Cl **1** *SC* **1.3** *P* **22** *L* **8** # 1

Anslow, Pete Ciena

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

IEC references in the in-force standard have an em dash in front of "Part" with no spaces on either side. This is also true for other "-" separators in the title.

SuggestedRemedy

For the IEC reference being added replace " - " before "Part", "Test", and "Triaxial" with an em dash with no spaces before and after.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.82aa** *P* **22** *L* **20** # 2

Anslow, Pete Ciena

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

IEEE Std 802.3cb-2018 has now been approved.

SuggestedRemedy

Change all occurrences of "IEEE Std 802.3cb-201x" to "IEEE Std 802.3cb-2018" throughout the draft.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.344a** *P* **22** *L* **31** # 3

Anslow, Pete Ciena

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

IEEE Std 802.3bt-2018 has deleted definition 1.4.294, so the definition for MultiGBASE-T is now 1.4.333

SuggestedRemedy

Change the editing instruction to:
Insert new definition for MultiGBASE-T1 after 1.4.333 MultiGBASE-T (re-numbered from 1.4.334 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:
Renumber the new definition as 1.4.333a

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.495b** *P* **22** *L* **38** # 4

Anslow, Pete Ciena

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

IEEE Std 802.3bt-2018 has deleted definition 1.4.294, so the definition for Type F PoDL System should be 1.4.494b

SuggestedRemedy

In the editing instruction change: "1.4.495a" to "1.4.494a"
Renumber the new definition as 1.4.494b

Proposed Response *Response Status* **O**

Cl **23** *SC* **23** *P* **30** *L* **3** # 5

Anslow, Pete Ciena

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

The "Notes for Editors" should not be in the draft

SuggestedRemedy

Delete the "Notes for Editors"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **31** *L* **8** # 6

Anslow, Pete Ciena

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

The use of "-" between numbers to indicate a range is discouraged by the IEEE style guide.
"adjust" is not a valid editing instruction.
There are two ":" at the end

SuggestedRemedy

Change the editing instruction to:
Insert new rows in Table 45-3 for registers 1.2309 to 1.2316 after the row for register 1.2308, and change the reserved row as shown (unchanged rows not shown):

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **31** *L* **17** # 7

Anslow, Pete Ciena

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

The rows for registers 1.2309 to 1.2316 are associated with an "Insert" editing instruction, so should not be underlined.

SuggestedRemedy

Remove the underline from the rows for registers 1.2309 to 1.2316

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **31** *L* **25** # 8

Anslow, Pete Ciena

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

In the row for register 1.2313, "45.2.1.196" should be a cross-reference
In the row for register 1.2315, "45.2.1.1988" has a spurious "8" character at the end.

SuggestedRemedy

In the row for register 1.2313, make "45.2.1.196" a cross-reference
In the row for register 1.2315, delete the "8" at the end of "45.2.1.1988"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185** *P* **32** *L* **29** # 9

Anslow, Pete Ciena

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

The deleted reserved row in Table 45-149 appears to have an underlined and strikethrough space between "1" and "x" and a strikethrough space missing between the two "x" characters

SuggestedRemedy

Remove the underline from the strikethrough space between "1" and "x" and add a strikethrough space between the two "x" characters

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185.2** *P* **32** *L* **39** # 10

Anslow, Pete Ciena

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

In the editing instruction "(as modified by 802.3cg)as" should be "(as modified by IEEE Std 802.3cg-201x) as"
Note the missing space after the ")" character

SuggestedRemedy

In the editing instruction change:
"(as modified by 802.3cg)as" to:
"(as modified by IEEE Std 802.3cg-201x) as"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192** *P* **32** *L* **45** # 11

Anslow, Pete Ciena

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

In the editing instruction "Insert 45.2.1.192 and 45.2.1.196" should be "Insert 45.2.1.192 through 45.2.1.196"

SuggestedRemedy

In the editing instruction change:
"Insert 45.2.1.192 and 45.2.1.196" to:
"Insert 45.2.1.192 through 45.2.1.196"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192** *P* **32** *L* **48** # 12

Anslow, Pete Ciena

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

In the text of 45.2.1.192 "MultiGBASE-T1 PMA register" should be "MultiGBASE-T1 PMA control register"

SuggestedRemedy

Change:
"MultiGBASE-T1 PMA register" to:
"MultiGBASE-T1 PMA control register"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192** *P* **33** *L* **11** # 13
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
In the left hand column of Table 45-155a, "1.2309.13:12" should not wrap across two lines

SuggestedRemedy
Make the "Bit(s)" column wider so that "1.2309.13:12" does not wrap across two lines

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.1** *P* **33** *L* **35** # 14
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Notes should have paragraph tag "Note" applied

SuggestedRemedy
Apply paragraph tag "Note" to the note.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.3** *P* **34** *L* **2** # 15
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Strange paragraph formatting at the top of page 34.
"The default value of bit 1.2309.11 is zero." appears to be a separate paragraph, but if so, the spacing is incorrect.

SuggestedRemedy
Fix the formatting at the top of page 34

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.4** *P* **34** *L* **12** # 16
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
In the heading of 45.2.1.192.4, "(1.2309.14)" should be "(1.2309.10:9)"

SuggestedRemedy
In the heading of 45.2.1.192.4, change "(1.2309.14)" to "(1.2309.10:9)"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.4** *P* **34** *L* **14** # 17
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"149.3.2.2.19" should be a cross-reference

SuggestedRemedy
Make "149.3.2.2.19" a cross-reference

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.193** *P* **34** *L* **31** # 18
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
In Table 45-155b, "MultiGBASE-T1 OAM Ability" should not have a capital A in Ability

SuggestedRemedy
Change to "MultiGBASE-T1 OAM ability" as per the heading of 45.2.1.193.1

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.193.4** *P* **35** *L* **23** # 19
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"either bit 1.2318.11 or bit 1.0.11" should be "either bit 1.2309.11 or bit 1.0.11"

SuggestedRemedy
Change "1.2318.11" to "1.2309.11"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194** *P* **35** *L* **48** # 20
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Double full stop ".."

SuggestedRemedy
Delete one "."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.195** *P* **36** *L* **45** # 21
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Double full stop ".."

SuggestedRemedy
Delete one "."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.196.1** *P* **37** *L* **48** # 22
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
In the heading of 45.2.1.196.1, "(1.2315.15:13)" should be "(1.2313.15:13)"

SuggestedRemedy
In the heading of 45.2.1.196.1, change "(1.2315.15:13)" to "(1.2313.15:13)"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.196.1** *P* **38** *L* **5** # 23
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**
In Table 45-155e, the Test mode control bits should be R/W

SuggestedRemedy
Change the entry in the R/W column to "R/W" and also change footnote a to "RO = Read only, R/W = Read/Write"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.197** *P* **38** *L* **21** # 24
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
IEEE uses an en-dash as a minus sign and also it should not be on a different line from the number.

SuggestedRemedy
Since this draft appears to be written using FrameMaker version 12, this can be fixed by changing the minus sign to an en-dash (Ctrl-q Shft-p) and ensuring that under Format, Document, Text Options, en-dash does not appear in the Allow Line Breaks After list.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.198** *P* **38** *L* **28** # 25
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
IEEE uses an en-dash as a minus sign

SuggestedRemedy
Change the minus sign to an en-dash (Ctrl-q Shft-p) here and also on line 37

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.199** *P* **38** *L* **32** # 26
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
it is preferable to use "Rx" rather than "RX" to be an abbreviation of receiver.

SuggestedRemedy
Change "RX" to "Rx" in 3 places in 45.2.1.199 (including the title) to align with the name in Table 45-3

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **38** *L* **44** # 27

Anslow, Pete Ciena

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

The use of "-" between numbers to indicate a range is discouraged by the IEEE style guide.
"adjust" is not a valid editing instruction
The inserted rows are 1.2318 to 1.2324

SuggestedRemedy

In the editing instruction, change: "1.2318 - 1.2320" to: "1.2318 to 1.2324" and change "adjust" to "change the"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **39** *L* **9** # 28

Anslow, Pete Ciena

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

IEEE Std 802.3-2018 has an error in Table 45-176 where "3.2308" is shown as 3.3208"
Since this row is being modified by the P802.3ch draft, this should be corrected here.

SuggestedRemedy

In the first row of Table 45-176 change "3.3208" to "3.", "32" in strikethrough, "23" in underline, "08"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **39** *L* **14** # 29

Anslow, Pete Ciena

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

The subclause column of Table 45-176 is missing cross-references to 45.2.3.76 through 45.2.3.80 in the inserted rows

SuggestedRemedy

In the subclause column of Table 45-176 add underlined cross-references to 45.2.3.76 through 45.2.3.80 in the inserted rows

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **39** *L* **20** # 30

Anslow, Pete Ciena

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

The entry for "3.2318 through 3.32767" in Table 45-176 should be shown as changing to "3.2325 through 3.32767"

SuggestedRemedy

Show the "18" in strikethrough and add "25" in underline font

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **39** *L* **21** # 31

Anslow, Pete Ciena

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

The editing instruction says "unchanged rows not shown" so the last row of Table 45-176 should just contain "…"

SuggestedRemedy

Replace the last row with "…"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **39** *L* **10** # 32

Anslow, Pete Ciena

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

The draft is not consistent regarding the names of registers 3.2309 through 3.2312, 3.2314 through 3.2317, 3.2318 through 3.2319, and 3.2320 through 3.2321.
In table 45-176, these registers have had "<0:7>" or "<8:11>" added to the name.
In 45.2.3.73 and 45.2.3.75 the register names do not include "<0:7>".
In 45.2.3.76 and 45.2.3.77 "<8:11>" appears in the incorrect place in the title (should be before "register") and not at all for the other places the register name appears
In Table 97-6 "<0:7>" or "<8:11>" is missing from the names.

SuggestedRemedy

Either:.
delete the additions of "<0:7>" and "<8:11>" as they don't seem to be necessary
or:
change all instances of each register name to include "<0:7>" or "<8:11>" as noted in the comment.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.73** *P* **41** *L* **6** # 33
Anslow, Pete Ciena

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

"contained in registers 3.2328 and 3.2329" should be "contained in registers 3.2318 and 3.2319"

SuggestedRemedy

Change "3.2328 and 3.2329" to "3.2318 and 3.2319"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.76** *P* **43** *L* **31** # 34
Anslow, Pete Ciena

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

In Table 45-244a, the "Name" column has unnecessary line wraps.

SuggestedRemedy

Increase the width of the "Name" column and decrease the width of the "Description" column to remove the line wraps

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.77** *P* **43** *L* **47** # 35
Anslow, Pete Ciena

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

"MultiGBASE-T1" should not split across two lines

SuggestedRemedy

Replace the hyphen with a non-breaking hyphen [Esc - h (three key presses)]

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.78.1** *P* **44** *L* **47** # 36
Anslow, Pete Ciena

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

Notes should have paragraph tag "Note" applied

SuggestedRemedy

Apply paragraph tag "Note" to the note.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.80.2** *P* **47** *L* **23** # 37
Anslow, Pete Ciena

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

IEEE uses an en-dash as a minus sign

SuggestedRemedy

Change the minus sign to an en-dash (Ctrl-q Shft-p) here and also on line 24

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2.7** *P* **48** *L* **35** # 38
Anslow, Pete Ciena

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

IEEE does not use the term "section" in editing instructions.
Space missing before "("

SuggestedRemedy

Change "Change Section 45.2.9.2.7(as…" to "Change 45.2.9.2.7 (as…"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.3.2** *P* **48** *L* **50** # 39

Anslow, Pete Ciena

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

IEEE does not use the term "section" in editing instructions.
Space missing before "("

SuggestedRemedy

Change "Change Section 45.2.9.3.2(as…" to "Change 45.2.9.3.2 (as…"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.3** *P* **51** *L* **17** # 40

Anslow, Pete Ciena

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

IEEE does not use the term "section" in editing instructions.
Space missing before "("

SuggestedRemedy

Delete "section" here and on line 22

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.1** *P* **144** *L* **5** # 41

Fritsche, Matthias HARTING Technology

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

IEC 60950-1 is replaced by IEC 62368-1

SuggestedRemedy

Change "IEC 60950-1" to "IEC 62368-1 (former IEC 60950-1)"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **65** *L* **11** # 42

Tu, Mike Broadcom

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

Insert a figure for "Functional block diagram", similar to Figure 97-2 and Figure 126-3.

SuggestedRemedy

1. Adopt page 2 of "tu_3ch_01_0119.pdf" as Figure 149-2, and re-number the rest of figures.
2. On page 65, line 11, add one sentence at the end of the paragraph: "Figure 149-2 shows the functional block diagram."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **64** *L* **1** # 43

Tu, Mike Broadcom

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

Interleaving may be needed to achieve target BER performance

SuggestedRemedy

from: "… each group of 50 64B/65B blocks. The PAM4 mapping, scrambler, RS-FEC, and PAM4 ..."
to: "...each group of 50 64B/65B blocks, plus optional interleaving. The PAM4 mapping, scrambler, RS-FEC, interleaver, and PAM4 ..."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.1** *P* **65** *L* **25** # 44

Tu, Mike Broadcom

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

Interleaving should be mentioned here as well.

SuggestedRemedy

Change from: "Next, a 10-bit OAM field is appended and then 340 parity bits from an RS-FEC (360, 326, 2^10) are appended to create a 3600 bit block (duration 320ns at 10Gb/s)."

To: "Next, a 10-bit OAM field is appended to form a 3260 bit block. L of these 3260 bit blocks are formed into a RS-FEC input superframe, then encoded by the RS-FEC (360, 326, 2^10) and the round-robin interleaving as described in 149.3.2.2.17. The RS-FEC output superframe consists of L x 3600 bits (duration = L x 320ns at 10Gb/s)."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.17** *P* **89** *L* **31** # 45
Tu, Mike Broadcom

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

In Figure 149-9, certain indices of the input and output sequences are incorrect.

SuggestedRemedy

For "RS Encoder #L" input,
Change from: "m_{326xL}, m_{325xL}, …, m_L"
To: "m_{325xL}, m_{324xL}, …, m_0".

For "RS Encoder #L" output,
Change from: "m_{326xL}, m_{325xL}, …, m_L, p_{L,33}, …, p_{L,0}"
To: "m_{325xL}, m_{324xL}, …, m_0, p_{L,33}, …, p_{L,0}"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.4** *P* **67** *L* **20** # 46
Tu, Mike Broadcom

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

EEE support is optional

SuggestedRemedy

Change" "i) Ability to support refresh, quiet and alert signaling during LPI operation."

To: "i) Optionallly, ability to support refresh, quiet and alert signaling during LPI operation."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2.1.1** *P* **70** *L* **1** # 47
Tu, Mike Broadcom

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

There is no SEND_I (similar to Clause 55 and Clause 126).

SuggestedRemedy

Delete "SEND_I" and its descriptions on line 1 and line 2.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2** *P* **77** *L* **4** # 48
Tu, Mike Broadcom

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

Figure 149-3 PCS reference diagram need to be revised:
1. OAM is not shown in the figure
2. link_status is missing
3. rx_symb_vector should be rx_symb
4. tx_symb_vector should be tx_symb

SuggestedRemedy

Adopt page 3 of "tu_3ch_01_0119.pdf" as Figure 149-3.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **79** *L* **1** # 49
Tu, Mike Broadcom

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

Supported interleaving depthes depend on the PHY speed.

SuggestedRemedy

Change "… and the possible choices of L are 1, 2, 4, and 8, which …"

To: "… and the possible choices of L are: 1 for 2.5GBASE-T1, 1 or 2 for 5GBASE-T1, and 1, 2, or 4 for 10GBASE-T1, which …"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2.3.1** *P* **71** *L* **46** # 50
Tu, Mike Broadcom

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

PAM4 symbols should have values of {-1, -1/3, 1/3, 1} per 149.3.2.2.20. Also, see Clause 97, tx_symb is PAM3 and it has values of {-1, 0, 1}.

SuggestedRemedy

Change {-3, -1, 1, 3} to {-1, -1/3, 1/3, 1}.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **86** *L* **12** # 51
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
Wrong indices in Equation 149-3

SuggestedRemedy
Delete "g6", and change "g5" to "g33"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **86** *L* **22** # 52
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
Wrong indices in Equation 149-4

SuggestedRemedy
Change from: "… + m1 x^36 + m0 x^35"
To "… + m1 x^35 + m0 x^34".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **86** *L* **32** # 53
Tu, Mike Broadcom

Comment Type **ER** *Comment Status* **X**
I think the corrrect name is "tx_oam_field<9:0>"?

SuggestedRemedy
Change from "Link partner access field<9:0>" to "tx_oam_field<9:0>".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3.1** *P* **92** *L* **27** # 54
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
Use 97.3.2.3.1 as baseline text.

SuggestedRemedy
Change to:
" When operating in the data mode, the receiving PCS shall form a PAM4 stream from the PMA_UNITDATA.indication primitive by concatenating requests in order from rx_PAM4_0 to rx_PAM4_1799 (see Figure 149-5). It obtains block lock to the PHY frames during the PAM2 training pattern using synchronization bits provided in the training sequence.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.1** *P* **93** *L* **43** # 55
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
Need to determine the number of partial frames.

SuggestedRemedy
Adopt recommended changes as shown on page 4 of "tu_3ch_01_0119.pdf".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.1** *P* **94** *L* **2** # 56
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
Equation 149-8 is incorrect

SuggestedRemedy
Adopt recommended changes as shown on page 4 of "tu_3ch_01_0119.pdf".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.2** *P* **94** *L* **9** # 57
Tu, Mike Broadcom

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

According to Motion #4 passed in Bangkok, PAM2 mapping is: 0 -> -1, and 1 -> +1. See "http://www.ieee802.org/3/ch/public/nov18/souvignier_3ch_05b_1118.pdf" page 3.

SuggestedRemedy

Need advices from chair and editor:

Option #1: Change "if Sn = 0 then Tn = +1, if Sn = 1 then Tn = –1" to "if Sn = 0 then Tn = -1, if Sn = 1 then Tn = +1".

Option #2: Keep the current text as is, if the TF agree to define PAM2 mapping.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.4** *P* **94** *L* **19** # 58
Tu, Mike Broadcom

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

S_n is already defined in 149.3.4.1.

SuggestedRemedy

Delete this line

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.5** *P* **94** *L* **21** # 59
Tu, Mike Broadcom

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

T_n is already defined in 149.3.4.2.

SuggestedRemedy

Delete this line

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4** *P* **118** *L* **14** # 60
Tu, Mike Broadcom

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

Subclause 149.4.2.4, 149.2.4.1 to 149.4.2.4 have missing contents, or require revisions.

SuggestedRemedy

Adopt pages 5 to 9 of "tu_3ch_01_0119.pdf" as baseline. Insert the figures and tables as indicated in that document.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.5** *P* **120** *L* **38** # 61
Tu, Mike Broadcom

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

1. Remove editorial highlights.
2. There is no need to exchange seed values anymore.
3. There is no user configurable register bits.

SuggestedRemedy

Change this paragraph to:

"Upon entering the TRAINING state, the minwait_timer is started and the PHY Control asserts tx_mode = SEND_T sending PAM2 together with InfoFields. The PHY Control also sets PMA_state = 00 and sends the PHY capability bits."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.4.5** *P* **120** *L* **42** # 62
Tu, Mike Broadcom

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

1. Remove editorial highlight on line 42
2. Need to describe InterleaverDepth and PrecodeSel

SuggestedRemedy

Change this paragraph and then add two more parapraphes.

"The optional EEE capability shall be enabled only if both PHYs set the capability bit EEEen = 1. The optional 1000BASE-T1 OAM capability shall be enabled only if both PHYs set the capability bit OAMen = 1.

InterleaverDpeth indicates the requested data mode interleaving depth. The value Oct10<2:1> = 00 shall indicate interleaving depth L=1, or no interleaving. The values Oct10<2:1> = 01 and 10 shall indicate interleaving depth of 2 and 4, respectively. The only valid value for 2.5GBASE-T1 is 00. The valid values for 5GBASE-T1 are 00 and 01. The valid values for 10GBASE-T1 are 00, 01, and 10. The PHY transmitter shall be able to support the valid interleaving depth as requested by the link partner.

PrecodeSel indicates the requested data mode precoder. The value Oct10<4:3> = 00 shall indicate precoder bypass, or no precoder. The values Oct10<4:3> = 01, 10, and 11 shall indicate precoder choice of 1-D, 1+D, and 1-D^2, respectively, as indicated in 149.3.2.2.19. The PHY transmitter shall be able to support the selected precoder as indicated by the link partner."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **120** *L* **45** # 63
Tu, Mike Broadcom

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

Remove the edtorial highlighs in this paragraphs.

SuggestedRemedy

Remove the edtorial highlighs in this paragraphs.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **120** *L* **51** # 64
Tu, Mike Broadcom

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

1. Slave should be aligned to RS super-frame boundary. Remove editorial highlights.
2. As discussed in "tu_3ch_02_0119.pdf" page 4, the alignment should be relaxed for 10G and 5G.

SuggestedRemedy

Change: "… its transmit TBD-RS frame to within +0/–1 …"
To: "… its transmit 65B-RS FEC super frame to within +0/–4*S …"

Also remove editorial highlights in this paragraph.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **121** *L* **1** # 65
Tu, Mike Broadcom

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

Remove editorial highlights

SuggestedRemedy

Remove editorial highlights for the first two paragraphes

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **121** *L* **11** # 66
Tu, Mike Broadcom

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

Data mode transmits PAM4, not PAM3.

SuggestedRemedy

1. Remove editorial highlights
2. Change end of sentence: "… switches from PAM2 to PAM3." to "… switches from PAM2 to PAM4."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **121** *L* **13** # 67
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
There is no SEND_IDLE1 state. There is also no SEND_I for tx_mode.

SuggestedRemedy
Change this paragraph to:
"Upon reaching DataSwPFC24 partial PHY frame count PHY Control transitions to the TX_SWITCH state and forces transmission into the data mode by asserting tx_mode =SEND_N."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.5** *P* **121** *L* **16** # 68
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
"PAM3" should be "PAM4". Also the state name should be PCS_TEST.

SuggestedRemedy
Change this paragraph to:
"Once the link partner has transitioned from PAM2 to PAM4, PHY Control transitions to the PCS_TEST state and starts the minwait_timer."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.6** *P* **96** *L* **13** # 69
Tu, Mike Broadcom

Comment Type **TR** *Comment Status* **X**
Subclause 149.3.6 has missing cotents

SuggestedRemedy
Copy from 126.3.6 as baseline, with the following modifications:
1. Replace all "LDPC" to "RS FEC"
2. Delete "tx_active_pair" and associated contents
3. Delete "ldpc_two_frame_done" and associaed contents
4. Replace "rx_symb_vector" with "rx_symb"
5. Replace "tx_symb_vector" with "tx_symb"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.3** *P* **92** *L* **47** # 70
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
"Annex 149-4" link to Figure 149-4 doesn't belong.

SuggestedRemedy
Delete "Annex 149-4".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **79** *L* **1** # 71
Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**
Agreed the only inerleavers to be used are 1, 2 and 4.

SuggestedRemedy
Remove highlight and change text to "1, 2 and 4".

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.4** *P* **94** *L* **19** # 72
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
This is in section 149.3.4.1.

SuggestedRemedy
Delete section 149.3.4.4.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.5** *P* **94** *L* **21** # 73
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
This is in section 149.3.4.2.

SuggestedRemedy
Delete section 149.3.4.5.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.7.1** *P* **96** *L* **54** # 74
Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**
Update registers based on Clause 45!

SuggestedRemedy
Registers were added in Clause 45, but these were not updated throughout the document.
See presentation with details for all changes.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2.12** *P* **102** *L* **54** # 75
Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**
Add definition for "REC Cleared" in OAM<10><0>

SuggestedRemedy
See presentation.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2.12** *P* **102** *L* **51** # 76
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
Need tab in front of OAM<13:12><7:0> to align text correctly.

SuggestedRemedy
Add tab.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.5** *P* **129** *L* **7** # 77
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
Remove Editor's note as it no longer applies.

SuggestedRemedy
Remove box around note and all contents.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.7** *P* **138** *L* **7** # 78
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
Remove Editor's note as it no longer applies.

SuggestedRemedy
Remove box around note and all contents.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2.12** *P* **103** *L* **2** # 79
Wienckowski, Natalie General Motors

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

SuggestedRemedy
Change "the number error RS-FEC block errors" to "the number of RS-FEC block errors".

Proposed Response *Response Status* **O**

Cl **intro** *SC* **intro** *P* **21** *L* **27** # 80
Wienckowski, Natalie General Motors

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

SuggestedRemedy
Change "2018comprehnsive" to "comprehensive" to match template.

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.4.4** *P* **29** *L* **26** # 81
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**
Incorrect line width on bottom of 10GBASE-CX4/68 cell.

SuggestedRemedy
Fix line width to match the rest of the table.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.3** *P* **34** *L* **5** # 82

Wienckowski, Natalie General Motors

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

I believe this is the standard statement; however, 802.3ch requires link in 100 ms so it should return to normal operation on exit from reset or low power mode within 100 ms.

SuggestedRemedy

Change: The data path of the MultiGBASE-T1 PMA, depending on type and temperature, may take many seconds to run at optimum error ratio after exiting from reset or low-power mode.
To: The data path of the MultiGBASE-T1 PMA, depending on type and temperature, may take upt to 100 ms to run at optimum error ratio after exiting from reset or low-power mode.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1.2** *P* **59** *L* **49** # 83

Wienckowski, Natalie General Motors

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

Figure title was not updated properly.

SuggestedRemedy

Remove " - Part 1 of 2".

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **31** *L* **29** # 84

Lo, William Axonne Inc.

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

45.2.1.1988 should be 45.2.1.198

SuggestedRemedy

See comment

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.4** *P* **34** *L* **12** # 85

Lo, William Axonne Inc.

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

There are 3 registers for precoder setting.
1.2304.10:9 - Test mode 3 precoder setting
1.2311.3:2 - Precoder setting you want
1.2312.3:2 - Precoder setting that the link partner wants.
The description in 1.2304.10.9 captures some fuctionality of 1.2312.3:2 which is redundant and may cause confusion.

There is also a wrong register reference.

SuggestedRemedy

Page 33, line 16
1) Change Transmit Precoder setting to: Test mode 3 Transmit Precoder setting
2) Replace the entire paragraph in 45.2.1.192.4 to
Bits 1.2309.10:9 control the current precoder setting of the transmitter, as defined in 149.3.2.2.19 in the variable precoder_type during test mode 3 (register 1.2313.15:13 = 3). During normal operation, these bits are ignored.
3) 45.2.1.195.2 - delete:
In normal operation, this value shall mirrorthe value in the MultiGBASE-T1 PMA control register bits 1.2309.10:9
4) Change 45.2.1.192.4 title to Test mode 3 transmitter precoder setting (1.2309.10:9)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.74.1** *P* **42** *L* **20** # 86

Lo, William Axonne Inc.

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

This comment affects 45.2.3.74.1 and 45.2.3.77
The paragraph from 1000BASE-T1 in 45.2.3.74.1 also applies to Multigig.
The new text inserted is not correct as registers 3.2320 to 3.2321 are always updated independent of the messaging process.

SuggestedRemedy

45.2.3.74.1:
Delete: for 1000BASE-T1 and shall self-clear when register 3.2321 is read for MultiGBASE-T1 PHYs
45.2.3.77:
Delete:
For MultiGBASE-T1 PHYs, register 3.2313.15 shall be cleared when register 3.2321 is read.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.73** *P* **41** *L* **1** # 87

Lo, William
Axonne Inc.

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

This comment affects 45.2.3.73, 45.2.3.75, 45.2.3.76, and 45.2.3.77
OAM messaging only applies to the first 8 octets. The remaining 4 octets are always updated independent of the handshake mechanism. To the text is technically not correct, and I think there is a better way to highlight the difference between multi-gig vs 1000BASE-T1.

SuggestedRemedy

45.2.3.73:
Delete:
For 1000BASE-T1, this is the complete message, but for MultiGBASE-T1, the remaining 4 octets are contained in registers 3.2328 and 3.2329.

45.2.3.75:
Delete:
For 1000BASE-T1, this is the complete message, but for MultiGBASE-T1, the remaining 4 octets are contained in registers 3.2320 and 3.2321.

45.2.3.76:
Add sentence at the end:
1000BASE-T1 does not implement these registers.

45.2.3.77:
Add sentence at the end:
1000BASE-T1 does not implement these registers.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2** *P* **68** *L* **11** # 88

Lo, William
Axonne Inc.

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

Incorrect reference

SuggestedRemedy

Clause 28 should be 98.4

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.2.2.1.1** *P* **70** *L* **1** # 89

Lo, William
Axonne Inc.

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

Figure 149-20 no longer uses SEND_I

SuggestedRemedy

Delete the description on SEND_I

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **78** *L* **25** # 90

Lo, William
Axonne Inc.

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

Equation has rounding error.

SuggestedRemedy

change 177.8 / S ps to
1 / (5.625 x S) ps

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194** *P* **36** *L* **5** # 91
Lo, William Axonne Inc.

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

This comment applies to 45.2.1.194 and 45.2.1.195
We defined RS interleaving but have not assigned registers to them.

SuggestedRemedy

Assign to repsective tables
1.2311.12:11 - Interleave Requested
1.2312.12:11 - Link partner interleave Requested
For both registers
00 = L=4 for 10GBASE-T1, L=2 for 5GBASE-T1 (Reserved for 2.5GBASE-T1)
01 = L=2 for 10GBASE-T1, L=1 for 5GBASE-T1 (Reserved for 2.5GBASE-T1)
10 = L=1 for 10GBASE-T1 (Reserved for 5GBASE-T1 and 2.5GBASE-T1)
11 = Reserved

45.2.1.194.x Interleave Requested (1.2311.12:11)
Bits 1.2311.12:11 control the Reed Solomon interleave setting requested by the PHY as described in 149.3.2.2.17. This is communicated to the link partner via Infofields as specified in 149.4.2.4.3.

45.2.1.195.x Link partner Interleave Requested (1.2312.12:11)
Bits 1.2312.12:11 contains the Reed Solomon interleave setting requested by the link partneras described in 149.3.2.2.17. This is communicated by the link partner via Infofields as specified in 149.4.2.4.3.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194.2** *P* **36** *L* **24** # 92
Lo, William Axonne Inc.

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

Grammar is a bit confusing.

SuggestedRemedy

Replace first sentence with:
Bits 1.2311.3:2 control the precoder setting requested by the PHY.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.195.2** *P* **37** *L* **24** # 93
Lo, William Axonne Inc.

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

Grammar is a bit confusing.

SuggestedRemedy

Replace first sentence with:
Bits 1.2312.3:2 contains the precoder setting requested by the link partner.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.4** *P* **80** *L* **13** # 94
Lo, William Axonne Inc.

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

Replace TBD in Figure 149-4
Also applies to Figure 149-5

SuggestedRemedy

TBD's should be
Figure 149-6 and Table 149-1

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.14** *P* **84** *L* **54** # 95
Lo, William Axonne Inc.

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

The description and Figure 149-7 is a bit ambiguous and subject to misinterpretation. Need a tighter definition if we are going to rely on diagrams instead of text.

SuggestedRemedy

1) Page 84 line 54 change the text
Figure 149-7 to Figure 149-7 and Figure 149-10.
2) In Figure 149-7 modify the label scrn,0 to scrn,0 = scrn[0]
(Note the n,0 and n are subscript)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.16** *P* **87** *L* **6** # 96

Lo, William — Axonne Inc.

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

Incorrect index in Figure 149-8

SuggestedRemedy

g32 should be g33
g33 should be g34

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.17** *P* **89** *L* **32** # 97

Lo, William — Axonne Inc.

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

Indexing incorrect in Figure 149-9 for Encoder #L

SuggestedRemedy

Change m326xL, m325xL, ..., mL
(2 instances to the left and right of the encoder #L) to
m325xL, m325xL, ..., m0

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.14** *P* **85** *L* **10** # 98

Lo, William — Axonne Inc.

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

The text is not correct.
The initial seed values for the MASTER and SLAVE are left to the implementer.
The value of the seed is already determined during training and is in fact continuously running.

SuggestedRemedy

Delete:
The initial seed values for the MASTER and SLAVE are left to the implementer. The scrambler is run continuously on all frame bits.
Replace with:
The PMA training side-strean scrambler described in 149.3.4 is used as the PCS scrambler. This scrambler once started during PMA training shall continue to run uninterupted during the transition from PAM2 to PAM4.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.8.2** *P* **99** *L* **37** # 99

Lo, William — Axonne Inc.

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

Page 99 lines 37 to page 100 line 17 including Figure 149-13 are not baselined.
See http://www.ieee802.org/3/ch/public/adhoc/Lo_3ch_02_1218.pdf
justifying the text.

SuggestedRemedy

Accept the text as written in D1.0

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.5** *P* **130** *L* **52** # 100

Lo, William — Axonne Inc.

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

Missing value in SEND DATA state vs. baseline
Missing transition

SuggestedRemedy

All the following to SEND DATA state
stop maxwait_timer
Add a connection from PCS DATA to INIT_MAXWAIT_TIMER state with minwait_timer_done * loc_rcvr_status = NOT_OK describing the arc.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.344a** *P* **22** *L* **35** # 101

Maguire, Valerie — The Siemon Company

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

Missing space

SuggestedRemedy

Replace, "of1000 Mb/s" with "of 1000 Mb/s"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.2.2** *P* **144** *L* **41** # 102
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**
List complete Standards reference

SuggestedRemedy
Replace, "IEC 61967–1/4" with "IEC 61967–1, IEC 61967–4"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.2.2** *P* **144** *L* **42** # 103
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**
List complete Standards reference

SuggestedRemedy
Replace, "IEC 62132–1/4" with "IEC 62132–1, IEC 62132–4"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.2.2** *P* **144** *L* **43** # 104
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**
List complete Standards reference

SuggestedRemedy
Replace, "ISO 10605 and IEC 61000-4-2/3" with "ISO 10605, IEC 61000-4-2, IEC 61000-4-3"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.2.2** *P* **144** *L* **44** # 105
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**
List complete Standards reference

SuggestedRemedy
Replace, "IEC 62215-3 and ISO 7637-2/3" with "IEC 62215-3, ISO 7637-2, and ISO 7637-3"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.9.2.1** *P* **144** *L* **25** # 106
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**
List complete Standards reference (note: these Standards were added to the main document bibliography by Maintenance Request 1315)

SuggestedRemedy
Replace, " ISO 16750-4 and IEC 60068-2–1/27/30/38/52/64/78" with " ISO 16750-4, IEC 60068-2–1, IEC 60068-2–27, IEC 60068-2–30, IEC 60068-2–38, IEC 60068-2–52, IEC 60068-2–64, and IEC 60068-2–78"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.10.** *P* **145** *L* **28** # 107
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**
Incorrect formatting for table contents

SuggestedRemedy
Format the contents of Table 149-10 as Times New Roman 9.0pt (I think this can be accomplished by applying Paragraph Tag: Body)

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4** *P* **22** *L* **34** # 108
McClellan, Brett Marvell

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

SuggestedRemedy
change "of1000" to "of 1000"

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **23** *L* **3** # 109
McClellan, Brett Marvell

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

this note wasn't intended to be included in draft 1.0

SuggestedRemedy

remove the editor's note. Do the same on page 50 line 3.

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.3** *P* **27** *L* **50** # 110
McClellan, Brett Marvell

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

NOTE 1 as written makes it appear that XGMII is required for other PHYs. It should be consistent across all PHYs.

SuggestedRemedy

delete "NOTE 1 – XGMII IS OPTIONAL", change "NOTE 2" to "NOTE 1"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.199** *P* **38** *L* **31** # 111
McClellan, Brett Marvell

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

The RX signal power register in MultiGBASE-T PHYs was a byproduct of the power backoff (PBO) function which doesn't exist in MultiGBASE-T1 PHYs.

SuggestedRemedy

Delete clause 45.2.1.199 and remove references to register 1.2316.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **43** *L* **1** # 112
McClellan, Brett Marvell

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

missing editorial instructions for table 45-244

SuggestedRemedy

Insert editorial instruction "Change Table 45-244 as follows:" and move instruction and text prior to 45.2.3.76.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1.4** *P* **60** *L* **19** # 113
McClellan, Brett Marvell

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

unnecessary period

SuggestedRemedy

change ":." to ":"

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.2.2** *P* **61** *L* **31** # 114
McClellan, Brett Marvell

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

125.5.2 should be 125.2.2

SuggestedRemedy

change "125.5.2" to "125.2.2"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2.14** *P* **85** *L* **49** # 115

McClellan, Brett Marvell

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

does not actually show the scrambler implementation leaving it subject to interpretation.
Further despite the title indicating 'PSC scramblers' the diagram shows functions outside of the scrambler including gray mapping, precoder, PAM2 mapping and PAM4 mapping. The mapping for PAM2 is incorrect, refer to 149.3.4 which is consistent with other BASE-T devices.
An additional issue is that the text and equations of 149.3.2.2.14 duplicate existing text and equations in 149.3.4.
Finally, the data scrambler description should appear after the RS-FEC section.

SuggestedRemedy

Delete figure 147-7.
replace the text of 149.3.2.2.14 with the following:
"The payload of the PCS PHY frame tx_encoded<3599:0> is scrambled to tx_scrambled<3599:0> with an additive scrambler. Two scrambler bits per symbol are generated from the side-stream scrambler defined in 149.3.4. The first
(LSB) bit is DS_n[0] equal to Scr_n[0] defined in 149.3.4. The second (MSB) bit is DS_n[0] equal to Scr_n[3] XOR Scr_n[8].
DS_n[0] and DS_n[1] are applied as additive scrambler sequences to incoming data bits D_n[0] (LSB) and DS_n[1] (MSB) to generate two scrambled data bits {A, B} as follows:
A = DS_n[0] XOR D_n[0]
B = DS_n[1] XOR D_n[1]"
(_n denotes subscript)
Move 149.3.2.2.14 after 149.3.2.2.15.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3.3** *P* **92** *L* **39** # 116

McClellan, Brett Marvell

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

missing list of conditions for invalid blocks

SuggestedRemedy

change "A block is invalid if any of the following conditions exists:
LIST"
to
"A block is invalid if any of the following conditions exists:
a) The block type field contains a reserved value.
b) Any control character contains a value not in Table 149–1.
c) Any O code contains a value not in Table 149–1.
d) The block contains information from the payload of an invalid RS-FEC frame.
The PCS Receive function shall check the integrity of the RS-FEC parity bits defined in 149.3.2.2.15. If the
check fails the RS-FEC frame is invalid.
R_BLOCK_TYPE of an invalid block is set to E."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.1** *P* **93** *L* **47** # 117

McClellan, Brett Marvell

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

The RS-FEC block is 3600 bits, if there are 15 partial frames then each partial frame is 240 bits.

SuggestedRemedy

Change 180 to 240. Make the same change on page 94 lines 2 & 3.
on page 94 line 2: change 2520 to 3360, 2615 to 3455, 2700 to 3600

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.3** *P* **46** *L* **21** # 118
Benyamin, Saied Aquantia

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

SuggestedRemedy

The PMA Transmit function in the PHY then sends an alert message to the link partner. The Alert signal is a low frequency PAM2 signal. The Alert signal is then followed by a number of Wake frames. After this short recovery time the normal operational mode is resumed.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3.3** *P* **46** *L* **31** # 119
Benyamin, Saied Aquantia

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

SuggestedRemedy

initiating a transition to the normal operation mode. The link partner then transmits wake frames which is used as a recovery period. Normal operation can then resume.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.2** *P* **59** *L* **1** # 120
Benyamin, Saied Aquantia

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

SuggestedRemedy

Remove 8 from the list of possible interleave options

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **74** *L* **23** # 121
Benyamin, Saied Aquantia

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

We should specify timing in partial frame units

SuggestedRemedy

change 99 RS-FEC frames to 792 partial PHY frame

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **74** *L* **27** # 122
Benyamin, Saied Aquantia

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

We should specify timing in partial frame units

SuggestedRemedy

change 100 RS FEC frame to 800 partial PHY frame

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.5** *P* **75** *L* **27** # 123
Benyamin, Saied Aquantia

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

We should specify timing in partial frame units

SuggestedRemedy

change 50 RS FEC frame to 400 partial PHY frame

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.2** *P* **32** *L* **49** # 124
Benyamin, Saied Aquantia

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

SuggestedRemedy

2.5GBase-T1 Min/Max should both be 10.24

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.2** *P* **33** *L* **12** # 125

Benyamin, Saied Aquantia

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

SuggestedRemedy

10GBaes-T1 Min/Max should both be 2.56

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.4** *P* **24** *L* **25** # 126

Zimmerman, George CME:ADI,Aquantia,AP

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

<COMMENT MGMT2> In the base standard, the 8th paragraph pertaining to 2.5G/5G/10Gb Ethernet has a list of diagnostic conditions for PHYs in the 5th sentence. We need to add the RFER to the list for excessive bit error rate diagnostics.

SuggestedRemedy

Add editing instruction: "Change the 5th sentence of the 8th paragraph of 30.5.1.1.4 as shown:" (<US> indicate start of end of underscored insertions)
"Where a Clause 45 MDIO interface is present a zero in the PMA/PMD Receive link status bit (45.2.1.2.4) maps to the enumeration “PMD link fault”, a one in the LOF status bit (45.2.2.10.4) maps to the enumeration “WIS frame loss”, a one in the LOS status bit (45.2.2.10.5) maps to the enumeration “WIS signal loss”, a zero in the PCS Receive link status bit (45.2.3.2.7 <US> or 45.2.3.80<US>) maps to the enumeration “PCS link fault”, a one in the 10/40/100GBASE-R PCS Latched high BER status bit (45.2.3.16.2) <US> or a one in the MultiGBASE-T1 PCS status 2 PCS High BER (45.2.3.80) <US> maps to the enumeration “excessive BER”, a zero in the DTE XS receive link status bit (45.2.5.2.7) maps to the enumeration “DXS link fault” and a zero in the PHY XS transmit link status bit (45.2.4.2.7) maps to the enumeration “PXS link fault”.;"

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.3** *P* **27** *L* **54** # 127

Zimmerman, George CME:ADI,Aquantia,AP

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

10GBASE-T1 MDI needs to be added to text of clause 44.

SuggestedRemedy

Add editing instruction and text to change item d in list following 2nd paragraph of 44.1.3 to read: (<US> indicates start or end of underscored insertion) "d) The MDI as specified in Clause 53 for 10GBASE-LX4, in Clause 54 for 10GBASE-CX4, in Clause 55 for 10GBASE-T, in Clause 68 for 10GBASE-LRM, <US>in Clause 149 for 10GBASE-T1,<US> and in Clause 52 for other PMD types."

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.4.4** *P* **29** *L* **19** # 128

Zimmerman, George CME:ADI,Aquantia,AP

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

Nomenclature in Table 44-1 doesn't adequately distinguish from 10GBASE-T which also uses a 64B/65B PCS.

SuggestedRemedy

Change "64B/65B PCS & 1-pair PMA" to "1-pair RS-FEC PCS & PMA"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **31** *L* **32** # 129

Zimmerman, George CME:ADI,Aquantia,AP

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

"2317through 1.32767" missing space

SuggestedRemedy

Change "2317through" to "2317 through"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **31** *L* **29** # 130
Zimmerman, George CME:ADI,Aquantia,AP

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

45.2.1.1988 has an extra "8" (probably sitting there next to the cross reference)

SuggestedRemedy

Change to cross-ref for 45.2.1.198

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.18** *P* **32** *L* **10** # 131
Zimmerman, George CME:ADI,Aquantia,AP

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

Need to add 2.5GBASE-T1 and 5GBASE-T1 to the 2.5G/5G PMA/PMD extended ability register (Register 1.21)

SuggestedRemedy

Change Table 45-21 as modified by IEEE Std 802.3cb-201x and adjust the reserved row to allocate bits 5 and 4 to 5GBASE-T1 and 2.5GBASE-T1 ability, respectively. Insert 45.2.1.18.aa and 45.2.1.18.ab before 45.2.1.18a (added by IEEE 802.3cb) for 5GBASE-T1 and 2.5GBASE-T1 ability, to read as follows: "45.2.1.18.1aa 5GBASE-T1 ability (1.21.5) When read as a one, bit 1.21.5 indicates that the PMA/PMD is able to operate as a 5GBASE-T1 PMA type.
When read as a zero, bit 1.21.5 indicates that the PMA is not able to operate as a 5GBASE-T1 PMA type." and "45.2.1.18.1ab 2.5GBASE-T1 ability (1.21.4) When read as a one, bit 1.21.4 indicates that the PMA/PMD is able to operate as a 2.5GBASE-T1 PMA type.
When read as a zero, bit 1.21.4 indicates that the PMA is not able to operate as a 2.5GBASE-T1 PMA type."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.1** *P* **33** *L* **32** # 132
Zimmerman, George CME:ADI,Aquantia,AP

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

"PMD/PMA" everywhere else it is "PMA/PMD"

SuggestedRemedy

Change "PMD/PMA" to "PMA/PMD"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.192.4** *P* **34** *L* **14** # 133
Zimmerman, George CME:ADI,Aquantia,AP

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

"149.3.2.2.19" should be an active cross-reference, but isn't.

SuggestedRemedy

Make "149.3.2.2.19" an active cross reference

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.193** *P* **34** *L* **48** # 134
Zimmerman, George CME:ADI,Aquantia,AP

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

Receive fault should be latching high to be useful. 802.3cg d2p2 made this change and it survived comment resolution.

SuggestedRemedy

Change R/W entry for 1.2310.1 to be RO/LH, add "LH = Latching High" to footnote a, and add "The receive fault bit shall be implemented with latching high behavior." to the end of the paragraph in 45.2.1.193.6 (P35 L37).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.194** *P* **36** *L* **1** # 135
Zimmerman, George CME:ADI,Aquantia,AP

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

Table 45-155c has the wrong title "1000BASE-T1" should be "MultiGBASE-T1" same for Table 45-155d in 45.2.1.195

SuggestedRemedy

Change "1000BASE-T1" to "MultiGBASE-T1" on both Table 45-155c and Table 45-155d titles

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **39** *L* **14** # 136
Zimmerman, George CME:ADI,Aquantia,AP

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

Registers 3.2318 through 3.2321 more accurately reflect the 'OAM status message' defined in 149.3.8.2.12 for MultiGBASE-T1 PHYs.

SuggestedRemedy

Change names of registers and Link partner registers from "MultiGBASE-T1 OAM message" to "MultiGBASE-T OAM status message" in Table 45-176 and in 45.2.3.76, Table 45-244a, 45.2.3.77, and Table 45-244b; with editorial license to change anywhere else needed.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.73** *P* **41** *L* **6** # 137
Zimmerman, George CME:ADI,Aquantia,AP

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

"the remaining 4 octets are contained in registers" isn't really complete - this is the 4 octets of the OAM status message defined in 149.3.8.2.12. The same comment applies to 45.2.3.75 (P42 L41).

SuggestedRemedy

Change "the remaining 4 octets are contained" to "the 4 octets of the OAM status message defined in 149.3.8.2.12 are contained in" in both 45.2.3.73 and 45.2.3.75

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.80** *P* **47** *L* **10** # 138
Zimmerman, George CME:ADI,Aquantia,AP

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

"BER counter" isn't a good description - it isn't a counter of rate or of bits. It is the number is the number of RS Frame errors since the last read.

SuggestedRemedy

Change description field from "BER counter" to "Count of RS Frame errors since the last read."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3** *P* **49** *L* **25** # 139
Zimmerman, George CME:ADI,Aquantia,AP

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

Add 45.5.3 PICS for clause 45 to the draft

SuggestedRemedy

Add 45.5.3 PICS to the draft, with editorial license to fill out, and an editor's note for commenters to review text and add PICS as needed prior to draft 2.0.

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.3** *P* **51** *L* **20** # 140
Zimmerman, George CME:ADI,Aquantia,AP

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

Proper advertisement cross reference will be 149.4.2.4.5

SuggestedRemedy

Change 149.4.2.5.10 to 149.4.2.4.5 and delete highlighting (the section isn't going to change....)

Proposed Response *Response Status* **O**

Cl **97** *SC* **97.3.8.3** *P* **52** *L* **9** # 141
Zimmerman, George CME:ADI,Aquantia,AP

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

The section title for 97.3.8.3 needs to change too, to reflect the generalization of the BASE-T1 OAM register mapping

SuggestedRemedy

Change title of 97.3.8.3 from "State diagram variable to 1000BASE-T1 OAM register mapping" to "State diagram variable to BASE-T1 OAM register mapping"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.1.3** *P* **55** *L* **10** # 142
Zimmerman, George CME:ADI,Aquantia,AP

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

As far as I can tell, a Type F PoDL PSE and PD has requirements identical to a Type B PoDL PSE and PD. Unless there is a difference in an electrical parameter, we should not be defining a new Type.

SuggestedRemedy

Delete current edit to 104.1.3 and all other clause 104 edits, and add the following edit to 104.1.3: Insert new fourth sentence (after "A Type B or Type C PSE and Type B or Type C PD is compatible with 1000BASE-T1 PHYs."), "A Type B PSE and Type B PD is compatible with 2.5GBASE-T1, 5GBASE-T1 and 10GBASE-T1 PHYs."; Alternatively, add requirements to show what is different about the new type.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.9** *P* **57** *L* **36** # 143
Zimmerman, George CME:ADI,Aquantia,AP

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

Need PICS for clause 104

SuggestedRemedy

Add 104.9 into the draft as a placeholder. If Type F is collapsed into Type B, it may not be necessary and this comment will be withdrawn.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1** *P* **59** *L* **15** # 144
Zimmerman, George CME:ADI,Aquantia,AP

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

Several boxes in the stack for Figure 125-1 are not aligned. It looks a little like a Jenga tower. I don't mean to be annoying - you're going to get comments like this in WG!

SuggestedRemedy

Use fixed sizes for boxes in the stack and frame "align" functions to line up boxes so that they are all the same width and nice and straight.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1.4** *P* **60** *L* **31** # 145
Zimmerman, George CME:ADI,Aquantia,AP

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

"using 64B/65B encoding" doesn't adequately describe the PCS. All the other multigbase-t PHYs use 64B/65B... The other BASE-T PHYs are described either by the name of the encoding or the FEC used. I suggest spelling out Reed-Solomon so as not to confuse either with the optical RS-FEC or the Reconciliation Sublayer (also RS).

SuggestedRemedy

Change "using 64B/65B encoding" to "using Reed-Solomon encoding" for both 2.5GBASE-T1 and 5GBASE-T1

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.1.4** *P* **61** *L* **18** # 146
Zimmerman, George CME:ADI,Aquantia,AP

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

Table 125-2 is missing the entries in the RS and XGMII columns for clause 46 for both 2.5GBASE-T1 and 5GBASE-T1.

SuggestedRemedy

Add "M" under RS for both PHYs and "O" under XGMII for both PHYs.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1** *P* **63** *L* **18** # 147
Zimmerman, George CME:ADI,Aquantia,AP

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

"are defined in terms of performance requirements between the attachment points [Medium Dependent Interface (MDI)],". The MDI is the reference plane at which the PHY attaches to the medium. It is there whether or not we define a specific connector. Therefore, the performance requirements for a link segment are defined MDI to MDI.

SuggestedRemedy

Change "between the attachment points [Medium Dependent Interface (MDI)]," to "are defined in terms of performance requirements between the Medium Dependent Interfaces" (no comma after)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1** *P* **63** *L* **20** # 148

Zimmerman, George CME:ADI,Aquantia,AP

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

"as long as the normative requirements included in this clause are met." - you're referring here to what the conductors need to meet - to the requirements on the link segment - most of "this clause" defines the electrical parameters of the PHY. Better to reference just the link segment requirements.

SuggestedRemedy

Change "this clause" to a cross reference to 149.7

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **63** *L* **46** # 149

Zimmerman, George CME:ADI,Aquantia,AP

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

Spaces between numbers and units should be non-breaking.

SuggestedRemedy

Make spaces between 5 Gb/s (and 2.5 Gb/s and 10Gb/s) non breaking (CNTL-space). Editorial license to do similarly throughout the draft. (same thing with 15 m, and other number-unit combinations)

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **63** *L* **53** # 150

Zimmerman, George CME:ADI,Aquantia,AP

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

Space missing "equal to10"

SuggestedRemedy

Change "equal to10" to "equal to 10"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **64** *L* **15** # 151

Zimmerman, George CME:ADI,Aquantia,AP

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

If we name the PCS (say, e.g., "RS-FEC PCS") we can collapse all of the 3 stacks into 1 and make the figure much simpler, with a single stack showing the commonality of all 3 PHYs. If we choose to do this, I will put in a maintenance request to change the labeling in Figure 125-1 for 2.5GBASE-T and 5GBASE-T PCS's to "LDPC PCS" (as it is called elsewhere in Cl 125) and collapse them too, making Figure 125-1 back into 1 figure....

SuggestedRemedy

Change "2.5GBASE-T1 PCS" "5GBASE-T1 PCS" and "10GBASE-T1 PCS" to "RS-FEC PCS" and make the 3 stacks into 1 with the label "2.5GBASE-T1, 5GBASE-T1, or 10GBASE-T1" at the bottom.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.1.3** *P* **64** *L* **45** # 152

Zimmerman, George CME:ADI,Aquantia,AP

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

According to 149.4.2.6, the PHY Link Synchronization function is only used when auto-negotiation is not present. According to this paragraph, it is a requirement that it ALWAYS be used. The requirement doesn't below here, but belongs in 149.4.2.6. (generally, requirements do not belong in the overview)

SuggestedRemedy

Change "The MASTER and SLAVE shall be synchronized by the PHY Link Synchronization function in the PHY (see 149.4.2.6)." to "The MASTER and SLAVE is synchronized by the PHY Link Synchronization function in the PHY (see 149.4.2.6)." Change 149.4.2.6 P121 L49 "If the optional Clause 98 Auto-Negotiation function is disabled or not implemented, then the Link Synchronization function is responsible for establishing the start of PHY PMA training as defined in 149.4.2.4." to "If the optional Clause 98 Auto-Negotiation function is disabled or not implemented, then the Link Synchronization function shall establish the start of PHY PMA training as defined in 149.4.2.4."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.6** *P* **121** *L* **28** # 153

Zimmerman, George CME:ADI,Aquantia,AP

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

Much of this subclause is written in factual ("is") vs. requirements ("shall") language. Requirements are needed. For example P122 L28 "the bit Sn[0] is mapped to the transmit symbol as follows" - mappings need to be "shall be mapped".

SuggestedRemedy

Change "is mapped" to "shall be mapped" on page 122 lines 28 & 31, and page 123 line 1.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.6.1** *P* **123** *L* **37** # 154

Zimmerman, George CME:ADI,Aquantia,AP

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

The value of the variable force_phy_type is not used except for != 2.5G-T1, which causes a fatal problem for 5GBASE-T1 and 10GBASE-T1 PHYs. Additionally, it has defined values out of scope for this state diagram (1000-T1 and 100-T1). The variable isn't used anywhere else in the clause, so it is unclear what is meant by the variable. If this variable is meant to be used in another state diagram which is speed-dependent, it needs to be added to that diagram.

SuggestedRemedy

Delete values of 1000-T1, 100-T1, and None, and their descriptions. Add "Other values are implementation-dependent and beyond the scope of this clause." alternatively, consider replacing force_phy_type with a boolean variable force_mg_phy_type which is either TRUE (2.5G/5G/10G) or FALSE (anything else), as the speed doesn't seem to matter in 149.4.2.6.4.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.6.4** *P* **125** *L* **43** # 155

Zimmerman, George CME:ADI,Aquantia,AP

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

If the force_phy_type is not 2.5G-T1, the state diagram gets stuck in SYNC_DISABLE, so 5GBASE-T1 and 10GBASE-T1 PHYs can never sync.

SuggestedRemedy

Change entry to SYNC_DISABLE from "...force_phy_type != 2.5G-T1" to "...(force_phy_type != 2.5G-T1 * force_phy_type != 5G-T1 * force_phy_type != 10G-T1)" alternatively, consider replacing force_phy_type with a boolean (TRUE/FALSE) variable force_mg_phy_type.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **131** *L* **40** # 156

Zimmerman, George CME:ADI,Aquantia,AP

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

Implementation of clause 45 MDIO registers is optional. Specification needs to provide for equivalent functionality.

SuggestedRemedy

Change "These test modes shall be enabled by setting a control register..." to "If MDIO is implemented these test modes shall be enabled by setting a control register...". Add new 2nd sentence to 2nd paragraph in 149.5.1, "If MDIO is not implemented then equivalent functionality shall be provided."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **132** *L* **27** # 157

Zimmerman, George CME:ADI,Aquantia,AP

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

Need to define TX_TXCLK_DIV. Suggest divide by 8.

SuggestedRemedy

Delete editor's note on lines 21-24, change "This TBD MHz test clock is TBD frequency divided version of TX_TCLK that times the transmitted symbols." to "TX_TCLK_DIV is a one-eighth frequency divided version of TX_TCLK that times the transmitted symbols."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **132** *L* **32** # 158
Zimmerman, George CME:ADI,Aquantia,AP

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

Define test mode 2 to have the same divide by 8 proposed for test mode 1.

SuggestedRemedy

Change "three {+3} symbols..." "three {-3} symbols" to "four {+1} symbols..." "four {-1} symbols"

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **132** *L* **35** # 159
Zimmerman, George CME:ADI,Aquantia,AP

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

{0,3} symbols - PCS does the mapping from {0,3} to {-1, +1} so this is incorrect

SuggestedRemedy

Change {0,3} to {-1, +1}

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **132** *L* **40** # 160
Zimmerman, George CME:ADI,Aquantia,AP

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

Transmitter linearity test can't be a PN sequence.

SuggestedRemedy

Delete "the sequence of symbols..." through equation 149-15. add "Editor's note (to be removed prior to draft 2.0): Transmitter linearity test specification and framework contributions needed."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **132** *L* **49** # 161
Zimmerman, George CME:ADI,Aquantia,AP

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

Droop test should scale approximately with transmitter baud rate - so accept the yellow text (transmitter output is fbaud/30).

SuggestedRemedy

Accept text in yellow on lines 49 and 50 ("fifteen {+1}... local clock source."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **133** *L* **1** # 162
Zimmerman, George CME:ADI,Aquantia,AP

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

Description of the test mode 7 result is needed, and needs to be adjusted to reflect clause 149.

SuggestedRemedy

Delete yellow text on lines 1 through 4 and insert "Instead of encoding received data from MAC, continuous zero data pattern is encoded. In the receive side, after PCS FEC decoding processing, a zero data sequence is expected with no errors. Any non-zero data bit received is counted as error and calculated in BER."

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **2** *L* **1** # 163

Zimmerman, George CME:ADI,Aquantia,AP

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

"This amendment to IEEE Std 802.3-2018 adds point-to-point 2.5 Gb/s Physical Layer (PHY), 5 Gb/s Physical Layer (PHY) and 10 Gb/s Physical Layer (PHY) specifications and management parameters for operation on automotive cabling in an automotive application." - lack of oxford comma, and chained "and 10 Gbs specifications and management parameters" is clunky and can be misread.

SuggestedRemedy

Change "This amendment to IEEE Std 802.3-2018 adds point-to-point 2.5 Gb/s Physical Layer
(PHY), 5 Gb/s Physical Layer (PHY) and 10 Gb/s Physical Layer (PHY) specifications and management
parameters for operation on automotive cabling in an automotive application." to "This amendment to IEEE Std 802.3-2018 adds physical layer specifications and management parameters for 2.5 Gb/s, 5 Gb/s and 10 Gb/s operation on automotive cabling in an automotive application." Also, make same change on P1 L27-29 and P10 L50-53.

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **1** *L* **26** # 164

Zimmerman, George CME:ADI,Aquantia,AP

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

The draft makes a number of edits "as modified by 802.3cg", but here leaves out 802.3cg as the basis for what it amends. It is still early to say what the order of publication is, but we should be consistent. This way reviewers know to look at 802.3cg edits during commenting.

SuggestedRemedy

Change "as amended by IEEE Std 802.3cb-2018, IEEE Std 802.3bt-2018, and IEEE Std 802.3cd-201x." to "IEEE Std 802.3cb-2018, IEEE Std 802.3bt-2018, IEEE Std 802.3cd-201x, and IEEE Std 802.3cg-201x (TBD)."

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.344a** *P* **22** *L* **34** # 165

Zimmerman, George CME:ADI,Aquantia,AP

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

Missing space "of1000"

SuggestedRemedy

Change "of1000" to "of 1000"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30** *P* **23** *L* **3** # 166

Zimmerman, George CME:ADI,Aquantia,AP

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

"[Notes for editors... (through) ... modified.]" - this note isn't to be included in review drafts, per its text. Also applies to clause 78.

SuggestedRemedy

Delete "[Notes for editors... modified.]" P23 L3 to 9. Make same deletion in Clause 78, P50.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.4** *P* **24** *L* **27** # 167

Zimmerman, George CME:ADI,Aquantia,AP

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

"Change the sixth sentence" - Since we use XGMII we should not modify not this sentence, but are already governed by the language in the 8th paragraph relating to XGMII and 2.5G, 5G, and 10G links and the Clause 46 link fault signalling state diagram. "For 2.5 Gb/s, 5 Gb/s, 10 Gb/s, and 25 Gb/s the enumerations map to value of the link_fault variable within the Link Fault Signaling state diagram (Figure 46–11) as follows: the values OK and Link Interruption map to the enumeration “available”, the value Local Fault maps to the enumeration “not available” and the value Remote Fault maps to the enumeration “remote fault”...." <COMMENT MGMT1>

SuggestedRemedy

Delete P24 L27 -33 editing instruction and edit. If <COMMENT MGMT 2> is accepted or accepted in principle, do not delete ""30.5.1.1.4 aMediaAvailable", otherwise, if there are no other edits to this subclause following comment resolution, delete the header.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.1** *P* **93** *L* **41** # 168

WU, Peter Marvell

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

The RS code changed to RS(360, 326) 2^10 the frame size is 1800 symbols, all the paragraph needs to be rewritten

SuggestedRemedy

See the attched text and equation:During PMA training, the training pattern is embedded with indicators to establish alignment to the RS-FEC block and the 1015 partial PHY frames that comprise the block. The last partial PHY frame is embedded with an information field used to exchange messages between link partners. PMA training signal encoding is based on the generation, at time n, of the bit Sn. The first bit is inverted in the first 914 partial PHY frames of each RS-FEC block. The first 96 bits of the 105th partial PHY frame is XORed with the contents of the InfoField. Each partial PHY frame is 180 bits long, beginning at Sn where (n mod 180) = 0. See Equation (149– 8).
S_n= {[redacted](⟦Scr⟧_n [0]⊕⟦InfoField⟧_((n mod 180)) 1620≤(n mod 1800)≤1715@⟦ Scr⟧_n [0]⊕1 else if (n mod 180)=0 @⟦Scr⟧_n [0] otherwise)┤

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.4.2** *P* **94** *L* **10** # 169

WU, Peter Marvell

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

Sn to Tn mapping is not conssitent with Figure 149-7

SuggestedRemedy

changed to if Sn =0 then Tn = -1, if Sn = 1, then Tn = +1

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.2.6** *P* **122** *L* **2** # 170

WU, Peter Marvell

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

PAM2 mapping needs to be consistent

SuggestedRemedy

Text "For 10GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then
Tn = +1 +1 +1 +1 +1 +1 +1 +1, if Sn[0] = 1 then Tn = –1 .–1 –1 .–1 –1 .–1 –1 .–1.
For 5GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then
Tn = +1 +1 +1 +1, if Sn[0] = 1 then Tn = –1 .–1 –1 .–1. For 2.5GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then
Tn = +1 +1, if Sn[0] = 1 then Tn = –1 .–1." is suggested to be chanaged to " For 10GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then
Tn = -1 -1 -1 -1 -1 -1 -1 -1, if Sn[0] = 1 then Tn = +1 .+1 +1 .+1 +1 .+1 +1 .+1.
For 5GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then
Tn = -1 -1 -1 -1, if Sn[0] = 1 then Tn = +1 .+1 +1 .+1. For 2.5GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then
Tn = -1 -1, if Sn[0] = 1 then Tn = +1 .+1."

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.5.1** *P* **133** *L* **2** # 171

WU, Peter Marvell

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

80B/81B code has been chamged to 64B/65B code

SuggestedRemedy

text "80B/81B" is changed to 64B/65B

Proposed Response *Response Status* **O**