine transitions into TX_L but does absolutely nothing and then immediately transitions into TX_WM state.
The intent here is to exit LPI when SNR is low.
But why enter LPI in the first place when the PHY already knows SNR is low.
Suggest remedy is to prevent entering Figure 149-17 when the PHY already knows that SNR is low.

SuggestedRemedy

Page 115 Figure 149-16.
Change the 3 T_TYPE(tx_raw) = LI to
(T_TYPE(tx_raw) = LI) * !lp_low_snr

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **116** *L* **13** # 103

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Technically this is really clause 149.3.7.3 but for some reason the state diagrams appears after clause 149.3.8.2.
The tx_lpi_req variable gets stuck true if LPI is presented on XGMII for less than a full RS frame time and then goes to something that is not LPI. This will cause Figures 149-16 and 149-20 to get out of sync.

Scenario:
XGMII indicats LPI which causes
T_TYPE(tx_raw) = LI, enter TX_L state (page 116)
XGMII stops sending LPI before end of RS frame which causes
T_TYPE(tx_raw) = (C+D+E+S+T), enter TX_WN state but tx_lpi_req never gets set to false because tx_alert_start_next is never set true.
Since RS frame is not complete (rs_fec_frame_done is not asserted page 119)
tx_lpi_active remains false hence state machine moves from TX_WN to TX_C state.
Meanwhile with tx_lpi_req stuck at true, rs_fec_frame_done will trigger eventually
and we move to SEND_SLEEP state and then onto SEND_QR state (page 119).
We are stuck there forever since tx_lpi_req is stuck at true.
Hence the EEE transmit state diagram (page 119) is out of sync with the PCS 64/65B transmit state diagram (page 115).
Remedy is to delay transition into TX_WN until tx_lpi_active is true to keep the 2 state diagrams in sync.

SuggestedRemedy

Page 116 Figure 149-17.
Change
lp_low_snr +T_TYPE(tx_raw) = (C + D + E + S + T)
to
(lp_low_snr + T_TYPE(tx_raw) = (C + D + E + S + T)) * tx_lpi_active

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **117** *L* **28** # 167

Law, David Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Suggest that a font be used for the each symbols in the state diagram to ease any future maintenance on the state diagram.

SuggestedRemedy

Suggest that the two instances of the symbol '=' in symbol font be changed to Airal font. They are used in 'R_TYPE_NEXT = ...' in the transition from RX_D to RX_E and the transition from RX_E to RX_E.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **117** *L* **41** # 168

Law, David Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Suggets that 'R_TYPE(rx_coded)= S' be changed to read 'R_TYPE(rx_coded) = S' (add a space between ")" and '=') on the transition from the RX_T to RX_D states.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **118** *L* **7** # 156

Law, David Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **X**

The LP_BLOCK_R constant assigned to rx_raw in the RX_L state isn't defined in subclause 149.3.7.2.1 'Constants', there is however a LPBLOCK_R constant defined in subclause 149.3.7.2. that isn't used.

SuggestedRemedy

Either change LP_BLOCK_R in the RX_L state to LPBLOCK_R, or change LPBLOCK_R in subclause 149.3.7.2.1 to LP_BLOCK_R.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **118** *L* **13** # 157

Law, David — Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **X**

The I_BLOCK_R constant assigned to rx_raw in the RX_W state isn't defined in subclause 149.3.7.2.1 'Constants', there is however an IBLOCK_R constant defined in subclause 149.3.7.2. that isn't used.

SuggestedRemedy

Either change I_BLOCK_R in the RX_R state to IBLOCK_R, or change IBLOCK_R in subclause 149.3.7.2.1 to I_BLOCK_R.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **118** *L* **19** # 158

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Suggets that 'R_TYPE(rx_coded)=I' be changed to read 'R_TYPE(rx_coded) = I' (add a space before and after the '=') on both exit conditions from the RX_W state.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3** *P* **118** *L* **23** # 173

Regev, Alon — Keysight Technologies

Comment Type **TR** *Comment Status* **X**

In figure 149-19, the counter lpi_rxw_err_cnt is used which was not previously defined.

SuggestedRemedy

In section 149.3.7.2.5 (Counters) add the following definition for lpi_rxw_err_cnt:
"lpi_rxw_err_cnt
An integer value that counts the number of receive wake on error conditions.
lpi_rxw_err_cnt is reset to zero during PCS_TEST. The counter is reflected in register 3.22 (see 45.2.3.12)."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **118** *L* **23** # 159

Law, David — Hewlett Packard Enterprise

Comment Type **T** *Comment Status* **X**

The lpi_rxw_err_cnt counter incremented in the RX_WE state of Figure 149–19 'PCS 64B/65B Receive state diagram, part b' is not defined or used anywhere.

SuggestedRemedy

Define the lpi_rxw_err_cnt counter and it's use, or delete from the RX_WE state.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **119** *L* **20** # 161

Law, David — Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Delete the spurious AND symbol from the end of the equation for the transition from SEND_SLEEP to SEND_QR.

SuggestedRemedy

Change the text '... * tx_lpi_req*'. to read ' * tx_lpi_req'.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9** *P* **120** *L* **20** # 194

Brandt, David — Rockwell Automation

Comment Type **E** *Comment Status* **X**

Missing space

SuggestedRemedy

Change: "OAM10-bit"
To: "OAM 10-bit"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9** *P* **120** *L* **23** # 58

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

unclear terminology used

SuggestedRemedy

Change: exchange, at a minimum, the link partner health status.
To: exchange, at a minimum, the link partner OAM status.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **121** *L* **2** # 57

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

poor alignment of lines in figure

SuggestedRemedy

Adjust lines/boxes in figure 149-21 so they are properly aligned and there don't appear to be different line widths.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **121** *L* **38** # 56

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

typo

SuggestedRemedy

Change: full OAM frame can packed into 8 super frames
To: full OAM frame can be packed into 8 super frames

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **121** *L* **38** # 106

Lo, William Axonne Inc.

Comment Type **E** *Comment Status* **X**

Grammar

SuggestedRemedy

Change "can packed into" to "can be packed into"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **121** *L* **52** # 257

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

typo: symbol

SuggestedRemedy

replace by: symbols

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **121** *L* **52** # 258

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

typo: symbol

SuggestedRemedy

replace by: symbols

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **122** *L* **13** # 134

Grau, Olaf Robert Bosch GmbH

Comment Type **E** *Comment Status* **X**

Bold OAM Bitfield delimiter

SuggestedRemedy

Only Bold delimiter for a OAM Superframe field

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.1** *P* **122** *L* **28** # 107

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

OAM field no longer has parity

SuggestedRemedy

Delete the clause
" and the symbol parity will not change"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.13** *P* **125** *L* **38** # 59

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

poor wording

SuggestedRemedy

Change: is required only when the EEE is implemented.
To: is required only when EEE is implemented.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.2.14** *P* **125** *L* **42** # 135

Grau, Olaf Robert Bosch GmbH

Comment Type **E** *Comment Status* **X**

Headline: BASE-T1 OAM Frame Acceptance Criteria: Which Speedgrade is mentioned here ?

SuggestedRemedy

MultiGBASE-T1 OAM Frame Acceptance Criteria

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.3** *P* **128** *L* **1** # 195

Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Should this refer to the "State Variables to OAM Register Mapping" that were edited in Clause 97 to be BASE-T1? Why do they need to appear twice?

SuggestedRemedy

Refer to the modified Clause 97 Table 97-6 for the BASE-T1 mappings and then define the additional mappings for MultiGBASE-T1.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.9.4.6** *P* **136** *L* **26** # 270

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

In Figure 149-24, the OAM receive state diagram, the entry condition into state "LOAD_RECEIVE_PAYLOAD" may cause an erronous corner case.

SuggestedRemedy

See page 4 of "tu_3ch_05_0719.pdf".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.1** *P* **139** *L* **16** # 60

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

misspelled word, sall -> shall

SuggestedRemedy

Change: The MultiGBASE-T1 PMA sall take no longer
To: The MultiGBASE-T1 PMA shall take no longer

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.1** *P* **139** *L* **16** # 108

Lo, William Axonne Inc.

Comment Type **ER** *Comment Status* **X**

Typo

SuggestedRemedy

Change "sall" to "shall"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.1** *P* **139** *L* **16** # 262

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

typo: sall

SuggestedRemedy

Replace by: shall

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.1** *P* **139** *L* **16** # 172

Regev, Alon Keysight Technologies

Comment Type **TR** *Comment Status* **X**

"shall" is misspelled as "sall"

SuggestedRemedy

change "sall" to "shall"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.2** *P* **139** *L* **32** # 61

Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

The clock jitter requirements are in 149.5.2.3, not 149.5.2.2.

SuggestedRemedy

Change: while meeting the transmit jitter requirements of 149.5.2.2.
To: while meeting the transmit jitter requirements of 149.5.2.3.
Make the same change on line 36.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.3** *P* **139** *L* **48** # 26

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

In "less than 2x10-10" the "x" should be a multiply sign (Ctrl-q 0) and the minus sign should be an en-dash (Ctrl-q Shft-p).
Same issue in 149.11.4.3.3 item PMAR1

SuggestedRemedy

In "less than 2x10-10" change the "x" to a multiply sign (Ctrl-q 0) and change the minus sign to an en-dash (Ctrl-q Shft-p).
Make the same changes in 149.11.4.3.3 item PMAR1

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.5** *P* **142** *L* **45** # 280

Souvignier, Tom Broadcom

Comment Type **TR** *Comment Status* **X**

In D2.0, the "Precoder requested" bit values are configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField. It may be more robust to optionally allow the PHY to choose the precoder on-the-fly based on channel and noise conditions.

SuggestedRemedy

See page 5 of "tu_3ch_01_0719.pdf".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.7** *P* **143** *L* **6** # 109

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Typo in bit index

SuggestedRemedy

Change "Oct8<1:0>, Oct9<1:0>, Oct10<7:0>" to "Oct8<7:0>, Oct9<7:0>, Oct10<7:0>"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.8** *P* **143** *L* **14** # 62

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

missing comma

SuggestedRemedy

Add comma after "Afterwards" in: Afterwards Oct4 through Oct10

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.8** *P* **143** *L* **15** # 63

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

unnecessary article

SuggestedRemedy

Change: After all the 7 octets
To: After all 7 octets

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.10** *P* **144** *L* **25** # 64

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

repeated words

SuggestedRemedy

Change: PHY Control state diagram state diagram
To: PHY Control state diagram

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **144** *L* **42** # 65

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Subject verb agreeement

SuggestedRemedy

Change: and the Link
Monitor state machines begins monitoring
To: and the Link
Monitor state machine begins monitoring

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.6** *P* **145** *L* **19** # 111

Lo, William Axonne Inc.

Comment Type **E** *Comment Status* **X**

Inconsistent Sn subscript style.
Lines 19, 20 does not subscript the n in Sn where everywhere else the n is in subscript.

SuggestedRemedy

Subscript the n in Sn in lines 19 and 20

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.6** *P* **145** *L* **20** # 110

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

Missing subscript

SuggestedRemedy

Change S[7:0] to Sn[7:0]
Note that the n in Sn should be subscripted.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.8** *P* **149** *L* **11** # 263

den Besten, Gerrit NXP Semiconductors

Comment Type **E** *Comment Status* **X**

RS FER is called RFER at other places in the spec

SuggestedRemedy

Replace RS FER by RFER

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.3.1** *P* **149** *L* **27** # 66

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

It appears that in hT(t), "h" and "(t)" are superscripts and "T" is a subscript.

SuggestedRemedy

Change "h" and "(t)" to normal with "T" as a subscript.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **149** *L* **27** # 92

D'Ambrosia, John Futurewei, U.S. Subsidiary of Huawei

Comment Type **E** *Comment Status* **X**

The naming of the PCS block in Fig 149-1 is inconsistent with the naming of the PCS block in Fig 44-1 (PDF Page 28, Line 37), which includes "64B/65B", and PCS Blocks in Fig 125-1 (PDF Pge 66 ,Line 14) which also includes the "64B/65B" text

SuggestedRemedy

Change the naming of the PCS block in Fig 149--1 to read "64B/65B RS-FEC PCS"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.1** *P* **150** *L* **32** # 68

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing return

SuggestedRemedy

Move "OK:…" to be on the line after "Values:

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.1** *P* **150** *L* **38** # 69

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing return

SuggestedRemedy

Move "OK:…" to be on the line after "Values:

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.1** *P* **150** *L* **43** # 27

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"pcs_data_mode" should not be split across two lines

SuggestedRemedy

Prevent "pcs_data_mode" from being split across lines.
(Click somewhere within "pcs_data_mode" and type Esc n s)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.1** *P* **150** *L* **44** # 160

Law, David Hewlett Packard Enterprise

Comment Type **E** *Comment Status* **X**

Typo, 'PCSDATAMODE.indicate' should read 'PCSDATAMODE.indication', see IEEE Std 802.3 subclause 1.2.2.1 'Classification of service primitives'.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.1** *P* **151** *L* **7** # 112

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

The watchdog function is removed from the state diagrams.
There is no longer a need for the watchdog variable.

SuggestedRemedy

Remove the entire paragraph on PMA_watchdog_status

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.1** *P* **151** *L* **25** # 67

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing return

SuggestedRemedy

Move "OK:…" to be on the line after "Values:

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.4.2** *P* **151** *L* **41** # 113

Lo, William Axonne Inc.

Comment Type **TR** *Comment Status* **X**

The maxwait timer was removed in previous drafts but all reference to this was not cleanly removed.
Side note: the maxwait_timer functionality is actually in the autoneg and Link Synchronization state diagrams so it is redundant here.

SuggestedRemedy

Page 151 line 45 - Delete maxwait_timer paragraph
Page 144 line 21 - Delete ", until maxwait_timer expires"
Page 144 lines 24 to 27 - Delete paragraph
Page 153 line 13 - Delete INIT_MAXWAIT_TIMER state, delete UCT arrow and reconnect arrow from DISABLE_TRANSMITTER to SILENT
Page 153 line 51 - Delete "stop maxwait_timer" in box
Page 182 line 35 - Delete maxwait_timer row

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.5** *P* **154** *L* **12** # 281

Souvignier, Tom Broadcom

Comment Type **TR** *Comment Status* **X**

There is a corner case in the Link Monitor state diagram (Figure 149-34) that may cause unnecessary delays in the startup process. This can be fixed by a simple change in the branch condition from the LINK_DOWN state into the LINK_UP state.

SuggestedRemedy

See page 4 of "tu_3ch_02_0719.pdf".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **38** # 70

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Add non-breaking space in the number per the IEEE-SA Style Manual.

SuggestedRemedy

Change: 175.78125 MHz.
To: 175.781 25 MHz.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **40** # 39

Farjadrad, Ramin Aquantia

Comment Type **T** *Comment Status* **X**

[JITTER TEST MODE] The description of test mode 2 needs to be expanded to allow the multiple test patterns.

Comments tagged JITTER TEST MODE should be treated as a group.

SuggestedRemedy

Change the fourth paragraph of 149.5.1. to read:

Test mode 2 is for transmitter jitter testing on MDI when transmitter is in MASTER timing mode. When test mode 2 is enabled, the PHY shall transmit the pattern controlled by bits 1.2313.1:0, as shown in Table 149-15a, with the transmitted symbols timed from its local clock source

Insert Table 149-15a Jitter test modes after (new) fourth paragraph of 149.5.1 as follows:

Table 149-15a Jitter test modes

Bit 1.2313.1	Bit 1.2313.0	Test Pattern
0	0	Square wave: a continuous pattern of 16*S {+1} symbols followed by 16*S {-1} symbols
0	1	JP03A: a continuous pattern of JP03A (as specified in 94.2.9.1)
1	0	JP03B: a continuous pattern of JP03B (as specified in 94.2.9.2)
1	1	Reserved

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **41** # 116

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **X**

Further work on PAM4 systems after Claue 94 was completed decided that the JP03A and JP03B signals were too un-representative of normal traffic. Instead the PRBS13Q pattern is used for jitter testing. The dual dirac jitter specification methodology has also been replaced by a more direct measure of jitter at the probability relevant to the clause. (Called J?U where ? is the probability of interest) and the Jrms value. The test methodology is defined in Clause 120D.3.1.8.1

SuggestedRemedy

Replace the reference to JP03A and JP03B with a reference to PRBS13Q described in sub-clause 120.5.11.2.1 and change the references in 149.5.2.3.2 as well.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **41** # 200

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

It's disappointing to see these very artificial test patterns from Clause 94 being brought back when we have moved on to better methods for PAM4 testing in Annex 120D and subsequent clauses such as 136.

SuggestedRemedy

Define jitter and linearity with PRBS13Q, following 120D.3.1.8 Output jitter and 120D.3.1.2 Transmitter linearity. Make JP03A and JP03B optional.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **46** # 264

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

"continues pattern of {-1,+1} symbols" The meaning of the word 'continuous' is not very clear. Is this refering to toggling pattern or something else?

SuggestedRemedy

If this is about a toggline pattern, say toggling instead of continuous. If otherwise, specify more specifically what was meant.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **50** # 120

Sedarat, Hossein Ethernovia

Comment Type **T** *Comment Status* **X**

The transmit linearity test, as defined in 149.5.2.2, requires 2 test patterns: a low frequency short pattern to measure the accuracy of the PAM4 levels, and a high-frequency and long PRBS pattern to measure the transmit SNDR. Test mode 4 does not provide a provision to transmit 2 test patterns. Since the nonlinearity of the transmitter can be measured with respect to the ideal PAM4 levels, the short test pattern may not offer additional value. Also, the long high-frequency pattern of QPRBS13, as defined in 94.2.12.7, is constructed in a peculiar way which may be more fitting for a 100G-KP4 transmitter. A simple PRBS13 as the test pattern is as effective, more efficient to implement and less prone to misinterpretation of the specifications in another standard.

SuggestedRemedy

Replace "… transmit linearity test pattern defined in 94.29.4" with "… PRBS13 test pattern as defined in equation 94-3 and figure 94-6". And in subclause 149.5.2.2, add the following to the end of first sentence: "using ideal PAM4 level of 1/3 for effective symobl levels of ES1 and ES2."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **155** *L* **51** # 117

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **X**

Further work on PAM4 systems after Claue 94 was completed decided that the transmitter linearity test pattern is too un-representative of normal traffic. Instead the PRBS13Q pattern is used for linearity testing. TThe test methodology is defined in Clause 120D.3.1.2

SuggestedRemedy

Replace the reference to the transmitter linearity test pattern with a reference to PRBS13Q described in sub-clause 120.5.11.2.1

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1.1** *P* **156** *L* **19** # 208

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

"1.2.6 Accuracy and resolution of numerical quantities
Unless otherwise stated, numerical limits in this standard are to be taken as exact, with the number of significant digits and trailing zeros having no significance." Stating otherwise makes life more complicated, and an attempt to enforce test equipment spec is out of scope. Implementers and testers can sort out their measurement accuracy for themselves.

SuggestedRemedy

Delete "The tolerance of resistors shall be +/- 0.1%."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1.1** *P* **156** *L* **19** # 201

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

Not a test spec

SuggestedRemedy

Change "shall be used" to "are defined for"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1.1** *P* **156** *L* **33** # 118

Dudek, Mike Marvell

Comment Type **TR** *Comment Status* **X**

1pF is only 50 Ohm at 3GHz. This probe will significantly degrade the performance of the signal

SuggestedRemedy

Delete Figure 149-36 and use Figure 149-38 for these tests.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2** *P* **157** *L* **31** # 202

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

I don't know what you mean by "The PMA shall operate with AC-coupling to the MDI". Are you saying the transmitter is AC coupled? The receiver? Both? Or that AC coupling is provided to the PMA by something else?

SuggestedRemedy

This text (as modified for this situation) might be useful:
86A.4.1 nPPI host to module electrical specifications
The module electrical input shall be AC-coupled, i.e., it shall present a high DC common-mode impedance
at TP1. There may be various methods for AC-coupling in actual implementations.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.2** *P* **157** *L* **46** # 121

Sedarat, Hossein Ethernovia

Comment Type **T** *Comment Status* **X**

A transmitter with an SNDR of 31 dB, as defined in 94.3.12.7, is a significant contributor to the input noise of the far-end receiver with considerable impact on operating margin and major reduction of the noise budget left for the receiver.

SuggestedRemedy

Replace the sentence "The transmitter shall meet the SNDR distortion as specified in 94.3.12.7" with "The transmit SNDR, as defined in 94.3.12.7 shall be greater than 38 dB"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.2** *P* **157** *L* **46** # 119

Dudek, Mike Marvell

Comment Type **T** *Comment Status* **X**

Further work on PAM4 systems after Claue 94 was completed improved the methodology for measuring SNDR. TThe test methodology is defined in Clause 120D.3.1.6. Note also that the existing reference to Clause 94 required a test pattern QPRBS13 which was not listed as a test pattern.

SuggestedRemedy

Replace the test methodology with that from 120D.3.1.6.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.3.1** *P* **158** *L* **16** # 40

Farjadrad, Ramin Aquantia

Comment Type **T** *Comment Status* **X**

[JITTER TEST MODE] Random jitter test description needs to be modified to reflect that there are multiple test patterns available.

Comments tagged JITTER TEST MODE should be treated as a group.

SuggestedRemedy

Change first sentence of 149.5.2.3.1 From: In addition to jitter measurement for transmit clock, MDI jitter is measured when in test mode 2 and using test fixture 3 as shown in Figure 149-38.

To: In addition to jitter measurement for transmit clock, MDI jitter is measured when in test mode 2 with the square wave pattern (see Table 149-15a) and using test fixture 3 as shown in Figure 149–38.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.3.2** *P* **158** *L* **26** # 41

Farjadrad, Ramin Aquantia

Comment Type **T** *Comment Status* **X**

[JITTER TEST MODE] Deterministic jitter test description needs to be modified to reflect that there are multiple test patterns available.

Comments tagged JITTER TEST MODE should be treated as a group.

SuggestedRemedy

Change first sentence of 149.5.2.3.2 from: “Jitter measurements in this subclause are performed with the transmitter enabled in Master timing mode with a local clock.”

To: “Jitter measurements in this subclause are performed with the transmitter enabled in Master timing mode in test mode 2, with either the JP03A or JP03B pattern, and timed with a local clock.”

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.3.2** *P* **158** *L* **29** # 71

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

The word "Clause" doesn't belong before a subclause reference.

SuggestedRemedy

Change: Clause 94.3.12.6.1 to 94.3.12.6.1. Also, "1" should be made part of the "External reference".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.3.2** *P* **158** *L* **29** # 28

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"as specified in Clause 94.3.12.6.1" should be "as specified in 94.3.12.6.1" and the final "1" should be in forest green font.
On line 35 "as specified in Clause 94.3.12.6.2" should be "as specified in 94.3.12.6.2"

SuggestedRemedy

Change "as specified in Clause 94.3.12.6.1" to "as specified in 94.3.12.6.1" and apply the character tag External to the final "1".
On line 35 change "as specified in Clause 94.3.12.6.2" to "as specified in 94.3.12.6.2" .

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.3.2** *P* **158** *L* **35** # 72

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

The word "Clause" doesn't belong before a subclause reference.

SuggestedRemedy

Change: Clause 94.3.12.6.2 to 94.3.12.6.2.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.4** *P* **158** *L* **41** # 265

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

The transmit power range was shifted from -1dB/+2dB to -1.5dB/+1.5dB based on concerns on the lower limit for 10Gbps operation. However this shift makes the upper limit unnessarilly more critical for lower speed operation.

SuggestedRemedy

Change the upper limit back to +2dB.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.2.4** *P* **158** *L* **42** # 73

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

unnecessary article

SuggestedRemedy

Change: using the test fixture 4
To: using test fixture 4

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.3.1** *P* **160** *L* **11** # 186

Brandt, David Rockwell Automation

Comment Type **T** *Comment Status* **X**

I don't see where the frame error ratio comes from. If I assume this is actual MAC data with addresses and FCS, I get FER = 1e-12 * (800 + 22) * 8 = 6.6e-9. I note that 149.5.3.2 does not add any MAC farme overhead.

SuggestedRemedy

Please check the math or describe better.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.3.2** *P* **160** *L* **17** # 74

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing Oxford comma.

SuggestedRemedy

Change: Gaussian distribution, bandwidths and magnitudes
To: Gaussian distribution, bandwidths, and magnitudes

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.3.2** *P* **160** *L* **20** # 187

Brandt, David Rockwell Automation

Comment Type **T** *Comment Status* **X**

149.5.3.1 seem inconsistenmt. 149.5.3.1 has "frame error ratio", but wouldn't these frames crossing XGMII also be counted as 149.5.3.2 "frame loss ratio" when they get to the MAC? There should be no further correction after RS-FEC. Both use the same link segment specified in 149.7.

SuggestedRemedy

Consider whether the same terminology, packet sizes and measurement points can be used.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.8.2.1** *P* **163** *L* **20** # 249

den Besten, Gerrit NXP Semiconductors

Comment Type **TR** *Comment Status* **X**

The MDI return loss at high frequency is tighter than necessary IMO. The MDI is far-end return loss which gets twice attenuated by insertion loss. This return loss component therefore doesn't worsen the RL/IL ratio. I think the currently specified link segment return loss and MDI return loss are not well balanced for a low relative cost. I would like to propose to relax the MDI return loss.

SuggestedRemedy

Formula 12-10log(f/3000) change into 10-10*log(f/3000S) for 300S<f<3000S
Formula 12-20*log(f/3000) change into 10-20*log(f/3000S) for 3000S<f<Fmax

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.8.2.1** *P* **163** *L* **23** # 248

den Besten, Gerrit NXP Semiconductors

Comment Type **T** *Comment Status* **X**

The MDI curve is discontinous at 500MHz: 20dB versus 19.78dB.

SuggestedRemedy

Implicitly fixed by proposal to relax MDI return loss a bit. See next item.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.7.1.4** *P* **164** *L* **32** # 244

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **T** *Comment Status* **X**

"The coupling attenuation is tested... Additional coupling attenuation test methodologies..." seems contradictory - it implies that the annex contains other ways to test the coupling attenuation. I believe we are requiring that the cable pass testing according to the IEC spec, with the parameters specified in Annex 149A. (or else Annex 149A can't be normative)

SuggestedRemedy

Change "In order to limit the noise at the receiver as well as emissions, the MultiGBASE-T1 link segment shall meet
the coupling attenuation values determined by using Equation (149–24). The coupling attenuation is tested
as specified in IEC 62153-4-7 using triaxial tube in tube method. Additional coupling attenuation test methodologies
are defined in Annex 149A."
to: "In order to limit the noise at the receiver as well as emissions, when tested using the IEC 62153-4-7 triaxial tube in tube method as specified in Annex 149A, the MultiGBASE-T1 link segment shall meet the coupling attenuation values determined by using Equation (149–24)."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.8.2.1** *P* **168** *L* **1** # 268

Stewart, Heath Analog Devices

Comment Type **TR** *Comment Status* **X**

Transmitter droop was specified considering a 2uH inductance per transmitter output (4uH total). Need to revise the low frequency MDI return loss mask to be in agreement with this value. Otherwise either specification undermines the relavance of the other.

SuggestedRemedy

See "stewart_3ch_01_0719" Slide 13 and 16

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.8.2.1** *P* **168** *L* **1** # 269

Stewart, Heath Analog Devices

Comment Type **TR** *Comment Status* **X**

High frequency Return Loss was presented considering the best performance of power coupling inductors and MDI connectors. However, to provide additional protection to the PHY, allowance needs to be made for ESD clamping devices. Need to revise the high frequency mask to accomodate for additional capacitive loading due to these devices.

SuggestedRemedy

See "stewart_3ch_01_0719" Slide 15 and 16

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.8.2.1** *P* **168** *L* **2** # 247

den Besten, Gerrit NXP Semiconductors

Comment Type **TR** *Comment Status* **X**

There is currently only one MDI return loss template for all speeds. I think we should differentiate requirements for different speeds to allow looser spec for 2.5Gbps and 5Gbps. Otherwise these lower speeds will be overspecified. The easiest way to achieve this is by scaling all frequency values by S except for the 1MHz lower bound.

SuggestedRemedy

Change:
10 --> 10S
500 --> 500S
3000 --> 3000S
4000 --> Fmax

Remove:
For 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1, the maximum applicable frequency for the MDI return loss is 4000 × S MHz.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.2.2** *P* **169** *L* **41** # 188

Brandt, David Rockwell Automation

Comment Type **T** *Comment Status* **X**

This paragraph has 2 shalls that apply to entire products. The seems out of our scope.

SuggestedRemedy

Suggest the "shalls" be replaced with text in the spirit of the last sentence of the paragraph.
Change1st: "shall", To: "is expected be able to"
Change 2nd: "shall be tested", To: "is expected to allow products to be tested"
Delete: ES4 and ES5.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.11.3** *P* **172** *L* **6** # 29

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"AN" and "EEE" appear in the Status column in 149.11.4.1, so they should be "*AN" and "*EEE" (preceded by "*")

SuggestedRemedy

Change "AN" and "EEE" to "*AN" and "*EEE"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.11.4.1** *P* **172** *L* **28** # 30

Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

The PICS proforma tables in 149.11.4.1 do not have the appropriate entries in the "Support" column.
Same issue in every other subclause of the Clause 149 PICS and also the Annex 149A PICS

SuggestedRemedy

In 149.11.4.1, every other subclause of the Clause 149 PICS and also the Annex 149A PICS for items with status of:
"M" change the Support entry to "Yes [ ]"
"O" change the Support entry to "Yes [ ] No [ ]"
"Something:M" change the Support entry to "Yes [ ] N/A [ ]"
"Something:O" change the Support entry to "Yes [ ] No [ ] N/A [ ]"

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.2.1** *P* **173** *L* **5** # 139

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry before PCT1 of Draft 2.0, with the following content:
Feature: PCS Reset
Subclause: 149.3.2.1
Value/Comment: Described in 149.3.2.1
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.11.4.2.1** *P* **174** *L* **3** # 31

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The entries in the subclause column on page 174 wrap across two lines

SuggestedRemedy

widen the subclause column so that the entries do not wrap across two lines.

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.2.2** *P* **175** *L* **10** # 140

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry after PCR2 of Draft 2.0, with the following content:
Feature: Frame and block synchronization
Subclause: 149.3.2.3.1
Value/Comment: Described in 149.3.2.3.1
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.2.2** *P* **175** *L* **17** # 141

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Incorrect subclause reference.

SuggestedRemedy

Change '149.3.2.3.2' to '149.3.2.3.3'.

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.2.7** *P* **177** *L* **16** # 142

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Capitalize the 'i' in 'ignore' in the Value/Comment field of PCSL4.

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.2.8** *P* **177** *L* **33** # 143

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry before OAM2 of Draft 2.0, with the following content:
Feature: Partially transmitted OAM frame
Subclause: 149.3.9.2.1
Value/Comment: Described in 149.3.9.2.1
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.3.2** *P* **178** *L* **15** # 144

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Duplicate PICS entry.

SuggestedRemedy

Remove PMAT1.

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.3.10** *P* **182** *L* **35** # 145

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Change 'Expire s97.5' to 'Expires 97.5'

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.4.3** *P* **184** *L* **35** # 146

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Update subclause reference

SuggestedRemedy

Change the subclause reference in the Subclause column from '149.5.2.3' to '149.5.2.3.1' for TES12, TES13, TES14, and TES15.

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.4.3** *P* **185** *L* **1** # 148

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry after TSE15 of Draft 2.0, with the following content:
Feature: EOJpk-pk Jitter
Subclause: 149.5.2.3.2
Value/Comment: Less than 4/S ps
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.4.3** *P* **185** *L* **1** # 147

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry after TSE15 of Draft 2.0, with the following content:
Feature: DJpk-pk Jitter
Subclause: 149.5.2.3.2
Value/Comment: Less than 9/S ps
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.4.3** *P* **185** *L* **3** # 149

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Incorrect dBm values in TSE16.

SuggestedRemedy

Change '-1 dBm' to '-1.5 dBm', and change '2 dBm' to '1.5 dBm'

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.5** *P* **186** *L* **18** # 150

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Change '2.5G return loss' to '2.5GBASE-T1 return loss'

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.5** *P* **186** *L* **20** # 151

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Typo

SuggestedRemedy

Change '5G return loss' to '5GBASE-T1 return loss'

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.5** *P* **186** *L* **22** # 152

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Change '10G return loss' to '10GBASE-T1 return loss'

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.5** *P* **186** *L* **22** # 153

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Typo.

SuggestedRemedy

Change "Equation (149-21)' to 'Equation (149-22)'

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.5** *P* **186** *L* **29** # 154

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry after LSC6 of Draft 2.0, with the following content:
Feature: PSANEXT
Subclause: 149.7.2.1
Value/Comment: See Equation (149-25)
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149** *SC* **11.4.5** *P* **186** *L* **29** # 155

Donahue, Curtis UNH-IOL

Comment Type **E** *Comment Status* **X**

Shall statement missing associated PICS item

SuggestedRemedy

Insert new PICS entry after LSC6 of Draft 2.0, with the following content:
Feature: PSAACR-F
Subclause: 149.7.2.2
Value/Comment: See Equation (149-26)
Status: M
Support: Yes[] N/A[]

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.1** *P* **189** *L* **12** # 206

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

"This annex describes the test methodologies that shall be used to measure": not a test spec, no requirement to measure.

SuggestedRemedy

Change to "may be used".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.A.2** *P* **189** *L* **18** # 130

Shariff, Masood CommScope

Comment Type **TR** *Comment Status* **X**

Incorrect statement. Alien Crosstalk defines coupling between disturbed and disturber link segments and cannot be measured using coupling attenuation test fixtures. Figure 149-41 in Clause 149.7.2 shows an illustration for alien cross talk measurements and also refers to Clause 97B for additional details. There is no reference to Annex 149A

SuggestedRemedy

From: Coupling and screening attenuation are the main parameters for a shielded differential link segment to define its alien crosstalk and EMC properties. To: Coupling and screening attenuation are the main parameters for a shielded differential link segment to define
its EMC properties.

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.2** *P* **189** *L* **26** # 234

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

"Measurements to be performed... 75%" isn't a sentence.

SuggestedRemedy

Change "Measurements to be performed" to "Measurements are performed"

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.2** *P* **189** *L* **26** # 207

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

This isn't a test spec. Products have to work over a much wider range than this - how that is assured is up the the implementer.

SuggestedRemedy

Delete "Measurements to be performed at 23 ± 5°C and relative humidity of 25% to 75%."

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.2** *P* **189** *L* **26** # 75

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Per the IEEE-SA Style Manual, "If tolerances are provided, the unit shall be given with both the basic value and the tolerance"

SuggestedRemedy

After 23, add the degree symbol and then "C".

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.3** *P* **189** *L* **31** # 235

Zimmerman, George ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S

Comment Type **E** *Comment Status* **X**

"The reference cable assembly is intended to be a simplified representation of the components, that are used within a wiring harness, which are cable, PCB connectors, and inline connectors." is grammatically awkward

SuggestedRemedy

Suggest changing to "The reference cable assembly is intended to be a simplified representation of the components used within a wiring harness. These include cable, PCB connectors, and inline connectors."

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.3** *P* **189** *L* **31** # 76

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

unnecessary comma

SuggestedRemedy

Change: simplified representation of the components, that are used
To: simplified representation of the components that are used

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.3** *P* **189** *L* **32** # 132

Shariff, Masood CommScope

Comment Type **ER** *Comment Status* **X**

Incomplete and ambiguous statement

SuggestedRemedy

From: This also ensures that connectors and cable are matched in terms of balance and shielding, in order to reach sufficient coupling and
screening attenuation. To: This also ensures that connectors and cable are matched in terms of balance and shielding, in order to reach sufficient accuracy to measure coupling and screening attenuation.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.A.4** *P* **191** *L* **8** # 131

Shariff, Masood CommScope

Comment Type **ER** *Comment Status* **X**

Correct standards specifications avoiding ambiguity.

SuggestedRemedy

From: Placing the termination resistors inside the connector,in order to omit the transition to the PCB, is not allowed. To: Termination resistors shall not be placed inside the connector in order to omit the transition to the PCB.

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.5** *P* **192** *L* **2** # 32

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The annex title is quoted in four places in the PICS and each should match the actual annex title.

SuggestedRemedy

In the title of 149A.5, the first sentence of 149A.5.1, the top row of the table in 149A.5.2.2, and the title of 149A.5.4 change:
"Coupling attenuation test methodology" to:
"Coupling and screening attenuation test methodology"

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.5.4** *P* **194** *L* **4** # 1

Hajduczenia, Marek Charter Communications

Comment Type **E** *Comment Status* **X**

Text of column Feature seems to be a few points larger than the other columns in the same table.

SuggestedRemedy

Please align the font size

Proposed Response *Response Status* **O**

Cl **149A** *SC* **149A.5.4** *P* **195** *L* **1** # 33

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Recent standards published by IEEE (and the 802.3 template) do not force each Clause to start on even or odd pages, so there should be no blank pages between clauses.

SuggestedRemedy

Remove the blank pages between clauses

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B** *P* **196** *L* **4** # 199

Dawe, Piers Mellanox

Comment Type **TR** *Comment Status* **X**

An informative annex with state diagrams - that's crazy!

SuggestedRemedy

Remove the state diagrams or change the annex's status to normative (but optional, presumably)

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.1** *P* **196** *L* **12** # 181

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Mispelling: "MutliGBase-T1"
Occurs also on line 46

SuggestedRemedy

Search document for "MutliGBASE" anre replace with "MultiGBASE"

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.1** *P* **196** *L* **17** # 283

Souvignier, Tom Broadcom

Comment Type **ER** *Comment Status* **X**

There is a typo on line 17.

SuggestedRemedy

Change from "…is loaded to 3.2318 and 3.23.19 for transmission…"
To ""…is loaded to 3.2318 and 3.2319 for transmission…"

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.1** *P* **196** *L* **18** # 284

Souvignier, Tom Broadcom

Comment Type **ER** *Comment Status* **X**

There is a typo on line 18.

SuggestedRemedy

Change from "…is read from 3.2320 and 3.23.21…"
To "…is read from 3.2320 and 3.2321…"

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.2.7** *P* **197** *L* **49** # 182

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

REC hasn't been defined yet before this section, and would benefit from being defined in parenthesis.

SuggestedRemedy

Change:
"REC in OAM<13:12><7:0>"
To:
"REC (Receive Error Counter) in OAM<13:12><7:0>"

Or: add a line referring the reader to section 149B.2.9

Also on Page 198, Line 4

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.2.9** *P* **198** *L* **13** # 203

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **X**

How is the error count loaded into these two bytes?

SuggestedRemedy

Which is most significant byte and bit?

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.1** *P* **199** *L* **1** # 274

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

Variable "mr_tx_request_rec_clear" does not match to any register bits in Table 149-9. It also looks like a duplicate of the "tx_clear_rec".

SuggestedRemedy

Propose to delete line 1 to 5

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.1** *P* **199** *L* **7** # 271

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

Variable name should be consistent with Table 149-9 PCS control/status variable name

SuggestedRemedy

Change variable name from "rx_clear_rec" to "mr_tx_clear_rec".

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.1** *P* **199** *L* **13** # 272

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

Variable name should be consistent with Table 149-9 PCS control/status variable name

SuggestedRemedy

Change variable name from "tx_clear_rec" to "mr_tx_clear_rec".

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.1** *P* **199** *L* **21** # 273

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

Variable name should be consistent with Table 149-9 PCS control/status variable name

SuggestedRemedy

Change counter name from "tx_rec" to "mr_tx_rec".

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.3** *P* **199** *L* **26** # 2

Hajduczenia, Marek Charter Communications

Comment Type **TR** *Comment Status* **X**

I am very confused why an informative annex would have state diagrams that describe the required behavior of the OAM functions needed for the operation of the link

SuggestedRemedy

Seems like this annex ought to be normative

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.3** *P* **199** *L* **26** # 183

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Section heading "149B.3.2.3 State Diagrams" is orphaned from the diagrams it contains. Move to the next page.

SuggestedRemedy

Move heading "149B.3.2.3 State Diagrams" to top of page 200 with diagrams 149B-2 and 149B-3.

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.3** *P* **200** *L* **3** # 275

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

In Figure 149B-2, the variable values and variable names should be consistent with definitions.

SuggestedRemedy

See page 4 of "tu_3ch_04_0719.pdf".

Proposed Response *Response Status* **O**

Cl **149B** *SC* **149B.3.2.3** *P* **200** *L* **38** # 276

Tu, Mike Broadcom

Comment Type **T** *Comment Status* **X**

In Figure 149B-3, the variable values and variable names should be consistent with definitions.

SuggestedRemedy

See page 5 of "tu_3ch_04_0719.pdf".

Proposed Response *Response Status* **O**