Cl **2**   *SC* **1.3**   *P* **22**   *L* **8**   *#* 1

Anslow, Pete   Ciena

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

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.

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change 802.3cb-201x to 802.3cb-2018 on:
page 22, line 20
page 22, line 26
page 58, line 8
page 58, line 10
page 60, line 4
page 60, line 19
page 60, line 44

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

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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

SuggestedRemedy

Delete the "Notes for Editors"

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
This is actually Clause 30 on page 23.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **5**

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

Anslow, Pete   Ciena

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

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):

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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"

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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"

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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"

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **11**   Page 2 of 43
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Cl **45**　　*SC* **45.2.1.192**　　　*P* **32**　　*L* **48**　　# 12
Anslow, Pete　　　　　　　　　　Ciena

Comment Type **E**　　*Comment Status* **A**　　　　　*EZ*
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"

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

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

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

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

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

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

SuggestedRemedy
Apply paragraph tag "Note" to the note.

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

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

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

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

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

Comment Type **E**　　*Comment Status* **A**　　　　*Precoder*
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)"

Response　　　　　　*Response Status* **C**
ACCEPT IN PRINCIPLE.
This is covered by Comment #85.

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

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

SuggestedRemedy
Make "149.3.2.2.19" a cross-reference

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **17**　　Page 3 of 43
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Cl **45**	*SC* **45.2.1.193**	*P* **34**	*L* **31**	*#* 18

Anslow, Pete   Ciena

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

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

Response *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.193.4**	*P* **35**	*L* **23**	*#* 19

Anslow, Pete   Ciena

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

"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"

Response *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.194**	*P* **35**	*L* **48**	*#* 20

Anslow, Pete   Ciena

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

Double full stop ".."

SuggestedRemedy

Delete one "."

Response *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.195**	*P* **36**	*L* **45**	*#* 21

Anslow, Pete   Ciena

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

Double full stop ".."

SuggestedRemedy

Delete one "."

Response *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.196.1**	*P* **37**	*L* **48**	*#* 22

Anslow, Pete   Ciena

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

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)"

Response *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.196.1**	*P* **38**	*L* **5**	*#* 23

Anslow, Pete   Ciena

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

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"

Response *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.197**	*P* **38**	*L* **21**	*#* 24

Anslow, Pete   Ciena

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

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.

Response *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **24** Page 4 of 43
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Cl **45**	*SC* **45.2.1.198**	*P* **38**	*L* **28**	*#* 25

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.199**	*P* **38**	*L* **32**	*#* 26

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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"

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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"

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the change in the first row being modified by 802.3ch. This is the row for BASE-T1 OAM transmit.

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

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **30**

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

Anslow, Pete   Ciena

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

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 "…"

Response   *Response Status* **C**

ACCEPT.

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

Anslow, Pete   Ciena

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove all instances of <0:7> and <8:11>.
See comment #136.

Cl **45**   *SC* **45.2.3.73**   *P* **41**   *L* **6**   # 33

Anslow, Pete   Ciena

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

"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"

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
See Comment #87.

Cl **45**   *SC* **45.2.3.76**   *P* **43**   *L* **31**   # 34

Anslow, Pete   Ciena

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

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

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.3.77**   *P* **43**   *L* **47**   # 35

Anslow, Pete   Ciena

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

"MultiGBASE-T1" should not split across two lines

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **35**   Page 6 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:08 PM
SORT ORDER: Comment ID

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

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

SuggestedRemedy
Apply paragraph tag "Note" to the note.

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

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

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

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

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

Comment Type **E**　　*Comment Status* **A**　　　　　　*EZ*
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…"

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

Cl **45**　　*SC* **45.2.9.3.2**　　　*P* **48**　　*L* **50**　　# 39
Anslow, Pete　　　　　　　　　　　Ciena

Comment Type **E**　　*Comment Status* **A**　　　　　　*EZ*
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…"

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

Cl **78**　　*SC* **78.3**　　　*P* **51**　　*L* **17**　　# 40
Anslow, Pete　　　　　　　　　　　Ciena

Comment Type **E**　　*Comment Status* **A**　　　　　　*EZ*
IEEE does not use the term "section" in editing instructions.
Space missing before "("

SuggestedRemedy
Delete "section" here and on line 22

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

Cl **149**　　*SC* **149.9.1**　　　*P* **144**　　*L* **5**　　# 41
Fritsche, Matthias　　　　　　　　HARTING Technology

Comment Type **E**　　*Comment Status* **A**　　　　　　*Editorial*
IEC 60950-1 is replaced by IEC 62368-1

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

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **41**　　　Page 7 of 43
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Cl **149**   *SC* **149.1.3**   *P* **65**   *L* **11**   # 42
Tu, Mike   Broadcom

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

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."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editorial license to number the figure appropriately based on the location in Clause 149.

Cl **149**   *SC* **149.1.3**   *P* **64**   *L* **1**   # 43
Tu, Mike   Broadcom

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

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 ..."

Response   *Response Status* **C**

ACCEPT.

Cl **149**   *SC* **149.1.3.1**   *P* **65**   *L* **25**   # 44
Tu, Mike   Broadcom

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

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)."

Response   *Response Status* **C**

ACCEPT.

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

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

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, $p_{L,33}$, …, $p_{L,0}$"

Response   *Response Status* **C**

ACCEPT.

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

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

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."

Response   *Response Status* **C**

ACCEPT.

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

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Also delete "SEND_I" text on page 128, lines 34&35 and on page 136, line 36.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **47**   Page 8 of 43
1/16/2019 4:14:08 PM

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

Comment Type **TR**　*Comment Status* **A**　　　　*PCS*
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.

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

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

Comment Type **TR**　*Comment Status* **A**　　　*Interleave*
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 …"

Response　　　　*Response Status* **C**
ACCEPT IN PRINCIPLE.
Make Suggested Remedy and remove highlighting.

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

Comment Type **ER**　*Comment Status* **A**　　　　*PMA*
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}.

Response　　　　*Response Status* **C**
ACCEPT IN PRINCIPLE.

Make the same change on page 126, line 27.

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

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

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

Response　　　　*Response Status* **C**
ACCEPT IN PRINCIPLE.

Change g6 to g34 and change g5 to g33.

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

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

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

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

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

Comment Type **ER**　*Comment Status* **A**　　　　*Editorial*
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>".

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **53**　　　Page 9 of 43
1/16/2019 4:14:08 PM

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

Comment Type **TR**   *Comment Status* **A**   *PCS*
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.

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

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

Comment Type **TR**   *Comment Status* **A**   *Partial Frame*
Need to determine the number of partial frames.

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

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

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

Comment Type **TR**   *Comment Status* **A**   *Partial Frame*
Equation 149-8 is incorrect

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

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

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

Comment Type **TR**   *Comment Status* **A**   *PAM2*
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.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
Implement Option #2, i.e. make no change.

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

Comment Type **ER**   *Comment Status* **A**   *Editorial*
S_n is already defined in 149.3.4.1.

SuggestedRemedy
Delete this line

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

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

Comment Type **ER**   *Comment Status* **A**   *Editorial*
T_n is already defined in 149.3.4.2.

SuggestedRemedy
Delete this line

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **59**

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1/16/2019 4:14:08 PM

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

Comment Type **TR**　　*Comment Status* **A**　　　　　*PHY Control*

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.

Response　　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.

With editorial license to modify text as needed to "make it work".

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

Comment Type **ER**　　*Comment Status* **A**　　　　　*PHY Control*

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."

Response　　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.

Add an Editor's note that the text in this section should be informative and not normative. Commenters to propose changes and/or deletions to the text as required.

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

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

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."

Response　　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.
EEE change to: "The optional EEE capability shall be enabled only if both PHYs set the capability bit EEEen = 1. The optional BASE-T1 OAM capability shall be enabled only if both PHYs set the capability bit OAMen = 1."
Interleave as defined in Comment #91 and refer to 149.3.2.2.17
Refer to 149.3.2.2.19 for Selectable precoder details.

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

Comment Type **ER**　　*Comment Status* **A**　　　　　*PHY Control*

Remove the edtorial highlighs in this paragraphs.

SuggestedRemedy

Remove the edtorial highlighs in this paragraphs.

Response　　　　　　*Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **63**　　　Page 11 of 43
1/16/2019 4:14:08 PM

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

Comment Type **TR**   *Comment Status* **A**   *PHY Control*
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.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Implement as shown in Suggested Remedy.

See tu_3ch_02a_0119 page 4.

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

Comment Type **ER**   *Comment Status* **A**   *PHY Control*
Remove editorial highlights

SuggestedRemedy
Remove editorial highlights for the first two paragraphes

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

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

Comment Type **TR**   *Comment Status* **A**   *PHY Control*
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."

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Remove highlighting on paragraph that is on lines 10 and 11 of page 121. Change PAM3 to PAM4 on line 11.

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

Comment Type **TR**   *Comment Status* **A**   *PHY Control*
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."

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

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

Comment Type **TR**   *Comment Status* **A**   *PHY Control*
"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."

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

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

Comment Type **TR**   *Comment Status* **A**   *PCS*
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"

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See Comments #227-229 for solution.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **69**   Page 12 of 43
1/16/2019 4:14:08 PM

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

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

SuggestedRemedy
Delete "Annex 149-4".

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

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

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

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

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comment #49.

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

Comment Type **E**   *Comment Status* **A**   *Editorial*
This is in section 149.3.4.1.

SuggestedRemedy
Delete section 149.3.4.4.

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

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

Comment Type **E**   *Comment Status* **A**   *Eeditorial*
This is in section 149.3.4.2.

SuggestedRemedy
Delete section 149.3.4.5.

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

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

Comment Type **T**   *Comment Status* **A**   *Registers*
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.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
Implement changes specified in wienckowski_3ch_01_0119

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

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

SuggestedRemedy
See presentation.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
Implement changes specified in wienckowski_3ch_02_0119.

Page 2 for the D0 change.

page 3 to be drawn as 2 state machines.

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

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

SuggestedRemedy
Add tab.

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **76**   Page 13 of 43
1/16/2019 4:14:09 PM

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

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

SuggestedRemedy
Remove box around note and all contents.

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

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

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

SuggestedRemedy
Remove box around note and all contents.

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

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

Comment Type **E**   *Comment Status* **A**   Editorial
Typo

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

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

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

Comment Type **E**   *Comment Status* **A**   EZ
Typo

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

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

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

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

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

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

Cl **45**   *SC* **45.2.1.192.3**   *P* **34**   *L* **5**   # 82
Wienckowski, Natalie   General Motors

Comment Type **T**   *Comment Status* **A**   EEE
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.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Insert an Editor's note in Clause 45 at this register: Commenters to consider whether the recovery time from low power mode should be required. If so, a requirement should be added to Clause 149 and then be reflected in 45.

Cl **125**   *SC* **125.1.2**   *P* **59**   *L* **49**   # 83
Wienckowski, Natalie   General Motors

Comment Type **E**   *Comment Status* **A**   Editorial
Figure title was not updated properly.

SuggestedRemedy
Remove " - Part 1 of 2".

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Comment ID **83**   Page 14 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:09 PM
SORT ORDER: Comment ID

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

Lo, William   Axonne Inc.

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

45.2.1.1988 should be 45.2.1.198

SuggestedRemedy

See comment

Response   *Response Status* **C**

ACCEPT.

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

Lo, William   Axonne Inc.

Comment Type **T**   *Comment Status* **D**   *Precoder*

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* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

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

Lo, William   Axonne Inc.

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

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.

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Comment ID **86**   Page 15 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:09 PM
SORT ORDER: Comment ID

Cl **45**   *SC* **45.2.3.73**   *P* **41**   *L* **1**   # 87
Lo, William   Axonne Inc.

Comment Type **T**   *Comment Status* **A**   OAM
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.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Follow the 2 "delete" statements but not the "add" statements.

Everywhere this appears:
Change: contains the first 8 octets of the 1000BASE-T1 OAM message

To: contains the 8-octet 1000BASE-T1 OAM message

Cl **149**   *SC* **149.2**   *P* **68**   *L* **11**   # 88
Lo, William   Axonne Inc.

Comment Type **E**   *Comment Status* **A**   Editorial
Incorrect reference

SuggestedRemedy
Clause 28 should be 98.4

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

Cl **149**   *SC* **149.2.2.1.1**   *P* **70**   *L* **1**   # 89
Lo, William   Axonne Inc.

Comment Type **T**   *Comment Status* **A**   PMA
Figure 149-20 no longer uses SEND_I

SuggestedRemedy
Delete the description on SEND_I

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comment #47

Cl **149**   *SC* **149.3.2.2**   *P* **78**   *L* **25**   # 90
Lo, William   Axonne Inc.

Comment Type **T**   *Comment Status* **A**   PCS
Equation has rounding error.

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

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change: 177.8 / S ps
To: 1000 / (5.625 x S) ps

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Comment ID **90**   Page 16 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:09 PM
SORT ORDER: Comment ID

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

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
The mapping of the interleave value will be as defined shown on page 3 of DenBesten_3ch_01_0119.pdf.

x will be 1 and all other subclauses of 45.2.1.194 and 45.2.1.195 will be incremented.

The wording of the new sections will be as shown on page 4 of DenBesten_3ch_01_0119.pdf.

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

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

Grammar is a bit confusing.

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

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

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

Grammar is a bit confusing.

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

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

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

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

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

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

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

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)

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Do #2 only.
See comment #115.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **95**

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1/16/2019 4:14:09 PM

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

Lo, William   Axonne Inc.

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

Incorrect index in Figure 149-8

SuggestedRemedy

g32 should be g33
g33 should be g34

Response   *Response Status* **C**

ACCEPT.

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

Lo, William   Axonne Inc.

Comment Type **T**   *Comment Status* **D**   *Interleave*

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* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

See commen #45 for resolution.

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

Lo, William   Axonne Inc.

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Insert on page 93 after line 21: This scrambler, once started during PMA training, shall continue to run uninterrupted during the transition from PAM2 to PAM4.

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

Lo, William   Axonne Inc.

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

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

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **99**

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

Lo, William   Axonne Inc.

Comment Type **T**   *Comment Status* **A**   *PHY Control*

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add the following to SEND DATA state
stop maxwait_timer after start minwait_timer

Add a connection from SEND DATA to INIT_MAXWAIT_TIMER state (arrow to
INIT_MAXWAIT_TIMER) with
minwait_timer_done * loc_rcvr_status = NOT_OK describing the arc.

Change minwait_timver_done to minwait_timer_done in arc from PCS_TEST to SILENT.

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

Maguire, Valerie   The Siemon Company

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

Missing space

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

Cl **149**   *SC* **149.9.2.2**   *P* **144**   *L* **41**   # 102

Maguire, Valerie   The Siemon Company

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

List complete Standards reference

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

Cl **149**   *SC* **149.9.2.2**   *P* **144**   *L* **42**   # 103

Maguire, Valerie   The Siemon Company

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

List complete Standards reference

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

Cl **149**   *SC* **149.9.2.2**   *P* **144**   *L* **43**   # 104

Maguire, Valerie   The Siemon Company

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

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"

Response   *Response Status* **C**

ACCEPT.

Cl **149**   *SC* **149.9.2.2**   *P* **144**   *L* **44**   # 105

Maguire, Valerie   The Siemon Company

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

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"

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **105**   Page 19 of 43
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Cl **149** *SC* **149.9.2.1** *P* **144** *L* **25** # 106
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **A** *EZ*
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"

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

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

Comment Type **E** *Comment Status* **A** *EZ*
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)

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

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

Comment Type **E** *Comment Status* **A** *EZ*
typo

SuggestedRemedy
change "of1000" to "of 1000"

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

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

Comment Type **E** *Comment Status* **A** *EZ*
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.

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

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

Comment Type **T** *Comment Status* **A** *Clause 44*
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"

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Implement Suggested Remedy, but Change NOTE 2 to *.

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

Comment Type **T** *Comment Status* **A** *Registers*
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.

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **111**

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Cl **45**	*SC* **45.2.3**	*P* **43**	*L* **1**	#	112

McClellan, Brett   Marvell

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add this just prior to the editorial instruction on page 42, line 44.

Cl **125**	*SC* **125.1.4**	*P* **60**	*L* **19**	#	113

McClellan, Brett   Marvell

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

unnecessary period

SuggestedRemedy

change ":." to ":"

Response   *Response Status* **C**

ACCEPT.

Cl **125**	*SC* **125.2.2**	*P* **61**	*L* **31**	#	114

McClellan, Brett   Marvell

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

125.5.2 should be 125.2.2

SuggestedRemedy

change "125.5.2" to "125.2.2"

Response   *Response Status* **C**

ACCEPT.

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

McClellan, Brett   Marvell

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Move figure 149-7 to section 149.3.2.2. Remove all technical details from the blocks. Add reference sentence to this figure.

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 D_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 149.3.2.2.17.

Also resolves #95 & #98

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **115**   Page 21 of 43
1/16/2019 4:14:09 PM

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

McClellan, Brett   Marvell

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

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."

Response   *Response Status* **C**

ACCEPT.

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

McClellan, Brett   Marvell

Comment Type **T**   *Comment Status* **D**   *Partial Frame*

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* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

See comment #55

Cl **149**   *SC* **149.1.3.3**   *P* **66**   *L* **22**   # 118

Benyamin, Saied   Aquantia

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change: <Add Alert/Wake details>

To: 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 Wake frames. After this short recovery time the normal operational mode is resumed.

Cl **149**   *SC* **149.1.3.3**   *P* **66**   *L* **31**   # 119

Benyamin, Saied   Aquantia

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change: <Add Alert/Wake details>

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **119**   Page 22 of 43
1/16/2019 4:14:09 PM

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

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

SuggestedRemedy
Remove 8 from the list of possible interleave options

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comment #49.

Cl **149**	*SC* **149.3.5**	*P* **94**	*L* **41**	# 121
Benyamin, Saied		Aquantia		

Comment Type **T**   *Comment Status* **A**   *Partial Frame*
We should specify timing in partial frame units

SuggestedRemedy
change 99 RS-FEC frames to 792 partial PHY frame

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change 99 RS-FEC frames to 95 RS-FEC frames.

Cl **149**	*SC* **149.3.5**	*P* **94**	*L* **45**	# 122
Benyamin, Saied		Aquantia		

Comment Type **T**   *Comment Status* **A**   *Partial Frame*
We should specify timing in partial frame units

SuggestedRemedy
change 100 RS FEC frame to 800 partial PHY frame

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change 100 RS-FEC frames to 96 RS-FEC frames.

Also change 100 RS-FEC frames to 96 RS-FEC frames on page 95, line 24.

Cl **149**	*SC* **149.3.5.1**	*P* **95**	*L* **30**	# 123
Benyamin, Saied		Aquantia		

Comment Type **T**   *Comment Status* **A**   *Partial Frame*
We should specify timing in partial frame units

SuggestedRemedy
change 50 RS FEC frame to 400 partial PHY frame

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change 50 RS-FEC frames to 52 RS-FEC frames.

Cl **78**	*SC* **78.2**	*P* **50**	*L* **49**	# 124
Benyamin, Saied		Aquantia		

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

SuggestedRemedy
2.5GBase-T1 Min/Max should both be 10.24

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
In Table 78-2 swap the Min and Max Ts values for 2.5GBASE-T1 and 10GBASE-T1.

Cl **78**	*SC* **78.2**	*P* **51**	*L* **12**	# 125
Benyamin, Saied		Aquantia		

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

SuggestedRemedy
10GBaes-T1 Min/Max should both be 2.56

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comment 124.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **125**   Page 23 of 43
1/16/2019 4:14:09 PM

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

Zimmerman, George   CME:ADI,Aquantia,AP

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

<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".;"

Response   *Response Status* **C**

ACCEPT.

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

Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **E**   *Comment Status* **A**   *Clause 44*

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."

Response   *Response Status* **C**

ACCEPT.

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

Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **E**   *Comment Status* **A**   *Clause 44*

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"

Response   *Response Status* **C**

ACCEPT.

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

Zimmerman, George   CME:ADI,Aquantia,AP

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

"2317through 1.32767" missing space

SuggestedRemedy

Change "2317through" to "2317 through"

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.1**   *P* **31**   *L* **29**   # 130

Zimmerman, George   CME:ADI,Aquantia,AP

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

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

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **130**   Page 24 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:09 PM
SORT ORDER: Comment ID

Cl **45**	*SC* **45.2.1.18**	*P* **32**	*L* **10**	# 131

Zimmerman, George   CME:ADI,Aquantia,AP

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

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."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Need to add Table 45-21 to the spec.
Add Editor instruction: Change the identified reserved row in Table 45-21 (as modified by IEEE802.3cb) and insert new rows immediately after it as follows (unchanged rows not shown):
Change Reserved row to be 1.21.15:6
Add rows (with appropriate Description):
1.21.5 5GBASE-T1 ability
1.21.4 2.5GBASE-T1 ability

Add 45.2.1.18.1aa and 45.2.2.18.1ab as suggested.

Cl **45**	*SC* **45.2.1.192.1**	*P* **33**	*L* **32**	# 132

Zimmerman, George   CME:ADI,Aquantia,AP

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

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

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.192.4**	*P* **34**	*L* **14**	# 133

Zimmerman, George   CME:ADI,Aquantia,AP

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

"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

Response   *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.193**	*P* **34**	*L* **48**	# 134

Zimmerman, George   CME:ADI,Aquantia,AP

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

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).

Response   *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.2.1.194**	*P* **36**	*L* **1**	# 135

Zimmerman, George   CME:ADI,Aquantia,AP

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

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

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **135**   Page 25 of 43
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Cl **45**	*SC* **45.2.3**	*P* **39**	*L* **14**	# 136

Zimmerman, George   CME:ADI,Aquantia,AP

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change names of registers and Link partner registers from "MultiGBASE-T1 OAM message" to "MultiGBASE-T1 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.

Cl **45**	*SC* **45.2.3.73**	*P* **41**	*L* **6**	# 137

Zimmerman, George   CME:ADI,Aquantia,AP

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

"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

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
See Comment #87.

Cl **45**	*SC* **45.2.3.80**	*P* **47**	*L* **10**	# 138

Zimmerman, George   CME:ADI,Aquantia,AP

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

"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."

Response   *Response Status* **C**

ACCEPT.

Cl **45**	*SC* **45.5.3**	*P* **49**	*L* **25**	# 139

Zimmerman, George   CME:ADI,Aquantia,AP

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

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.

Response   *Response Status* **C**

ACCEPT.

Cl **78**	*SC* **78.3**	*P* **51**	*L* **20**	# 140

Zimmerman, George   CME:ADI,Aquantia,AP

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

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....)

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update Section, remove highlighting, and make a cross reference.

Cl **97**	*SC* **97.3.8.3**	*P* **52**	*L* **9**	# 141

Zimmerman, George   CME:ADI,Aquantia,AP

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

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"

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make change to title of 97.3.8 as well.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **141**   Page 26 of 43
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Cl **104**   *SC* **104.1.3**   *P* **55**   *L* **10**   # 142

Zimmerman, George   CME:ADI,Aquantia,AP

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add an editor's note that Type F needs to be updated to be different from Type B or Type F should be deleted.

Cl **104**   *SC* **104.9**   *P* **57**   *L* **36**   # 143

Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **E**   *Comment Status* **D**   *PICS*

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* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **125**   *SC* **125.1**   *P* **59**   *L* **15**   # 144

Zimmerman, George   CME:ADI,Aquantia,AP

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

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.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Have found 2 volunteers to "fuss" with all figures to get them lined up for D1.1.

Cl **125**   *SC* **125.1.4**   *P* **60**   *L* **31**   # 145

Zimmerman, George   CME:ADI,Aquantia,AP

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

"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

Response   *Response Status* **C**

ACCEPT.

Cl **125**   *SC* **125.1.4**   *P* **61**   *L* **18**   # 146

Zimmerman, George   CME:ADI,Aquantia,AP

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

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.

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **146**   Page 27 of 43
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Cl **149**	*SC* **149.1**	*P* **63**	*L* **18**	# 147

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

"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)

Response　　　　　　*Response Status* **C**

ACCEPT.

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

"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

Response　　　　　　*Response Status* **C**

ACCEPT.

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

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)

Response　　　　　　*Response Status* **C**

ACCEPT.

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

Space missing "equal to10"

SuggestedRemedy

Change "equal to10" to "equal to 10"

Response　　　　　　*Response Status* **C**

ACCEPT.

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

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.

Response　　　　　　*Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **151**

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Cl **149**　　*SC* **149.1.3**　　　　*P* **64**　　*L* **45**　　　# 152
Zimmerman, George　　　　　CME:ADI,Aquantia,AP

Comment Type　**T**　　*Comment Status*　**A**　　　*Link Synchronization*

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."

Response　　　　　*Response Status*　**C**

ACCEPT.

Cl **149**　　*SC* **149.4.2.6**　　　*P* **121**　　*L* **28**　　　# 153
Zimmerman, George　　　　　CME:ADI,Aquantia,AP

Comment Type　**T**　　*Comment Status*　**A**　　　*Link Synchronization*

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.

Response　　　　　*Response Status*　**C**

ACCEPT.

Cl **149**　　*SC* **149.4.2.6.1**　　*P* **123**　　*L* **37**　　　# 154
Zimmerman, George　　　　　CME:ADI,Aquantia,AP

Comment Type　**T**　　*Comment Status*　**A**　　　*Link Synchronization*

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.

Response　　　　　*Response Status*　**C**

ACCEPT IN PRINCIPLE.

force_phy_type is used in Clause 97 so keep it to be consistent.
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."

Cl **149**　　*SC* **149.4.2.6.4**　　*P* **125**　　*L* **43**　　　# 155
Zimmerman, George　　　　　CME:ADI,Aquantia,AP

Comment Type　**T**　　*Comment Status*　**A**　　　*Link Synchronization*

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.

Response　　　　　*Response Status*　**C**

ACCEPT IN PRINCIPLE.

force_phy_type is used in Clause 97 so keep it to be consistent.
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)"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **155**

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Cl **149**   *SC* **149.5.1**   *P* **131**   *L* **40**   # 156
Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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."

Response   *Response Status* **C**

ACCEPT.

Cl **149**   *SC* **149.5.1**   *P* **132**   *L* **27**   # 157
Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

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 equal to TX_TCLK divided by 16 where TX_TCLK times the transmitted symbols."

In addition, create an Editor's note that participants are needed to check the correct divide ratio.

In Figure 149-24 change TX_TCLK to TX_TCLK_DIV.

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

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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"

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

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

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

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT.

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

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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."

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **160**   Page 30 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:09 PM
SORT ORDER: Comment ID

Cl **149**	*SC* **149.5.1**	*P* **132**	*L* **49**	# 161

Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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."

Response   *Response Status* **C**

ACCEPT.

Cl **149**	*SC* **149.5.1**	*P* **133**	*L* **1**	# 162

Zimmerman, George   CME:ADI,Aquantia,AP

Comment Type **T**   *Comment Status* **A**   *Test Modes*

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."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

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 block received with non-zero data bits is counted as an error and calculated in RS-FEC block error rate."

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

Zimmerman, George   CME:ADI,Aquantia,AP

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

"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.

Response   *Response Status* **C**

ACCEPT.

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

Zimmerman, George   CME:ADI,Aquantia,AP

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

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)."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make the change as proposed. In addition, Add the abstract of cg on page 10 between cd and ch as agreed to by P902.3cg based on cg comment #351.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **164**   Page 31 of 43
1/16/2019 4:14:09 PM

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

Missing space "of1000"

SuggestedRemedy

Change "of1000" to "of 1000"

Response　　　　　*Response Status* **C**

ACCEPT.

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

"[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.

Response　　　　　*Response Status* **C**

ACCEPT.

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

Zimmerman, George　　　　　　　CME:ADI,Aquantia,AP

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

"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.

Response　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete P24 L27 -33 editing instruction and edit.

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

WU, Peter　　　　　　　Marvell

Comment Type **TR**　　*Comment Status* **A**　　　*Partial Frame*

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).

$S\_n= \{ \llbracket (\llbracket Scr \rrbracket\_n [0] \oplus \llbracket InfoField \rrbracket\_{((n\ mod\ 180))}\ \ 1620 \leq (\ n\ mod\ 1800) \leq 1715 @ \llbracket\quad Scr \rrbracket\_n [0] \oplus 1 \quad else\ if\ (n\ mod\ 180\ )=0 \qquad\qquad @ \llbracket Scr \rrbracket\_n [0] \qquad\qquad otherwise \}$

Response　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #56

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

WU, Peter　　　　　　　Marvell

Comment Type **TR**　　*Comment Status* **A**　　　　　　*PAM2*

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

Response　　　　　*Response Status* **C**

ACCEPT IN PRINCIPLE.
Figure 149-7 will no longer have the mapping details per comment #115.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **169**

Page 32 of 43
1/16/2019 4:14:10 PM

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

WU, Peter   Marvell

Comment Type **TR**   *Comment Status* **A**   *PAM2*

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, 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."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
The "."s are copy/paste artifacts.
Change text 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.

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

WU, Peter   Marvell

Comment Type **ER**   *Comment Status* **A**   *Test Modes*

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

SuggestedRemedy

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

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #162.

Cl **45**   *SC* **45.2.1.192.1**   *P* **33**   *L* **16**   # 172

Wienckowski, Natalie   General Motors

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

Typo in register number

SuggestedRemedy

Change 1.2304.10:9 to 1.2309.10:9

Response   *Response Status* **C**

ACCEPT.

Late

Cl **149**   *SC* **149.4.5**   *P* **131**   *L* **2**   # 173

Wienckowski, Natalie   General Motors

Comment Type **E**   *Comment Status* **A**   *late Editorial*

Editor's note for content added in D1.0 needs to be removed.

SuggestedRemedy

Remove Editor's note, accepting Figure 149-21

Response   *Response Status* **C**

ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Comment ID **173**   Page 33 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:10 PM
SORT ORDER: Comment ID

Cl **45**   *SC* **45.2.3**   *P* **38**   *L* **47**   # 174
Wienckowski, Natalie   General Motors

Comment Type **E**   *Comment Status* **A**   OAM
Editor's note for content added in D1.0 needs to be removed.

SuggestedRemedy
Remove Editor's note. The section was reviewed and other comments request updates to the text.

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

Late

Cl **FM**   *SC* **0**   *P* **1**   *L*   # 175
den Besten, Gerrit   NXP Semiconductors

Comment Type **TR**   *Comment Status* **D**   late reject
The clause title currently reads as: Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet

SuggestedRemedy
Given that we will only specify 2.5/5/10Gbps in this clause, I recommend to replace "Greater than 1Gbps" with "2.5, 5, and 10 Gbps". If there will another Automotive Ethernet PHY beyond 1Gbps standardized in the future, it will get its own clause I expect.

Proposed Response   *Response Status* **Z**
REJECT.

This comment was WITHDRAWN by the commenter.

This name is required to be the name in the PAR, which it is.

Cl **FM**   *SC* **0**   *P* **2**   *L* **3**   # 176
den Besten, Gerrit   NXP Semiconductors

Comment Type **ER**   *Comment Status* **A**   late Editorial
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.

SuggestedRemedy
adds 2.5Gbps, 5Gbps, and 10Gbps Physical Layer (PHY) specifications and management parameters for single balanced pair link segments and suitable for automotive applications

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Wrong comment was referenced.

See comment #163 in Editorial bucket.

Cl **FM**   *SC* **0**   *P* **21**   *L* **27**   # 177
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   late Editorial
2018comprehensive

SuggestedRemedy
2018 comprehensive (?)

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comment #80 - EZ.

Cl **1**   *SC* **1.4.344a**   *P* **22**   *L* **34**   # 178
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   late Editorial
of1000 Mb/s

SuggestedRemedy
of 1000 Mb/s

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comment #108 - EZ

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Comment ID **178**   Page 34 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:10 PM
SORT ORDER: Comment ID

Cl **30**   *SC* **30**   *P* **23**   *L* **3**   # 179
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   *late Editorial*
[Notes for editors (not to be included in the published draft - not even D1.0!)⯀

SuggestedRemedy
Forgot to delete???

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
See comments #109 and #166 - EZ.

Cl **44**   *SC* **44.1.4.4**   *P* **29**   *L* **10**   # 180
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   *Clause 44*
64B/65B PCS

SuggestedRemedy
RS-FEC PCS (consistency with 10GBASE-T1)

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
late
See comment #128.

Cl **44**   *SC* **44.1.4.4**   *P* **29**   *L* **44**   # 181
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   *late Editorial*
on a single

SuggestedRemedy
over a single

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.
Change: for transmission on a single
To: for transmission over a single

Cl **45**   *SC* **45.2.1.192.1**   *P* **33**   *L* **16**   # 182
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **R**   *Registers*
1.2309.10:9

SuggestedRemedy
Wouldn't it better to out these bits at 7:6 instead (at start of lower byte) to allow reserved
space in between for logical grouping of features in the future? In fact these bits are not
really control but configuration bits.

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

late

Control bits and configuration bits are the same thing. Leaving the reserved block as one
big block allows greater flexibility during draft development.

Cl **45**   *SC* **45.2.1.192.1**   *P* **33**   *L* **30**   # 183
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   *Registers*
Does a reset time of 0.5sec make sense given that the link start-up time should be within
100ms

SuggestedRemedy
Does 0.5s make sense? I would have expected a maximum value of 50ms rather than
500ms.

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Add an editor's note at 45.2.1.192.1 for people to provide a suggested requirement for
Clause 149 if this is needed. This can then be referenced in Clause 45.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **183**   Page 35 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:10 PM
SORT ORDER: Comment ID

Cl **45**	*SC* **45.2.1.192.3**	*P* **34**	*L* **5**	# **184**

den Besten, Gerrit   NXP Semiconductors

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

"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 lowpower mode."

SuggestedRemedy

Is that really acceptable? I would expect a more tightly defined start-up time, like 100ms

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Insert an Editor's note in Clause 45 at this register: Commenters to consider whether the recovery time from low power mode should be required. If so, a requirement should be added to Clause 149 and then be reflected in 45.

Cl **45**	*SC* **45.2.1.194.1**	*P* **36**	*L* **9**	# **185**

den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   *late Editorial*

R.W

SuggestedRemedy

R/W

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: R.W
To: R/W

Cl **45**	*SC* **45.2.1.194.4**	*P* **36**	*L* **40**	# **186**

den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   *late Editorial*

up..

SuggestedRemedy

up.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.
On page 36, line 45
Change: up..
To: up.

Cl **45**	*SC* **45.2.1.197**	*P* **38**	*L* **20**	# **187**

den Besten, Gerrit   NXP Semiconductors

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

This fine-grained SNR resolution seems overdone. Looking at other clauses with and SNR margin parameter (55,113,126), it seems that a 4 bit field with 0.5dB resolution is common.

SuggestedRemedy

Clause 113: "SNR_margin (4 bits). Represented by Octet 9<7:4>, which reports received decision point SNR margin in 1/2 dB steps. SNR_margin is relative to the SNR required for reception of LDPC-coded DSQ128 at an LDPC frame error ratio of less than 3.2 □ 10–9. The SNR_margin<7:4> four-bit values, 0010, 0011, 0100, 0101, 0110, 0111, 1000, 1001, 1010, 1011, 1100, 1101, 1110 shall indicate the decision point SNR margin values of –1.5, –1, –0.5, 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5 dB, respectively. The value 0001 shall indicate a margin of –2 dB or less, and the value 1111 shall indicate 5 dB or more. Finally the value 0000 shall indicate that the SNR margin value is unknown."

Response   *Response Status* **C**

REJECT.

late

TFTD

The resolution and range of measurement should be discussed. The resolution used here is the same used in all the MultiGBASE-T SNR margin registers for reporting. The 4 bit fields mentioned by the commenter are those reported during startup and are for a much coarser measurement done via infofields and optionally used by the PHY during startup, not for runtime monitoring.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Comment ID **187**   Page 36 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:10 PM
SORT ORDER: Comment ID

Cl **45**   *SC* **45.2.1.198**   *P* **38**   *L* **27**   # **188**
den Besten, Gerrit   NXP Semiconductors

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

This fine-grained SNR resolution seems overdone. Looking at other clauses with and SNR margin parameter (55,113,126), it seems that a 4 bit field with 0.5dB resolution is common.

SuggestedRemedy

See previous comment

Response   *Response Status* **C**

REJECT.

Late

Previous comment is #187

TFTD

The resolution and range of measurement should be discussed. The resolution used here is the same used in all the MultiGBASE-T SNR margin registers for reporting. The 4 bit fields mentioned by the commenter are those reported during startup and are for a much coarser measurement done via infofields and optionally used by the PHY during startup, not for runtime monitoring.

Cl **45**   *SC* **45.2.1.199**   *P* **38**   *L* **34**   # **189**
den Besten, Gerrit   NXP Semiconductors

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

This fine-grained signal power resolution seems overdone.

SuggestedRemedy

0.5dB resolution should be enough. Accuracy cannot be that high as analog front-end gain variability is not negligible.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

This measurment is being deleted by comment #111.

Cl **45**   *SC* **45.2.3.72.2**   *P* **40**   *L* **31**   # **190**
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **D**   *late reject*

Was BASE-T1 intentionally strikes through here?

SuggestedRemedy

Proposed Response   *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Not a comment.

To answer the question, yes, it was changed so to say "transmitted by the PHY" without specifying the specific PHY.

Cl **45**   *SC* **45.2.3.73**   *P* **41**   *L* **6**   # **191**
den Besten, Gerrit   NXP Semiconductors

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

Reference to wrong registers 2328/2329 (which are reserved)

SuggestedRemedy

Should be 3.2318 and 2319

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comment #87 deleted the references to these registers.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **191**   Page 37 of 43
1/16/2019 4:14:10 PM

Cl **45**   *SC* **45.2.3.74**   *P* **41**   *L* **40**   *#* 192

den Besten, Gerrit   NXP Semiconductors

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

This bit shall self clear when register 3.2317 is
read.

SuggestedRemedy

This condition is adapted by the paragraph below the table. Probably better to say: this bit
shall self-clear on reading the last link partner AOM register. (and leave the more detailed
explanation as is in the paragraph below).

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

late

Change "This bit shall self clear when register 3.2317 is read" to "See 45.2.3.74.1 for self-
clearing behavior". Note - this eliminates a 'duplicate shall', as well as provides the
reference to the more complete behavior without relying on the names of the registers
being the same.

Cl **45**   *SC* **45.2.3.73**   *P* **41**   *L* **5**   *#* 193

den Besten, Gerrit   NXP Semiconductors

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

"the remaining 4 octets are"

SuggestedRemedy

Replace by "there are 4 additional octets"

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

late

See Comment #87.

Cl **45**   *SC* **45.2.3.75**   *P* **42**   *L* **41**   *#* 194

den Besten, Gerrit   NXP Semiconductors

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

"the remaining 4 octets are"

SuggestedRemedy

Replace by "there are 4 additional octets"

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

late

See Comment #87.

Cl **45**   *SC* **45.2.3.75**   *P* **42**   *L* **41**   *#* 195

den Besten, Gerrit   NXP Semiconductors

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

"Register 3.2313.15
shall be cleared when register 3.2317 is read."

SuggestedRemedy

Confusing incomplete statement and redundant here as this belongs to the paragraph
about register 2313. Suggest to remove this sentence.

Response   *Response Status*   **C**

ACCEPT IN PRINCIPLE.

late

This is for existing text in Clause 45. Removing the redundant text requires a Maintainance
request which George Zimmerman has entered. It is request #1327.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* 195   Page 38 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:10 PM
SORT ORDER: Comment ID

Cl **45**	*SC* **45.2.3.77**	*P* **43**	*L* **48**	*#*	**196**

den Besten, Gerrit   NXP Semiconductors

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

"For MultiGBASE-T1 PHYs, register 3.2313.15 shall be cleared when register 3.2321 is read."

SuggestedRemedy

Confusing incomplete statement and redundant here as this belongs to the paragraph about register 2313. Suggest to remove this sentence.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

late

See Comment #86.

Cl **45**	*SC* **45.2.3.78.1**	*P* **44**	*L* **44**	*#*	**197**

den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   *late reject*

"The control and management interface shall be restored to operation within 0.5 s from the setting of bit 3.2322.15."

SuggestedRemedy

Does 0.5s make sense? I would have expected a maximum value of 50ms rather than 500ms.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #188

Cl **45**	*SC* **45.2.3.78**	*P* **44**	*L* **21**	*#*	**198**

den Besten, Gerrit   NXP Semiconductors

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

What is the reason to define new PCS control, status 1 and status 2 register, as they contain exactly the same fields as 1000BASE-T1. The OAM registers are reused (and extended). Why not do the same for these PCS registers?

SuggestedRemedy

Can we defined the PCS registers as BASE-T1 registers instead that can be reused for all speed grades?

Response   *Response Status* **C**

REJECT.

late

Commenter provides insuffficient information for remedy. At this time it is unknown whether the registers will remain identical to those in 1000BASE-T1. If the content remains the same as we approach working group ballot, commenter is invited to come with a proposal to merge the registers.

Cl **78**	*SC* **78.2**	*P* **50**	*L* **49**	*#*	**199**

den Besten, Gerrit   NXP Semiconductors

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

What is the tolerance on these time values? There is zero margin between min and max.

SuggestedRemedy

As these are actually an integer number of symbol periods (or blocks or frames), it might be better to specify them that way, without tolerance window.

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Page 50, line 49

Correct 2.5G Tr max to 1.28 instead of 1.282.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **199**   Page 39 of 43
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   1/16/2019 4:14:10 PM
SORT ORDER: Comment ID

Cl **125**	*SC* **125.1.4**	*P* **60**	*L* **30**	*#* 200

den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   *late Editorial*

"using 64B/65B encoding"

SuggestedRemedy

Shouldn't that be "Reed-Solomon" given that the BASE-T flavors mention LDPC?

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

See Comment #145.

Cl **125**	*SC* **125.1.4**	*P* **60**	*L* **38**	*#* 201

den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   *late Editorial*

"using 64B/65B encoding"

SuggestedRemedy

Shouldn't that be "Reed-Solomon" given that the BASE-T flavors mention LDPC?

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

See Comment #145.

Cl **149**	*SC* **149.1.3.1**	*P* **65**	*L* **22**	*#* 202

den Besten, Gerrit   NXP Semiconductors

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

"the PCS receives four XGMII data octets provided by two transfers on the XGMII service interface on TXD<31:0>, and groups ..."

SuggestedRemedy

It seems that four should be eight in this sentence. Alternative it could read: "the PCS receives four data octets per XGMII transfer, and groups ..."

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

late

The wording is correct as is (because it goes on to say "and groups two of them"), but it is awkward. Use the wording from clause 126 in 802.3-2018.

Change "In the transmit direction, in normal mode, the PCS receives four XGMII data octets provided by two transfers on the XGMII service interface on TXD<31:0>, and groups two of them into 64-bit blocks (eight octets)."

to "In the transmit direction, in normal mode, the PCS receives eight XGMII data octets provided by two consecutive transfers on the XGMII service interface on TXD<31:0> and groups them into 64-bit blocks with the 64-bit block boundaries aligned with the boundary of the two XGMII transfers."

Cl **149**	*SC* **149.1.3.4**	*P* **66**	*L* **50**	*#* 203

den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   *Link Synchronization*

"detect the presence of the other, validate link, and"

SuggestedRemedy

Sentence reads strange: "validate link" what does this mean here?

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change: Link Synchronization provides a fast and reliable mechanism for the link partner to detect the presence of the other, validate link, and start the timers used by the link monitor.

To: Link Synchronization provides a fast and reliable mechanism for link partners to detect the presence of each other and start the timers used by the link monitor which determines link_status.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID 203

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Cl **149**   *SC* **149.1.5**   *P* **67**   *L* **35**   # 204

den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **D**   *late reject*

"All 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1 PHY implementations are compatible at the MDI and at the XGMII, if implemented."

SuggestedRemedy

This sentence suggests that a 2.5GBASE-T1 PHY implementation is compatible with a 10GBASE-T1 PHY implementation at MDI and XGMII. I expect this sentence was meant to state that compatility only applies for the same speed grade.

Proposed Response   *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Commenter provides insufficient information for remedy. Compatibility does not mean interoperable. It means they use the same interfaces, which is what this subclause is about. Same wording is used in this subclause of clause 126 for 2.5G/5GBASE-T PHYs.

Cl **149**   *SC* **149.3.2.3**   *P* **92**   *L* **8**   # 206

Zimmerman, George   CME:ADI,Aquantia,AP

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

LATE COMMENT - Informative descriptive text for the PCS Receive function is listed as "TBD"

SuggestedRemedy

Replace line 8 "Normal PCS Receive function operation TBD." with text in zimmerman_3ch_01_0119.pdf. Editorial license to highlight or remove highlighting, and adjust text per other decisions in this meeting.

Response   *Response Status* **C**

ACCEPT.

Cl **45**   *SC* **45.2.3.80**   *P* **46**   *L* **44**   # 207

Wienckowski, Natalie   General Motors

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

Incorrect Register number in Table 45-244e

SuggestedRemedy

In table 45-244e, change 3.2306.x to 3.2324.x in all rows.

Response   *Response Status* **C**

ACCEPT.

Late

Cl **149**   *SC* **149.3.2.2**   *P* **78**   *L* **3**   # 225

Benyamin, Saied   Aquantia

Comment Type **TR**   *Comment Status* **A**   *very late*

SuggestedRemedy

Figures referred are incorrect. Correct the references and include the figures. See attachment

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.

Remove all references to "fast retrain", e.g. fr_active.

Editorial license.

Cl **149**   *SC* **149.3.2.2.13**   *P* **84**   *L* **46**   # 226

Benyamin, Saied   Aquantia

Comment Type **TR**   *Comment Status* **A**   *very late*

SuggestedRemedy

Figures referred are incorrect. Correct the references and include the figures. See attachment

Response   *Response Status* **C**

ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **226**

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Cl **149**   *SC* **149.3.6.2.1**   *P* **96**   *L* **27**   # 227
Benyamin, Saied   Aquantia

Comment Type **TR**   *Comment Status* **A**   very late

SuggestedRemedy
Add constants used by the above figures

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.

Cl **149**   *SC* **149.3.6.2.2**   *P* **96**   *L* **29**   # 228
Benyamin, Saied   Aquantia

Comment Type **TR**   *Comment Status* **A**   very late

SuggestedRemedy
Add Variables used by the above figures

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.

Cl **149**   *SC* **149.3.6.2.4**   *P* **96**   *L* **32**   # 229
Benyamin, Saied   Aquantia

Comment Type **TR**   *Comment Status* **A**   very late

SuggestedRemedy
Add functions used by the above figures

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.

Cl **149**   *SC* **149.3.2.2.21**   *P* **91**   *L* **31**   # 230
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   very late
thePMA_UNITDATA.request

SuggestedRemedy
the PMA_UNITDATA.request

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

Cl **149**   *SC* **149.3.2.2.21**   *P* **91**   *L* **36**   # 231
den Besten, Gerrit   NXP Semiconductors

Comment Type **E**   *Comment Status* **A**   very late
PCSpasses

SuggestedRemedy
PCS passes

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

Cl **149**   *SC* **149.3.2.2.21**   *P* **91**   *L* **23**   # 232
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   very late
8 RS-FEC frames

SuggestedRemedy
Is 8 a residue from the former max L=8 and shouldn't this be reduced to 4 now?

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Review with other interleave comments.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **232**   Page 42 of 43
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Cl **149**   *SC* **149.3.2.3**   *P* **92**   *L* **15**   # 233
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   very late
8 RS-FEC frames

SuggestedRemedy
Is 8 a residue from the former max L=8 and shouldn't this be reduced to 4 now?

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Review with other interleave comments.

Cl **149**   *SC* **149.3.2.2.21**   *P* **91**   *L* **39**   # 234
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **D**   very late
When the lpi_tx_mode variable takes the value QUIET and the PMA asserts SEND_N, the PCS passes zeros to the PMA through the PMA_UNITDATA.request primitive.

SuggestedRemedy
What is the purpose of sending zero's from PCS to PMA if the PMA won't send these logical zero, but a zero line signal instead (which is not part of the normal constellation levels)

Proposed Response   *Response Status* **Z**
REJECT.

This comment was WITHDRAWN by the commenter.

Cl **149**   *SC* **149.3.2.2.16**   *P* **86**   *L* **25**   # 235
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   very late
$(m\_i,7, m\_i,6,...$:

SuggestedRemedy
These should be 10 bit message symbols: $(m\_i,9, m\_i,8, m\_i,7,, m\_i,6,...$

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

Cl **149**   *SC* **149.3.2.2.16**   *P* **86**   *L* **31**   # 236
den Besten, Gerrit   NXP Semiconductors

Comment Type **T**   *Comment Status* **A**   very late
tx_RSmessage<3259:10> = tx_RSmessage<3249:0>.

SuggestedRemedy
The second tx_Rsmessage seems wrong as this refers to the 3250bits of payload data. I couldn't find a dedicated name for that yet in the current spec text but it is call in the figure on page 80 "Aggregate 50x 65B blocks, plus OAM"

Response   *Response Status* **C**
ACCEPT IN PRINCIPLE.

Implement changes as shown in DenBesten_3ch_02a_0119 with editorial license.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Comment ID

Comment ID **236**

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