

CI 45 SC 45.2.1 P32 L31 # 1

Anslow, Pete

Ciena

Comment Type T Comment Status A Vendor

The definition of registers 1.2316 and 1.2317 is not being done in accordance with Clause 45 conventions or in keeping with "user defined data" as used in prior BASE-T PHYs. The names of the registers are such that when this amendment has been applied to the base standard it will not be clear what they are for.

SuggestedRemedy

In Table 45-3: Change the name of register 1.2316 to "MultiGBASE-T1 user defined data" in subclause 45.2.1.199 Change the name of register 1.2317 to "MultiGBASE-T1 link partner user defined data" in subclause 45.2.1.200 In 45.2.1.199: Change the title to "MultiGBASE-T1 user defined data register (Register 1.2316)" Change the text to: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45-155f. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages." In Table 45-155f: Change the title to: "MultiGBASE-T1 user defined data register bit definitions" Delete the last row of the table. Change footnote a to "R/W = Read/Write" In 45.2.1.199.1: Change the title to: "PHY vendor specific data (1.2316.15:0)" Delete 45.2.1.199.2 Create a new level 4 subclause: "45.2.1.200 MultiGBASE-T1 link partner user defined data register (Register 1.2317)" with text: "The assignment of bits for the MultiGBASE-T1 link partner user defined data register is shown in Table 45-155g. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages." Create Table 45-155g with title "MultiGBASE-T1 link partner user defined data register bit definitions" and a body the same as the last row of Table 45-155f except that the Name entry for 1.2317.15:0 is "Link partner PHY vendor specific data" and footnote a is "RO = Read only" Create a new level 5 subclause: "45.2.1.200.1 Link partner PHY vendor specific data (1.2317.15:0)" with text as per the existing 45.2.1.199.2.

Response Response Status C

ACCEPT IN PRINCIPLE.

In Table 45-3: Change the name of register 1.2316 to "MultiGBASE-T1 user defined data" in subclause 45.2.1.199

Change the name of register 1.2317 to "MultiGBASE-T1 link partner user defined data" in subclause 45.2.1.200

In 45.2.1.199:

Change the title to "MultiGBASE-T1 user defined data register (Register 1.2316)" Change the text to: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45-155f. The values of the bits in this register are outside the scope of this standard."

In Table 45-155f:

Change the title to: "MultiGBASE-T1 user defined data register bit definitions"

Change the Name to: "MultiGBASE-T1 user defined data"

Change the Description to: "16 bits of vendor specific data that the PHY sends to its link partner"

Delete the last row of the table.

Change footnote a to "R/W = Read/Write"

In 45.2.1.199.1:

Change the title to: "PHY vendor specific data (1.2316.15:0)"

Change text to: "Bits 1.2316.15:0 contain vendor specific data that the PHY may communicate to its link partner during training."

Delete 45.2.1.199.2

Create a new level 4 subclause:

"45.2.1.200 MultiGBASE-T1 link partner user defined data register (Register 1.2317)" with text:

"The assignment of bits for the MultiGBASE-T1 link partner user defined data register is shown in Table 45-155g. The values of the bits in this register are outside the scope of this standard."

Create Table 45-155g with title "MultiGBASE-T1 link partner user defined data register bit definitions" and a row with Name entry for 1.2317.15:0 is "Link partner PHY vendor specific data", Description is "16 bits of vendor specific data that the PHY may receive from its link partner", R/W is "RO", and footnote a is "RO = Read only"

Create a new level 5 subclause:

"45.2.1.200.1 Link partner PHY vendor specific data (1.2317.15:0)" with text "Bits 1.2317.15:0 contain vendor specific data that the PHY may receive from its link partner during training."

CI 45 SC 45.2.1.7.4 P33 L5 # 2

Anslow, Pete

Ciena

Comment Type E Comment Status A EZ

The empty rows in Table 45-9 and Table 45-10 should contain an ellipsis

SuggestedRemedy

Add an ellipsis to the empty rows (two instances per table)

Response Response Status C

ACCEPT.

CI 45 SC 45.2.1.18 P34 L24 # 3

Anslow, Pete

Ciena

Comment Type E Comment Status A EZ

"Add" is not a valid editing instruction.
Table 45-21 is not being changed, so should not be shown.
Notes should use the paragraph tag "Note"

SuggestedRemedy

Change the editing instruction to: "Insert the following note below Table 45-21:"
Delete Table 45-21.
Apply Paragraph tag "Note" to the note.

Response Response Status C

ACCEPT.

CI 45 SC 45.2.1.193.5 P38 L8 # 4

Anslow, Pete

Ciena

Comment Type E Comment Status A Precoder

The parameter name in Table 45-155b is "Actual precoder requested" and this fits with the
text in the description cell as well as the text in 45.2.1.193.5.
However, the title of 45.2.1.193.5 is "Actual precoder selected" which does not match

SuggestedRemedy

Change the title of 45.2.1.193.5 from "Actual precoder selected (1.2310.4:3)" to: "Actual
precoder requested (1.2310.4:3)"

Response Response Status C

ACCEPT IN PRINCIPLE.

Change per comment #123
Change the title of 45.2.1.193.5 from "Actual precoder selected (1.2310.4:3)" to:
"PrecodeSel (1.2310.4:3)"

CI 45 SC 45.2.1.194.4 P39 L38 # 5

Anslow, Pete

Ciena

Comment Type E Comment Status A EZ

The convention used in Clause 45 is to use "is one" and "is zero" rather than "is 1" and "is
0".

SuggestedRemedy

Change "is 1" to "is one".
Change "is 0" to "is zero".

Response Response Status C

ACCEPT.

CI 45 SC 45.2.1.196.2 P41 L50 # 6

Anslow, Pete

Ciena

Comment Type E Comment Status A EZ

The convention used in Clause 45 for the values of pairs of bits is to not include a space
between them.

SuggestedRemedy

Change "value of 0 0" to "value of 00"
Change "value of 0 1" to "value of 01"
Change "value of 1 0" to "value of 10"

Response Response Status C

ACCEPT.

CI 45 SC 45.5.3.3 P54 L8 # 7

Anslow, Pete

Ciena

Comment Type E Comment Status A EZ

The highest inserted item is MM231.

SuggestedRemedy

Change "through MM227" to "through MM231"

Response Response Status C

ACCEPT.

CI 78 SC 78.2 P58 L53 # 8

Anslow, Pete

Ciena

Comment Type E Comment Status A EZ

The bottom ruling of Table 78-2 should not be "Very Thin"

SuggestedRemedy

remove the override for the bottom ruling of Table 78-2

Response Response Status C

ACCEPT.

CI 78 SC 78.5 P59 L17 # 9

Anslow, Pete Ciena

Comment Type E Comment Status A EZ

"Insert an 10th paragraph" should be "Insert a 10th paragraph"

SuggestedRemedy  
Change "an" to "a"

Response Response Status C  
ACCEPT.

CI 104 SC 104.9.4.3 P69 L3 # 12

Anslow, Pete Ciena

Comment Type E Comment Status A EZ

"Modify" is not a valid editing instruction.

SuggestedRemedy  
Change "Modify item" to "Change item"

Response Response Status C  
ACCEPT.

CI 104 SC 104.9 P68 L1 # 10

Anslow, Pete Ciena

Comment Type E Comment Status A EZ

The editing instruction at the top of page 68 is redundant as each change has its own editing instruction.  
"Modify" is not a valid editing instruction.  
The instruction is too vague to be of any use anyway.

SuggestedRemedy  
Delete the editing instruction at the top of page 68

Response Response Status C  
ACCEPT.

CI 149 SC 149.3.2.2.2 P93 L52 # 13

Anslow, Pete Ciena

Comment Type E Comment Status A EZ

Figures 149-6 and 149-7 now contain two notes each.  
When there is more than one note, the IEEE-SA Standards Style Manual includes "Multiple notes in sequence should be numbered "NOTE 1—", "NOTE 2—", etc."  
Also, there should be no spaces either side of the em-dash.

SuggestedRemedy  
In Figures 149-6 and 149-7:  
Change "Note — This" to "NOTE 1—This"  
Change "Note — Figure" to "NOTE 2—Figure"

Response Response Status C  
ACCEPT.

CI 104 SC 104.9.3 P68 L8 # 11

Anslow, Pete Ciena

Comment Type E Comment Status A EZ

The two items \*PSETE and \*PDTE are being inserted by IEEE Std 802.3cg-20xx. The redundant editing instruction at the top of the page (proposed to be deleted in another comment) does not change the fact that this editing instruction should include this.

SuggestedRemedy  
Change "in the table in 104.9.3 as follows" to "in the table in 104.9.3 (as modified by IEEE Std 802.3cg-20xx) as follows"

Response Response Status C  
ACCEPT.

CI 149 SC 149.3.9.2.13 P130 L6 # 14

Anslow, Pete Ciena

Comment Type E Comment Status A EZ

Figure 149-23 has been changed so that the coefficient "A2 = 1" is adjacent to an arrow that just points to another line. Previously, this was an input to a multiply function. In this version of the figure it is unclear what function is performed with "A2 = 1"

SuggestedRemedy  
If the intent is to simply multiply by 1, then reinstate the multiply symbol.  
If the intent is different from this then clarify what it is.

Response Response Status C  
ACCEPT IN PRINCIPLE.

Remove arrows from all "A\_x" and just put the name by the symbol/line as is done in Figure 149-10.

CI 149 SC 149.4.2.6.4 P151 L25 # 15

Wienckowski, Natalie

General Motors

Comment Type E Comment Status A EZ

In state diagrams, the transitions shouldn't include "=true" or "=false", instead you should have the variable\_name for true and !variable\_name for false.

*SuggestedRemedy*

In Figure 149-32, change the following:

L25 & L31: "send\_s\_sigdet = false" to "!send\_s\_sigdet"

L39: "power\_on = true" to "power\_on"

L40: "mr\_main\_reset = true" to "mr\_main\_reset"

L40: "mr\_autoneg\_enable = true" to "mr\_autoneg\_enable"

L49: "mr\_autoneg\_enable = false" to "!mr\_autoneg\_enable"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to match the IEEE802 style. In addition, correct the spelling of send\_s\_sigdet.

CI 149 SC 149.4.5 P155 L4 # 16

Wienckowski, Natalie

General Motors

Comment Type E Comment Status A EZ

In state diagrams, the transitions shouldn't include "=true" or "=false", instead you should have the variable\_name for true and !variable\_name for false.

*SuggestedRemedy*

In Figure 149-33, change the following:

L4 & L12: "auto\_neg\_imp = true" to "auto\_neg\_imp"

L4 & L12: "mr\_autoneg\_enable = true" to "mr\_autoneg\_enable"

L6 & L14: "auto\_neg\_imp = false" to "!auto\_neg\_imp"

L6 & L14: "mr\_autoneg\_enable = false" to "!mr\_autoneg\_enable"

L45: "hi\_rfer = false" to "!hi\_rfer"

L46: "hi\_rfer = true" to "hi\_rfer"

L46: "block\_lock = true" to "block\_lock"

L47: "block\_lock = false" to "!block\_lock"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to match the IEEE802 style.

Cl 149 SC 149.4.5 P156 L2 # 17

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

In state diagrams, the transitions shouldn't include "=true" or "=false", instead you should have the variable\_name for true and !variable\_name for false.

SuggestedRemedy

In Figure 149-34, change the following:

L2: "auto\_neg\_imp = true" to "auto\_neg\_imp"

L2: "mr\_autoneg\_enable = true" to "mr\_autoneg\_enable"

L4: "auto\_neg\_imp = false" to "!auto\_neg\_imp"

L4: "mr\_autoneg\_enable = false" to "!mr\_autoneg\_enable"

L12: "pcs\_data\_mode = true" to "pcs\_data\_mode"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to match the IEEE802 style.

Cl 149B SC 149B.4.2.3 P202 L15 # 18

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

In state diagrams, the transitions shouldn't include "=true" or "=false", instead you should have the variable\_name for true and !variable\_name for false.

SuggestedRemedy

In Figure 149B-2, change the following:

L15 & L28: "mr\_rx\_clear\_rec=true" to "mr\_rx\_clear\_rec"

L28: "mr\_rx\_clear\_rec=false" to "!mr\_rx\_clear\_rec"

Response Response Status C

ACCEPT.

Cl 149B SC 149B.4.2.3 P202 L15 # 19

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

Different font sizes in Figure 149B-2

SuggestedRemedy

Change all text in figure to be 8.0 pt

Response Response Status C

ACCEPT.

Cl 149B SC 149B.4.2.3 P202 L38 # 20

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

Different font sizes in Figure 149B-3

SuggestedRemedy

Change all text in figure to be 8.0 pt

Response Response Status C

ACCEPT.

Cl 149B SC 149B.4.2.3 P202 L44 # 21

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

In state diagrams, the transitions shouldn't include "=true" or "=false", instead you should have the variable\_name for true and !variable\_name for false.

SuggestedRemedy

In Figure 149B-3, change the following"

L44: "mr\_tx\_request\_rec\_clear = true" to "mr\_tx\_request\_rec\_clear"

L50: "mr\_rx\_rec\_cleared = true" to "mr\_rx\_rec\_cleared"

Response Response Status C

ACCEPT IN PRINCIPLE.

In Figure 149B-3, change the following"

L44: "mr\_tx\_request\_rec\_clear = true" to "mr\_tx\_clear\_rec"

L50: "mr\_rx\_rec\_cleared = true" to "mr\_rx\_rec\_cleared"

CI 149 SC 149.3.2.2.20 P102 L51 # 22

Wienckowski, Natalie General Motors

Comment Type E Comment Status A Precoder

What is "PAM4 mode"?

SuggestedRemedy

Change: PAM4 mode  
To: PAM4 encoding

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to increase reader understanding.

Change: when entering PAM4 mode  
To: when transitioning to PAM4 encoding

CI 104 SC 104.5.6.4 P66 L40 # 23

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

SuggestedRemedy

Make "Table 104-7" a hyperlink.  
Also, P67 L4

Response Response Status C

ACCEPT.

CI 104 SC 104.5.6.4 P67 L5 # 24

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

SuggestedRemedy

Make "Table 104-7" a hyperlink and remove the "forrest green" color.  
Also, P67 L6, P67 L11, P67 L14.

Response Response Status C

ACCEPT.

CI 104 SC 104.9.4.3 P69 L12 # 25

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

SuggestedRemedy

Make "Table 104-7" a hyperlink.

Response Response Status C

ACCEPT.

CI 125 SC 125.1.4 P72 L34 # 26

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

SuggestedRemedy

Make "78" a hyperlink.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

CI 149 SC 149.3.9.2.12 P129 L17 # 27

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

SuggestedRemedy

Change: 149B  
To: Annex 149B

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl 149 SC 149.11.4.1 P175 L28 # 28  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Clause 98" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl 149 SC 149.11.4.2.1 P176 L27 # 29  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

Incorrect link trying to go outside the document.

*SuggestedRemedy*

Change: 149.3.4.2 to 149.3.5.1 (hyperlink in the document)

Response Response Status C  
 ACCEPT.

Cl 149 SC 149.11.4.3.4 P184 L6 # 30  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Table 149-10" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT.

Cl 149 SC 149.11.4.3.4 P184 L7 # 31  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Table 149-11" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT.

Cl 149 SC 149.11.4.3.6 P185 L33 # 32  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Clause 98" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl 149 SC 149.11.4.3.6 P185 L38 # 33  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Figure 149-32" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl 149 SC 149.11.4.6 P189 L27 # 34  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "149.5.2" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT.

Cl 149 SC 149.11.4.6 P189 L28 # 35  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "149.5.3" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT.

Cl 149A SC 149A.5.4 P197 L41 # 36  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Figure 149A-3" in Feature column a hyperlink.

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl FM SC FM P11 L4 # 37  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

Missing 149C in the description of the ammendment.

*SuggestedRemedy*

Change: adds Clause 149 and Annex 149A and Annex 149B.

To: adds Clause 149 and Annex 149A, Annex 149B, and Annex 149C.

Response Response Status C  
 ACCEPT.

Cl 149C SC 149C.1 P203 L11 # 38  
 Wienckowski, Natalie General Motors  
 Comment Type T Comment Status D 149C

149C has no information on return loss

*SuggestedRemedy*

Change: provides information on insertion loss and return loss parameters

To: provides information on insertion loss parameters

Proposed Response Response Status Z  
 REJECT.

This comment was WITHDRAWN by the commenter.

Cl 104 SC 104.9.4.3 P69 L17 # 39  
 Wienckowski, Natalie General Motors  
 Comment Type E Comment Status A EZ

*SuggestedRemedy*

Make "Clause 97" a hyperlink and remove the "forrest green" color.

Response Response Status C  
 ACCEPT.

CI FM SC P2 L5 # 40

Marris, Arthur Cadence Design Systems

Comment Type E Comment Status A EZ

"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 a single balanced pair of conductors suitable for applications." does not read right

SuggestedRemedy

Change 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 a single balanced pair of conductors suitable for automotive applications."

Response Response Status C

ACCEPT.

CI FM SC P22 L6 # 41

Marris, Arthur Cadence Design Systems

Comment Type E Comment Status A EZ

Title is wrong.

SuggestedRemedy

Change title to:
"Draft Standard for Ethernet Amendment:
Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s and 10 Gb/s Automotive Electrical Ethernet"

Also consider changing page headers to something other than "IEEE P802.3ch Multi-Gig Automotive Ethernet PHY Task Force" perhaps change to: "IEEE P802.3ch Task Force: Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s and 10 Gb/s Automotive Electrical Ethernet"

Response Response Status C

ACCEPT IN PRINCIPLE.

Change title to match the first page adding missing comma: "Draft Standard for Ethernet Amendment:
Physical Layer draftifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Automotive Electrical Ethernet"
Don't change the page header as it is supposed to be the Task Force name.

CI 149 SC 149.1.3.3 P78 L27 # 42

Slavick, Jeff Broadcom

Comment Type E Comment Status A EZ

Extra or instead of a period.

SuggestedRemedy

Replace the or with a "."

Response Response Status C

ACCEPT IN PRINCIPLE.

The word "corrupted" was accidentally deleted from the end of the sentence. Add it back per coment #100.

CI 149 SC 149.3.2.2 P91 L13 # 43

Slavick, Jeff Broadcom

Comment Type E Comment Status A EZ

Missing C

SuggestedRemedy

Change "RS-FE symbols" to "RS-FEC symbols"

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.193.5 P38 L8 # 44

Slavick, Jeff Broadcom

Comment Type TR Comment Status A Precoder

Actual precoder requested doesn't really make any sense to me based upon description. I believe this field should be indicating the actual state/control of the receive precoder.

SuggestedRemedy

See Presentation tu\_3ch\_01\_0919.pdf

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment has the same response as #123.

Make the following changes:

Page 37 line 21 (Table 45-155b) change "Actual precoder requested" to "PrecoderSel"
Page 38 line 8 (45.2.1.193.5 header) change "Actual precoder selected" to "PrecoderSel",
and replace text of 45.2.1.193.5 (P38 lines 10-12) to read as follows:
"Bits 1.2310.4:3 contain the requested precoder setting communicated by the PHY to the link partner via the PrecoderSel bits in the Infocfield (see 149.4.2.4.4)."

Page 39 line 15 (Table 45-155c) and Page 38 line 45 (45.2.1.194.2 header) change
"Precoder request override" to "Precoder Selection", and replace text (P38 lines 47-48) to
read as follows:
"When 1.2311.5 is set to a one, the PHY shall use 1.2311.3:2 for the value of PrecoderSel,
and when set to a zero the PHY controls the value of PrecoderSel. PrecoderSel is the
desired precoder setting communicated to the link partner via the Infocfield specified in
149.4.2.4.4."

Page 39 line 23 (Table 45-155c) and Page 39 line 37 (45.2.1.194.4 header) change
"Precoder requested" to "User precoder selection", and replace text (P39 lines 38-39) to
read as follows:
"When 1.2311.5 is a one, bits 1.2311.3:2 are the requested precoder setting communicated
by the PHY to the link partner via the PrecoderSel bits in the Infocfield (see 149.4.2.4.4)."

Cl 149 SC 149.3.2.2.20 P102 L27 # 45

Slavick, Jeff Broadcom

Comment Type TR Comment Status A EZ

The precoder\_type is suppose to be assigned to two bits from the InfoFields, which contains 96 bits of information. So which 2 bits should be used?

SuggestedRemedy

Change "two bits in the InfoField messages" to "the PrecoderSel field from the InfoField messages (see 149.4.2.4.5)"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to increase reader understanding.

Cl 149 SC 149.5.1.1 P158 L24 # 46

Gubow, Marty Keysight Technologies

Comment Type T Comment Status A testing

The most common transmitter connection to an oscilloscope utilizes two 50-ohm channels. Figure 149-36 should be updated.

SuggestedRemedy

Receommned new figure 149-36

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace Figure 149-36 with the figure in gubow\_3ch\_01a\_0919.pdf.

Cl 125 SC 125.3 P74 L12 # 47  
 Lo, William Axonne Inc.  
 Comment Type E Comment Status D EZ  
 Table fix gap in column 2 numbers  
 SuggestedRemedy  
 Remove the gaps in all the numbers in column 2.  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.3.2.2 P91 L13 # 48  
 Lo, William Axonne Inc.  
 Comment Type E Comment Status A EZ  
 Spelling  
 SuggestedRemedy  
 RS-FE should be RS\_FEC  
 Response Response Status C  
 ACCEPT.

Cl 149 SC 149.10 P173 L23 # 49  
 Lo, William Axonne Inc.  
 Comment Type E Comment Status D EZ  
 Table fix gap in column 3 numbers  
 SuggestedRemedy  
 Remove the gaps in all the numbers in column 3.  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 149B SC 149B.4.2.3 P202 L8 # 50  
 Lo, William Axonne Inc.  
 Comment Type E Comment Status A EZ  
 Font size of text in boxes and text in arrows are not consistent  
 SuggestedRemedy  
 Make font sizes of text consistent  
 Response Response Status C  
 ACCEPT.  
 This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.  
 Make all text size 8 to be consistent.

Cl 149 SC 149.3.6.1 P110 L26 # 51  
 Lo, William Axonne Inc.  
 Comment Type T Comment Status A PCS  
 The paragraph mentions 2 benefits. The first one listed does not sound like a benefit. The intended benefit is that the ALERTs do not overlap, but we determined that they may overlap a little bit given the tolerance in the standard. The fact that the ALERTs mostly do not overlap is still a benefit. Rephrase as shown below.  
 SuggestedRemedy  
 Change  
 "may overlap" to  
 "mostly will not overlap"  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change: This offsets the MASTER and SLAVE ALERT start times by alert\_period/2 and provides the following two benefits: The MASTER and SLAVE allowable ALERT transmissions may overlap and ALERT does not overlap the device's own refresh.  
 To: This offsets the MASTER and SLAVE ALERT start times by alert\_period/2 and provides two benefits. The first benefit is that ALERT transmissions do not overlap with the device's own refresh. The second benefit is that the MASTER and SLAVE ALERT transmissions generally do not overlap, and only overlap at the limits of tolerances.

Cl 98 SC 98.5.1 P63 L10 # 52

Lo, William Axonne Inc.

Comment Type TR Comment Status A AN

Cannot condense into 1 variable (mGigT1). If one device can do 2.5G only and another can do 10G only how would the incompatible\_link work as both would assert mGigT1? Fixing the footnote in page 156 is the proper way to address D2.0 comment 224.

SuggestedRemedy

Undo changes from D2.0 comment 224
Page 156 line 22 change
link\_control\_mGigT1 and link\_status\_mGigT1 to
link\_control\_mGigT1 and link\_status\_mGigT1 where mGigT1 is 2.5GigT1, 5GigT1, or 10GigT1.

Response Response Status C

ACCEPT IN PRINCIPLE.

Undo changes from D2.0 comment 224

P156 L22 change: The variables link\_control and link\_status are designated as link\_control\_mGigT1 and link\_status\_mGigT1, respectively,

To: The variables link\_control and link\_status are designated as link\_control\_2.5GigT1 and link\_status\_2.5GigT1 for 2.5GBASE-T1, link\_control\_5GigT1 and link\_status\_5GigT1 for 5GBASE-T1, and link\_control\_10GigT1 and link\_status\_10GigT1 for 10GBASE-T1

Cl 149 SC 149.3.8.2 P121 L14 # 53

Lo, William Axonne Inc.

Comment Type TR Comment Status A EEE

Fix corner case out of sync condition between Figure 149-17 and 149-20
Scenario:
LPI is send at the initial RS frame just as lp\_low\_snr=1
TX\_L state is entered and tx\_lpi\_req never gets set to true
Stuck in TX\_L state since it is waiting for tx\_lpi\_active to go true.
Meanwhile in Figure 149-20 stuck at TX\_NORMAL since tx\_lpi\_req remains false so never enters into SEND\_SLEEP to set tx\_lpi\_active to true.
So we are deadlocked Figure 149-17 waiting for tx\_lpi\_active to go true while Figure 149-20 is waiting for tx\_lpi\_req to go true.
Remedy below breaks the dead lock.

SuggestedRemedy

Change:
(lp\_low\_snr + T\_TYPE(tx\_raw) = (C + D + E + S + T )) \* tx\_lpi\_active
To:
(lp\_low\_snr + T\_TYPE(tx\_raw) = (C + D + E + S + T )) \* (!tx\_lpi\_req + tx\_lpi\_active)

Response Response Status C

ACCEPT.

Cl Annex SC 149C.2 P203 L43 # 54

DiMinico, Christopher MC Communications

Comment Type E Comment Status A EZ

SuggestedRemedy

correct text for space circ...uit

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "circ uit" to "circuit"

CI Annex SC 149C.1 P203 L35 # 55

DiMinico, Christopher MC Communications

Comment Type T Comment Status A 149C

Change Max PCB length from 4.5" to 3" more representative of MAX implementations.

SuggestedRemedy

In Figure 149C-1 delete 4.5" two places.
In equation (149C-1) change 4.5" to 3".
In equation (149C-4) change 4.5" to 3".
Change Table 149C-1 values per supporting presentation.

diminico\_3ch\_01\_0919.pdf

Response Response Status C

ACCEPT IN PRINCIPLE.

Make the suggested text changes on slide 2 and change Table 149C-1 per slide 3 of diminico\_3ch\_01a\_0919.pdf.

In addition to the length change, the lengths were changed to SI units, mm.

CI Annex SC 149C.1 P203 L12 # 56

DiMinico, Christopher MC Communications

Comment Type TR Comment Status A 149C

Annex 149C missing information on return loss parameters of the channel defined between TX function and RX function illustrated in Figure 149C-1.

SuggestedRemedy

See presentation diminico\_3ch\_02\_0919.pdf

Response Response Status C

ACCEPT IN PRINCIPLE.

Add the text proposed in diminico\_3ch\_02c\_0919.pdf with editorial license to conform to IEEE 802.3 style.

CI FM SC FM P10 L48 # 57

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

IEEE Std 802.3cn-20xx - Amendment 4

SuggestedRemedy

Add: IEEE Std 802.3cn™-20xx
Amendment 4—This amendment includes changes to IEEE Std 802.3-2018 and adds 50 Gb/s, 200 Gb/s, and 400 Gb/s Physical Layer specifications and management parameters for operation over single-mode fiber with reaches of at least 40 km.

Response Response Status C

ACCEPT.

CI FM SC FM P10 L51 # 58

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

IEEE Std 802.3cg-20xx - Amendment 5

SuggestedRemedy

Add: Amendment 5— after the title for cg and before "This amendment"

Response Response Status C

ACCEPT.

CI FM SC FM P11 L6 # 59

Wienckowski, Natalie General Motors

Comment Type E Comment Status A EZ

IEEE Std 802.3cq-20xx - Amendment 6

SuggestedRemedy

Add: IEEE Std 802.3cq™-20xx
Amendment 6—This amendment includes editorial and technical corrections, refinements, and clarifications to Clause 33 and related portions of the standard.

Response Response Status C

ACCEPT.

Cl **FM** SC **FM** P11 L6 # 60

Wienckowski, Natalie General Motors

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

IEEE Std 802.3cm-20xx - Amendment 7

*SuggestedRemedy*

Add: IEEE Std 802.3cm™-20xx  
Amendment 7—This amendment includes changes to IEEE Std 802.3-2018 and adds Clause 150. This amendment adds Physical Layer (PHY) specifications and management parameters for 400 Gb/s operation on four pairs (400GBASE-SR4.2) and eight pairs (400GBASE-SR8) of multimode fiber, over reaches of at least 100 m.

Response Response Status **C**

ACCEPT.

Cl **149A** SC **149A.2** P192 L36 # 61

Wienckowski, Natalie General Motors

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

Clarify that the environmental conditions in 149A are the applicable conditions for the defined test method.

*SuggestedRemedy*

Change: Measurements are performed at ...  
To: These test methods are applicable for temperature of ...

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change: Measurements are performed at 23°C ± 5°C and relative humidity of 25% to 75%.

To: These test methods are applicable for temperature and humidity as specified by IEC 62153-4-7.

Cl **149** SC **149.7.1.3** P166 L24 # 62

Ohni, Josef MD Elektronik

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

In the equation defined by parts (149–22). The frequency point 480/2N belongs only to the first part. The frequency point 3000 belongs to the second and third part. This ist not consistent.

*SuggestedRemedy*

Change the second part "480/2N ≤ f ≤ 3000 MHz" to "480/2N ≤ f < 3000"

Response Response Status **C**

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make change to fix typo.

Cl **149** SC **149.7.1.4** P167 L35 # 63

Ohni, Josef MD Elektronik

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

In the equation defined by parts (149–24). The frequency point 750 belongs to the first and second part.

*SuggestedRemedy*

Change the first part "30 ≤ f ≤ 750 MHz" to "30 ≤ f < 750 MHz"

Response Response Status **C**

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make change to fix typo.

Cl 00 SC 0 P1 L18 # 64

Maguire, Valerie The Siemon Company

Comment Type E Comment Status A EZ

Use oxford comma.

SuggestedRemedy

Replace, "2.5 Gb/s, 5 Gb/s and 10 Gb/s" with "2.5 Gb/s, 5 Gb/s, and 10 Gb/s".

Response Response Status C

ACCEPT.

Cl 149B SC 149B.4.2.3 P202 L44 # 65

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

The variable "mr\_tx\_request\_rec\_clear" is not defined.

SuggestedRemedy

In Figure 149B-3, the transition condition should be changed to: "mr\_tx\_clear\_rec = true".

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "mr\_tx\_request\_rec\_clear = true" to "mr\_tx\_clear\_rec"

Cl 44 SC 44.1.4.4 P30 L43 # 66

Tu, Mike Broadcom

Comment Type E Comment Status A EZ

I think "gray code" should be "Gray code".

SuggestedRemedy

Change "gray code" to "Gray code"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch 2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Change "gray code" to "Gray-code" as "Gray" is based on a name and this is how it is written in this and other Clauses.

Cl 45 SC 45.2.1.192.3 P36 L35 # 67

Tu, Mike Broadcom

Comment Type T Comment Status A EEE

After exiting the low-power mode, the PHY should go to either Auto-Negotiation or PHY Link Synchronization, instead of going to Figure 149-33 PHY Control state diagram.

SuggestedRemedy

Delete the entire paragraph.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Delete "The MultiGBASE-T1 PHY executes a full retrain as defined in Figure 149-33 after exiting from reset or low-power mode."

CI 45 SC 45.2.1.193.5 P38 L8 # 68

Tu, Mike Broadcom

Comment Type E Comment Status A Precoder

The "actual precoder selected" name is confusing to readers.

SuggestedRemedy

See proposed changes in tu\_3ch\_01\_0919.pdf.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment has the same response as #123.

Make the following changes:

Page 37 line 21 (Table 45-155b) change "Actual precoder requested" to "PrecodeSel"
Page 38 line 8 (45.2.1.193.5 header) change "Actual precoder selected" to "PrecodeSel",
and replace text of 45.2.1.193.5 (P38 lines 10-12) to read as follows:
"Bits 1.2310.4:3 contain the requested precoder setting communicated by the PHY to the
link partner via the PrecodeSel bits in the Infofield (see 149.4.2.4.4)."

Page 39 line 15 (Table 45-155c) and Page 38 line 45 (45.2.1.194.2 header) change
"Preceder request override" to "Preceder Selection", and replace text (P38 lines 47-48) to
read as follows:

"When 1.2311.5 is set to a one, the PHY shall use 1.2311.3:2 for the value of PrecodeSel,
and when set to a zero the PHY controls the value of PrecodeSel. PrecodeSel is the
desired precoder setting communicated to the link partner via the Infofield specified in
149.4.2.4.4."

Page 39 line 23 (Table 45-155c) and Page 39 line 37 (45.2.1.194.4 header) change
"Preceder requested" to "User precoder selection", and replace text (P39 lines 38-39) to
read as follows:

"When 1.2311.5 is a one, bits 1.2311.3:2 are the requested precoder setting communicated
by the PHY to the link partner via the PrecodeSel bits in the Infofield (see 149.4.2.4.4)."

CI 45 SC 45.2.1.194.1 P38 L41 # 69

Tu, Mike Broadcom

Comment Type E Comment Status A EZ

"Reed-Solomon 'receiver' interleave setting" does not sound right. Delete the word 'receiver'.

SuggestedRemedy

Change from: "... the Reed-Solomon receiver interleave setting ..."

To: "... the Reed-Solomon interleave setting ..."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch
D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it
is not within the scope of the recirculation ballot.

Make suggested change and additional change to correct "Infofields" to "InfoField".

CI 45 SC 45.2.1.195.4 P41 L5 # 70

Tu, Mike Broadcom

Comment Type E Comment Status A EZ

Both "local device" and "local PHY" are used in this document. Maybe we should stay with
"local PHY"?

SuggestedRemedy

Replace all occurrences of "local device" by "local PHY" throughout the document.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch
D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it
is not within the scope of the recirculation ballot.

Change "local device" to "local PHY" at the following locations to make the draft consistent:

P41 L5, P41 L12, P46 L8, P55 L45, P55 L49, P153 L40, P153 L43, P153 L44

Cl 45 SC 45.2.1.199 P42 L30 # 71

Tu, Mike Broadcom

Comment Type T Comment Status A Vendor

Register 1.2317 contains the Link partner vendor specific data.

SuggestedRemedy

Under column "Name", change "Reserved" to "Link partner vendor specific data"

Response Response Status C

ACCEPT IN PRINCIPLE.

This row is deleted by comment #1.

Cl 149 SC 149.4.2.4.5 P145 L47 # 72

Tu, Mike Broadcom

Comment Type T Comment Status A Vendor

Need to define the bit mapping of VendorSpecificData.

SuggestedRemedy

Change line 47 from: "Oct8<7:0> = VendorSpecificData, and Oct9<7:0> = VendorSpecificData."

To: "Oct8<7:0> = VendorSpecificData[7:0], and Oct9<7:0> = VendorSpecificData[15:8]."

Response Response Status C

ACCEPT.

Cl 149 SC 149.4.2.4.5 P145 L45 # 73

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

Need to define the bit mapping of InterleaverDepth and PrecodeSel.

SuggestedRemedy

Change line 45 from: "... PHY capability bits is Oct10<2:1> = InterleaverDepth, Oct10<4:3> = PrecodeSel, ..."

To: "... PHY capability bits is Oct10<2:1> = InterleaverDepth[1:0], Oct10<4:3> = PrecodeSel[1:0], ..."

Response Response Status C

ACCEPT.

Cl 149 SC 149.2.1.1 P81 L16 # 74

Tu, Mike Broadcom

Comment Type E Comment Status A :hnology Dependent Interface

It is sufficient to say "PHY Link Synchronization". Delete "algorithm".

SuggestedRemedy

Change from: "... the PHY Link Synchronization algorithm to ..."

To: "... the PHY Link Synchronization to ..."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to correct the draft.

Change page 81, line 16 and line 17 from:

"This primitive allows the Auto-Negotiation or the PHY Link Synchronization algorithm to enable and disable operation of the PMA, as specified in 98.4.2, respectively."

To:

"This primitive allows the Auto-Negotiation to enable and disable operation of the PMA, as specified in 98.4.2."

Cl 149 SC 149.2.1.1.1 P81 L24 # 75

Tu, Mike Broadcom

Comment Type T Comment Status D EZ

PMA\_Link.request can be set by either the Auto-Negotiation or the PHY Link Synchronization.

SuggestedRemedy

Change line 24 and 25 to:

DISABLE Used by the Auto-Negotiation or PHY Link Synchronization function to disable the PHY.

ENABLE Used by the Auto-Negotiation or PHY Link Synchronization function to enable the PHY.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.2.1.1.2 P81 L30 # 76  
 Tu, Mike Broadcom  
 Comment Type T Comment Status D EZ  
 PMA\_Link.request can be set by either the Auto-Negotiation or the PHY Link Synchronization.  
 SuggestedRemedy  
 Change start of this sentence from: "Auto-Negotiation generates ..."  
 To: "Auto-Negotiation or PHY Link Synchronization generates ..."  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.2.1.2 P81 L40 # 77  
 Tu, Mike Broadcom  
 Comment Type T Comment Status D EZ  
 PMA\_Link.indication also goes to the PHY Link Synchronization.  
 SuggestedRemedy  
 Change from: "..., and the Auto-Negotiation functions ..."  
 To: "..., and the Auto-Negotiation or PHY Link Synchronization function ..."  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.2.1.2.3 P82 L8 # 78  
 Tu, Mike Broadcom  
 Comment Type T Comment Status D EZ  
 Add a reference to 149.4.2.6.4 PHY Link Synchronization State Diagram.  
 SuggestedRemedy  
 Change from: "The effect of receipt of this primitive is specified in 98.4.1."  
 To: "The effect of receipt of this primitive is specified in 98.4.1 for Auto-Negotiation, and in 149.4.2.6.4 for PHY Link Synchronization."  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.3.2.2 P91 L13 # 79  
 Tu, Mike Broadcom  
 Comment Type T Comment Status A RS-FEC  
 Conceptually the interleaving is done prior to or at the same time with the RS-FEC encoding. Also there is a typo on this line: "RS-FE symbols" should be "RS-FEC symbols".  
 SuggestedRemedy  
 Change this sentence from: "... OAM field, then add 340 bits of parity for the RS-FEC, interleave the RS-FE symbols, ..."  
 To: "... OAM field, then interleave and add 340 bits of parity for the RS-FEC, ..."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change: The subsequent functions of the PCS Transmit process then take a block of fifty 65B blocks, append a 10-bit OAM field, then add 340 bits of parity for the RS-FEC, interleave the RS-FE symbols, and then scramble the resulting bits.  
 To: The subsequent functions of the PCS Transmit process take L groups of fifty 65B blocks and append a 10-bit OAM field to each group. This forms the input to an L-interleaved RS-FEC which adds L x 340 parity bits. The resulting L x 3600 bits are then scrambled.

Cl 149 SC 149.3.2.2 P91 L41 # 80  
 Tu, Mike Broadcom  
 Comment Type T Comment Status A PCS  
 I think the last sentence is talking about superframes. So scale both number by L.  
 SuggestedRemedy  
 Change "3600 bits" to "3600xL bits", and change "1800 PAM4 symbols" to "1800xL PAM4 symbols".  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Delete this sentence per comment #156

Cl 149 SC 149.3.2.2 P92 L5 # 81

Tu, Mike Broadcom

Comment Type E Comment Status A EZ

The block diagram is "shown" in Figure 149-5.

Suggested Remedy

Change the sentence to: "A block diagram of the PCS Transmit functions is shown in Figure 149-5."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to be consistent with wording used throughout this draft. Change: A block diagram of the PCS Transmit functions is in Figure 149-5. To: A block diagram of the PCS Transmit function is shown in Figure 149-5.

Cl 149 SC 149.3.2.2.5 P96 L3 # 82

Tu, Mike Broadcom

Comment Type E Comment Status D Reject OOS

Should we use "MultiGBASE-T1" instead of "2.5G/5G/10GBASE-T1"?

Suggested Remedy

Change "2.5G/5G/10GBASE-T1 PCS" to "MultiGBASE-T1 PCS", and change "2.5G/5G/10GBASE-T1 control codes" to "MultiGBASE-T1 control code".

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

This needs to be carefully reviewed to see if this has any other impacts. 2.5G/5G/10GBASE-T1 was intentionally left in the draft in some places.

Commenter is encouraged to resubmit this comment at SA ballot if it is deemed not to impact the draft.

Cl 149 SC 149.3.2.2.17 P100 L10 # 83

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

The additive scrambler is added after the encoder and interleaver. So this sentence is not quite correct.

Suggested Remedy

Change from: "tx\_RSmessage<3259:0> prior to additive scrambling is formed as follows." To: "tx\_RSmessage<3259:0> prior to the RS-FEC (360,326) encoder is formed as follows:"

Also add indents at line 12 and line 14.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to fix an error in the draft.

Cl 149 SC 149.3.2.2.18 P101 L35 # 84

Tu, Mike Broadcom

Comment Type E Comment Status A EZ

Apply subscript formatting on the index "n" in Dn[0] and Dn[1].

Suggested Remedy

Apply subscript formatting on the index "n" in Dn[0] and Dn[1].

Response Response Status C

ACCEPT.

Cl 149 SC 149.3.2.2.18 P101 L42 # 85

Tu, Mike Broadcom

Comment Type T Comment Status A Terminology

Use "n" as the common index of symbol numbers in time, in 149.3.2.2.18, 149.3.2.2.19, 149.3.2.2.20, and 149.3.2.2.21.

*SuggestedRemedy*

1. On page 101, line 35, insert a new paragraph as follows:  
"n is an index indicating the symbol number".
2. In in 149.3.2.2.18, 149.3.2.2.19, 149.3.2.2.20, and 149.3.2.2.21, applying the following changes:
  - 2.1 Change all bit notation "A" to "A\_n", where "\_" means subscript formatting.
  - 2.2 Change all bit notation "B" to "B\_n", where "\_" means subscript formatting.
  - 2.3 Change all "G(j)" to "G(n)".
  - 2.4 Change all "P(j)" to "P(n)", all "P(j-1)" to "P(n-1)", and "P(j-2)" to "P(n-2)".
  - 2.5 Change "M(u)" to "M(n)".
  - 2.5 Change "P(u)" to "P(n)".
3. Change page 103, line 6 from "The PAM4 encoded symbols are denoted M(u), where:" to "The PAM4 encoded symbols are denoted M(n)."
4. Delete page 103, line 8.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the changes requested in tu\_3ch\_02\_0919.pdf on slides 4, 5, 6, 7, & 9.

Cl 149 SC 149.3.2.3 P104 L39 # 86

Tu, Mike Broadcom

Comment Type E Comment Status A EZ

Redundant statement?

*SuggestedRemedy*

Change from: "... separated into a 10-bit OAM field, separated from the 64B/65B blocks, and fifty 64B/65B blocks."  
To: "... separated into a 10-bit OAM field and fifty 64B/65B blocks."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to increase reader understanding.

Cl 149 SC 149.3.2.3.1 P105 L37 # 87

Tu, Mike Broadcom

Comment Type T Comment Status D Reject OOS

The description should consider the interleaved cases.

*SuggestedRemedy*

Change from: "... from rx\_PAM4\_0 to rx\_PAM4\_1799 (see Figure 149-7)."  
To: "... from rx\_PAM4\_0 to rx\_PAM4\_1800xL-1, where L is the interleaving depth (see Figure 149-7 for the L=1 case)."

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 149 SC 149.3.8.3 P125 L3 # 88

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

Although both 3.0.14 and 3.2322.14 are copies of each other, I think it is better to refer to 3.2322.14 here.

SuggestedRemedy

Change "3.0.14" to "3.2322.14".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make change to improve understanding. Other Clauses reference their specific bits instead of the generic bits even though they have the same impact.

CI 149 SC 149.3.2.2.17 P100 L12 # 89

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

The mapping on line 12 and line 14 is inconsistent with Figure 149-6. The OAM symbol is appended after the fifty 65B blocks, and should be the last symbol entering into each RS FEC encoder. But the mapping on line 12 and line 14 will make the OAM symbol the first one to enter the RS FEC encoder.

SuggestedRemedy

Change line 12 from: "tx\_RSmessage<3259:10> = tx\_group50x65B<3249:0>." To: "tx\_RSmessage<3249:0> = tx\_group50x65B<3249:0>."

Change line 14 from: "tx\_RSmessage<9:0> = OAM\_field<9:0>." To: "tx\_RSmessage<3259:3250> = OAM\_field<9:0>."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to fix an error in the draft.

CI 149 SC 149.3.2.2.14 P98 L31 # 90

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

The RS-FEC encoder input of 3260 bits consist of tx\_group50x65B AND the 10-bit OAM.

SuggestedRemedy

Change line 31 from: "... takes the 3260-bit vector tx\_group50x65B, and ..." To: "... takes the 3260-bit vector tx\_group50x65B and the 10-bit OAM\_field, and ..."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to fix an error in the draft.

Change line 31 from: "... takes the 3260-bit vector tx\_group50x65B, and ..." To: "... takes the 3260-bit vector, consisting of tx\_group50x65B and the 10-bit OAM\_field, and ..."

CI 149 SC 149.3.2.2.14 P98 L28 # 91

Tu, Mike Broadcom

Comment Type T Comment Status A EZ

Figure 149-6 shows the PCS bit ordering, not Figure 149-8.

SuggestedRemedy

Change "Figure 149-8" to "Figure 149-6".

Response Response Status C

ACCEPT.

Cl 149 SC 149.4.2.2 P142 L29 # 92

Souvignier, Tom Broadcom

Comment Type TR Comment Status A EZ

The PMA Transmit electrical specifications are given in 149.5.2.

SuggestedRemedy

Change "149.1.3" to "149.5.2".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl 149 SC 149.4.2.4 P143 L31 # 93

Souvignier, Tom Broadcom

Comment Type TR Comment Status A EZ

It is not clear what is meant by "each InfoField" since the PFC 24 and CRC16 values will be changing after each PAM2 PHY training frame.

SuggestedRemedy

Change this sentence from: "Each InfoField shall be transmitted at least 256 times ..." To: "InfoField shall be transmitted at least 256 times with each change to octets 7-10 to ensure detection at link partner."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to improve clarity.

Cl 149 SC 149.4.2.4.10 P147 L26 # 94

Souvignier, Tom Broadcom

Comment Type TR Comment Status A PMA

The SLAVE should align its transmit frames before it starts transmission. Otherwise MASTER will need to redo frame alignments during training.

SuggestedRemedy

Change from: "During startup, prior to entering the COUNTDOWN state, the SLAVE shall align ..."

To: "During startup, prior to entering the TRAINING state, the SLAVE shall align ..."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make requested change to fix deficiency in current draft.

Cl 149 SC 149.4.2.4 P143 L46 # 95

Souvignier, Tom Broadcom

Comment Type T Comment Status A EZ

Figure 149-28—InfoField TRAINING format octets 8/9/10 should be labeled "PHY Capability Bits" as indicated in subclause 149.4.2.4.5 and Table 149-12

SuggestedRemedy

Change "UsrCfgCap" to "PHY Capability Bits" in Figure 149-28

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to remove issue which could lead to comments during SA ballot.

Cl 149 SC 149.4.2.4 P143 L37 # 96

Souvignier, Tom Broadcom

Comment Type T Comment Status A EZ

Field "MSG24" in Figure 149-27 not defined. Figure 149-27 not needed since it is shown in figures 149-28 and Figure 149-29 for both PMA states.

SuggestedRemedy

Remove Figure 149-27 and change first sentence of paragraph on page 143 line 30 to "The 12-octet InfoField shall include the fields in 149.4.2.4.2 through 149.4.2.4.8, also shown in Figure 149-28 and Figure 149-29."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to remove issue which could lead to comments during SA ballot.

Cl 45 SC 45.2.1.193 P37 L7 # 97

Graba, Jim Broadcom

Comment Type E Comment Status A EZ

In Table 45-155b, "EEE Ability" should be "EEE ability".

SuggestedRemedy

Change "EEE Ability" to "EEE ability"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to follow IEEE802.3 style.

Cl 45 SC 45.2.1.194 P39 L19 # 98

Graba, Jim Broadcom

Comment Type E Comment Status A EZ

In Table 45-155c, change "Slow wake" to "Slow Wake" in order to be consistent.

SuggestedRemedy

Change all occurrences of "Slow wake" and "slow wake" into "Slow Wake" throughout the document.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make changes defined below to make draft consistent.

P39 L19 - change "Slow wake" to "Slow Wake"  
P40 L20, P40 L44, & P40 L45 - change "slow wake" to "Slow Wake"

Cl 45 SC 45.2.1.195.1 P40 L41 # 99

Graba, Jim Broadcom

Comment Type T Comment Status A EZ

These bits are requested by the link partner via Infofield. The current text is confusing.

SuggestedRemedy

Change from: "... communicated to the link partner via Infofields ..."  
To: "... communicated by the link partner via InfoFields ..."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make requested change to improve clarity.

Cl 149 SC 149.1.3.3 P78 L27 # 100

Graba, Jim Broadcom

Comment Type E Comment Status A EZ

The last part of the sentence is missing?

*SuggestedRemedy*

Based on D2.0, change last part of sentence from: "... to be lost or"  
To: "... to be lost or corrupted."

Response Response Status C

ACCEPT.

Cl 149 SC 149.1.3.3 P78 L33 # 101

Graba, Jim Broadcom

Comment Type T Comment Status R Reject OOS

PHY Health status is only available when the optional OAM is enabled.

*SuggestedRemedy*

Change from: "When the PHY Health status received ..."  
To: "When the optional MultiGBASE-T1 OAM is enabled and the PHY Health status received ..."

Response Response Status C

REJECT.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

PHY Health status is only received when MultiGBASE-T1 OAM is enabled, so making this change would add redundancy.  
If the commenter still wants this change, he is encouraged to resubmit this comment at SA ballot.

Cl 149 SC 149.1.3.4 P78 L45 # 102

Graba, Jim Broadcom

Comment Type T Comment Status A Synchronization

More details are needed in the sentences between line 45 and line 47. Recommend to use Clause 97 as the baseline, and apply the scaling from 1 usec (Clause 97) to 1.25 usec (Clause 149).

*SuggestedRemedy*

Change line 45 to line 47 from: "The MASTER PHY sends a synchronization sequence. If there is no response from the SLAVE, the MASTER repeats by sending a synchronization sequence. If the slave detects the sequence, it responds with a synchronization sequence."

To: "The MASTER PHY sends a synchronization sequence for 1.25 μs. If there is no response from the SLAVE, the MASTER repeats by sending a synchronization sequence every 6.25 μs. If the slave detects the sequence, it responds with a synchronization sequence for 1.25 μs (after the MASTER has stopped transmitting)."

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete: The MASTER PHY sends a synchronization sequence. If there is no response from the SLAVE, the MASTER repeats by sending a synchronization sequence. If the slave detects the sequence, it responds with a synchronization sequence. If no other detection happens after the SLAVE response then Link Synchronization is successfully complete, link monitor timers are started, and the PHY Control state diagram starts Training.

Cl 149 SC 149.3.2.2.3 P93 L17 # 103

Graba, Jim Broadcom

Comment Type E Comment Status A EZ

To be consistent, "TxB" should be "tx\_coded" and "RxB" should be "rx\_coded".

*SuggestedRemedy*

Change "The bits of a transmitted or received block are labeled TxB<31:0> and RxB<31:0> where TxB<0> and RxB<0> represent the first transmitted bit."

To "The bits of a transmitted or received block are labeled tx\_coded<64:0> and rx\_coded<64:0> respectively where tx\_coded<0> and rx\_coded<0> represent the first transmitted bit."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change so the text matches the Figure.

Cl 149 SC 149.3.6.1 P109 L47 # 104

Graba, Jim Broadcom

Comment Type E Comment Status A EZ

The wording of this sentence is confusing and redundant. A better specification regarding PFC counter alignment can be found in 149.4.2.4.10, page 147 line 26:

"During startup, prior to entering the COUNTDOWN state, the SLAVE shall align its transmit 65B RS-FEC frame to within  $+0/-4 \times S$  (See Table 149-1 for definition of S.) partial PHY frames of the MASTER as seen at the SLAVE MDI. The SLAVE InfoField partial PHY frame Count shall match the MASTER InfoField partial PHY frame Count for the aligned frame."

*SuggestedRemedy*

Replace the last two sentences: "For 10GBASE-T1, 5GBASE-T1, and 2.5GBASE-T1 the SLAVE's PFC24 are  $+0/-4$ ,  $+0/-2$ , and  $+0/-1$  partial frames respectively with respect to the MASTER's PFC24."

To: "For the requirements on the SLAVE and the MASTER frame alignment, see 149.4.2.4.10."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to eliminate redundant specifications in the draft.

Cl 149 SC 149.3.6.1 P109 L52 # 105

Graba, Jim Broadcom

Comment Type T Comment Status A EEE

The formula may result in non-integer output for the RS-FEC frame count.

*SuggestedRemedy*

Change the formula to: " RS-FEC frame count = floor (PFC24 / 4) mod 96."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to correct an error in the draft.

Cl 149 SC 149.3.6.1 P110 L3 # 106

Graba, Jim Broadcom

Comment Type T Comment Status A EEE

Inconsistent usage of the term "RS-FEC frame count".

The term "RS-FEC frame count" is a continuous counter of the RS-FEC frames. But in Table 149-5, it is used to indicate the length of LPI signals.

*SuggestedRemedy*

In Table 149-5, change the top row of the second column from "RS-FEC frame count" to "Number of RS-FEC frame periods".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to correct an error in the draft.

Cl 149 SC 149.3.6.2 P111 L3 # 107

Graba, Jim Broadcom

Comment Type T Comment Status A EEE

It is not clear what it means by "the transmitter shall stop transmitting".

*SuggestedRemedy*

Change the sentence from: "During the quiet period the transmitter shall stop transmitting."

To: "During the quiet period the PCS transmitter shall pass zeros to the PMA via the PMA\_UNITDATA.request interface."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to correct an error in the draft.

Cl 149 SC 149.3.6.3 P111 L8 # 108

Graba, Jim Broadcom

Comment Type T Comment Status A EEE

The "side-stream scrambler" is in the PCS, not in the PMA.

*SuggestedRemedy*

Delete "PMA" from this sentence.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to correct an error in the draft.

Cl 149 SC 149.3.6.3 P111 L9 # 109

Graba, Jim Broadcom

Comment Type T Comment Status A EEE

Mention of Infofield is distracting. And there aren't 128 InfoField bits.

*SuggestedRemedy*

Remove " with the exception that the Infofield consists of a sequence of 128 zeros".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to correct an error in the draft.

change "Two-level PAM refresh symbols are generated using the PMA side-stream scrambler polynomials described in 149.3.4 and exactly as is shown in Figure 149–11 with the exception that the Infofield consists of a sequence of 128 zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission. The training sequence described in 149.3.4 shall be used during the LPI mode, with the scramblers free-running from PCS Reset. " to "Two-level PAM refresh symbols are generated from the T\_n mapping defined in 149.3.5.1 of S\_n defined in 149.3.5, with the exception that the Infofield consists of zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission."

Cl 149 SC 149.3.6.3 P111 L11 # 110

Graba, Jim Broadcom

Comment Type E Comment Status A EEE

The statement "The training sequence described in 149.3.4 shall be used during the LPI mode, with the scramblers free-running from PCS Reset" is confusing and adds no new information.

*SuggestedRemedy*

Delete this sentence.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to correct an error in the draft.

change "Two-level PAM refresh symbols are generated using the PMA side-stream scrambler polynomials described in 149.3.4 and exactly as is shown in Figure 149–11 with the exception that the Infofield consists of a sequence of 128 zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission. The training sequence described in 149.3.4 shall be used during the LPI mode, with the scramblers free-running from PCS Reset. " to "Two-level PAM refresh symbols are generated from the T\_n mapping defined in 149.3.5.1 of S\_n defined in 149.3.5, with the exception that the Infofield consists of zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission."

Cl 149 SC 149.3.7.3 P116 L50 # 111

Graba, Jim Broadcom

Comment Type T Comment Status A EZ

The RFER Monitor state monitors the RS-FEC frame error ratio.

*SuggestedRemedy*

Change from: "... monitors the received signal for high Reed Solomon frame error ratio." To: "... monitors the received signal for high RS-FEC frame error ratio."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make requested change to improve clarity.

Cl 149 SC 149.3.7.3 P117 L1 # 112

Graba, Jim Broadcom

Comment Type E Comment Status A EZ

"65B-RS\_FEC" should be "65B RS-FEC".

*SuggestedRemedy*

Change "65B-RS\_FEC" to "65B RS-FEC".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make requested change to fix typo.

Cl 149 SC 149.3.8.1 P117 L40 # 113

Graba, Jim Broadcom

Comment Type T Comment Status A EZ

In Figure 149-18, there are no states named "RECEIVE\_LPI" or "RECEIVE\_WAKE".

*SuggestedRemedy*

1. Change "RECEIVE\_LPI" to "RX\_L".
2. Change "RECEIVE\_WAKE" to "RX\_W".
3. Change "Figure 149-18" to "Figure "149-19".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested changes to fix errors in the draft.

Cl 149 SC 149.3.8.1 P117 L45 # 114

Graba, Jim Broadcom

Comment Type T Comment Status A EZ

In Figure 149-16, there are no states named "SEND\_LPI" or "SEND\_WAKE". In Figure 149-20, there is SEND\_WAKE, but no SEND\_LPI. The text should refer to the correct states in Figure 149-17.

*SuggestedRemedy*

1. Change "SEND\_LPI" to "TX\_L".
2. Change "SEND\_WAKE" to "TX\_WN".
3. Change "Figure 149-16" to "Figure "149-17".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested changes to fix errors in the draft.

Cl 149 SC 149.4.2.6.4 P151 L25 # 115

Edem, Brian Aquantia

Comment Type E Comment Status A EZ

Figure 149-32, transition from SIGDET\_WAIT to SILENT\_WAIT the condition is misspelled

*SuggestedRemedy*

Change send\_s\_sigdet to send\_s\_sigdet

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to fix typo.

Cl 149 SC 149.3.2.2.3 P94 L7 # 116

Edem, Brian Aquantia

Comment Type E Comment Status A EZ

In Figure 149.7 the eight arrows from the "Input to decoder function 65B block" to the XGMII at the top of the drawing should be pointing up towards the XGMII

SuggestedRemedy

Reverse the arrows

Response Response Status C

ACCEPT.

Cl 00 SC 0 P10 L47 # 117

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

There are multiple amendments missing from the front matter (802.3cn, 802.3cq, and soon 802.3cm) which are now in SA ballot. 802.3cn is now Amendment four, before 802.3cq, as well.

SuggestedRemedy

Insert missing amendments in correct order in front matter

Response Response Status C

ACCEPT.

Cl 44 SC 44.1.3 P28 L50 # 118

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type T Comment Status D EZ

\* AUTO-NEGOTIATION IS OPTIONAL should read 'for 10GBASE-T1' otherwise the asterisk looks like a general comment on auto-negotiation rather than specific to the 10GBASE-T1 stack

SuggestedRemedy

add "FOR 10GBASE-T1" after "AUTO-NEGOTIATION IS OPTIONAL"

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 45 SC 45.2.1 P32 L30 # 119

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A Vendor

"PHY Vendor specific" and "Link Partner vendor specific data" isn't a specific enough name for these registers, in the context of clause 45. These registers are specific to MultiGBASE-T1. As labeled, they look like general registers for ANY 802.3 PHY type. Suggest change name to "MultiGBASE-T1 PHY vendor specific data" and "MultiGBASE-T1 link partner PHY vendor specific data". Note also capitalization and alignment of the link partner register name

SuggestedRemedy

Change as per comment. Also change names in 45.2.1.199 and table 45-155f

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by the response to comment 1, copied below.

In Table 45-3:

Change the name of register 1.2316 to "MultiGBASE-T1 user defined data" in subclause 45.2.1.199

Change the name of register 1.2317 to "MultiGBASE-T1 link partner user defined data" in subclause 45.2.1.200

In 45.2.1.199:

Change the title to "MultiGBASE-T1 user defined data register (Register 1.2316)"

Change the text to: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45-155f. The values of the bits in this register are outside the scope of this standard."

In Table 45-155f:

Change the title to: "MultiGBASE-T1 user defined data register bit definitions"

Change the Name to: "MultiGBASE-T1 user defined data"

Change the Description to: "16 bits of vendor specific data that the PHY sends to its link partner"

Delete the last row of the table.

Change footnote a to "R/W = Read/Write"

In 45.2.1.199.1:

Change the title to: "PHY vendor specific data (1.2316.15:0)"

Change text to: "Bits 1.2316.15:0 contain vendor specific data that the PHY may communicate to its link partner during training."

Delete 45.2.1.199.2

Create a new level 4 subclause:

"45.2.1.200 MultiGBASE-T1 link partner user defined data register (Register 1.2317)" with text:

"The assignment of bits for the MultiGBASE-T1 link partner user defined data register is shown in Table 45-155g. The values of the bits in this register are outside the scope of this standard."

Create Table 45-155g with title "MultiGBASE-T1 link partner user defined data register bit definitions" and a row with Name entry for 1.2317.15:0 is "Link partner PHY vendor specific

data", Description is "16 bits of vendor specific data that the PHY may receive from its link partner", R/W is "RO", and footnote a is "RO = Read only"  
Create a new level 5 subclause:  
"45.2.1.200.1 Link partner PHY vendor specific data (1.2317.15:0)" with text "Bits 1.2317.15:0 contain vendor specific data that the PHY may receive from its link partner during training."

Cl 45 SC 45.2.1 P32 L29 # 120

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

"Minimum SNR margin" - Minimum should not be capitalized (it isn't the first word or an acronym)

SuggestedRemedy

Change Minimum to minimum.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to follow IEEE802.3 style.

Cl 45 SC 45.2.1.7.5 P33 L3 # 121

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

PHY names should not break across lines.

SuggestedRemedy

Widen first column of Tables 45-9 and 45-10 and use non-breaking hyphens in BASE-T1 instances. (do both - this way no matter what happens in the future, PHY names won't break across lines.)

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.193.5 P38 L8 # 122

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type ER Comment Status A Precoder

"Actual precoder selected" - title of this subclause is not the same as the name of the bit in the table (Actual precoder requested" - suggest the table is more appropriate. (If the larger language (comment PRECD1) is accepted or accepted in principle, this comment should become moot and should be accomodated by the resolution).

SuggestedRemedy

Change "Actual precoder selected" to "Actual precoder requested".

Response Response Status C

ACCEPT IN PRINCIPLE.

Change per comment #123

Change the title of 45.2.1.193.5 from "Actual precoder selected (1.2310.4:3)" to: "PrecoderSel (1.2310.4:3)"

CI 45 SC 45.2.1.193.5 P38 L8 # 123

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type TR Comment Status A Precoder

(Comment PRECD1) The language of "Actual precoder requested" or "selected" is all messed up and confusing. Which precoder parameters relate to the local transmitter and which to the request of the link partner's transmitter is not consistent. The "Link partner" ones are all clear, leaving me to think that it is just the local PHY's REQUEST, which is meant here.

#### SuggestedRemedy

Make the following changes:

Page 37 line 21 (Table 45-155b) change "Actual precoder requested" to "PrecoderSel"  
 Page 38 line 8 (45.2.1.193.5 header) change "Actual precoder selected" to "PrecoderSel",  
 and replace text of 45.2.1.193.5 (P38 lines 10-12) to read as follows:  
 "Bits 1.2310.4:3 contain the requested precoder setting communicated by the PHY to the link partner via Infocodes in the PrecoderSel field (see 149.4.2.4.4)."

Page 39 line 15 (Table 45-155c) and Page 38 line 45 (45.2.1.194.2 header) change  
 "Precoder request override" to "Precoder Selection", and replace text (P38 lines 47-48) to  
 read as follows:  
 "When 1.2311.5 is set as a one, the PHY shall use 1.2311.3:2 for the value of PrecoderSel,  
 and when set to a zero the PHY controls the value of PrecoderSel. PrecoderSel is the  
 desired precoder setting communicated to the link partner via Infocodes specified in  
 149.4.2.4.4."

Page 39 line 23 (Table 45-155c) and Page 39 line 37 (45.2.1.194.4 header) change  
 "Precoder requested" to "User precoder selection", and replace text (P39 lines 38-39) to  
 read as follows:  
 When bit 1.2311.5 is a one, bits 1.2311.3:2 are the requested precoder setting  
 communicated by the PHY to the link partner via Infocodes in the PrecoderSel field (see  
 149.4.2.4.4).

Response Response Status C

ACCEPT IN PRINCIPLE.

Make the following changes:

Page 37 line 21 (Table 45-155b) change "Actual precoder requested" to "PrecoderSel"  
 Page 38 line 8 (45.2.1.193.5 header) change "Actual precoder selected" to "PrecoderSel",  
 and replace text of 45.2.1.193.5 (P38 lines 10-12) to read as follows:  
 "Bits 1.2310.4:3 contain the requested precoder setting communicated by the PHY to the link partner via the PrecoderSel bits in the Infocodes field (see 149.4.2.4.4)."

Page 39 line 15 (Table 45-155c) and Page 38 line 45 (45.2.1.194.2 header) change  
 "Precoder request override" to "Precoder Selection", and replace text (P38 lines 47-48) to  
 read as follows:  
 "When 1.2311.5 is set to a one, the PHY shall use 1.2311.3:2 for the value of PrecoderSel,  
 and when set to a zero the PHY controls the value of PrecoderSel. PrecoderSel is the  
 desired precoder setting communicated to the link partner via the Infocodes field specified in

149.4.2.4.4."

Page 39 line 23 (Table 45-155c) and Page 39 line 37 (45.2.1.194.4 header) change  
 "Precoder requested" to "User precoder selection", and replace text (P39 lines 38-39) to  
 read as follows:  
 "When 1.2311.5 is a one, bits 1.2311.3:2 are the requested precoder setting communicated  
 by the PHY to the link partner via the PrecoderSel bits in the Infocodes field (see 149.4.2.4.4)."

CI 45	SC 45.2.1.192	P35	L41	# 124
Zimmerman, George	CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco			
Comment Type	T	Comment Status	A	Precoder

the changes to allow the user to set precoder selection and the reporting of the link monitor's precoder request have made these registers confusing and duplicate. They are now better delegated to just control the test mode precoder forcing, since the user can force his precoder from the remote device. For testing purposes, an override control could be put in the test mode register as well, but in no normal operation case would you want the control register to modify the precoder (either you do it by link partner request determined by the PHY or by the link partner registers forcing a configuration).

Also, nowhere do we link PrecodeSel to the precoder setting with a requirement (shall).

**SuggestedRemedy**

Delete row for 1.2309.10:9 from Table 45-155a (page 35 lines 40-44)

Change reserved row in Table 45-155a (page 35 line 45) from 1.2309.8:0 to 1.2309.10:0

Delete page 36 lines 40-48, subclause 149.2.1.192.4 and renumber.

On page 41 line 33, Change Reserved row to be : 1.2313.12 | Reserved | Value always 0 | RO

and insert three new rows below the new reserved row:

1.2313.11 |Local transmitter precoder override | 0 = Normal Operation

1 = User Override | R/W

1.2313.10:9 | Local transmit precoder setting | 00 = transmit with no precoder

01 = transmit with 1-D precoder

10 = transmit with 1+D precoder

11 = transmit with 1-D2 precoder | R/W

1.2313.8:2 | Reserved | Value always 0 | RO

On page 41 line 47, add new subclauses after 45.2.1.196.1 and renumber appropriately:

45.2.1.196.2 Local transmitter precoder override (1.2313.11)

When bit 1.2313.11 is set to one, the local transmitter's precoder shall be controlled by the value of bits 1.2313.10:9, and the precoder requested by the link partner in PrecodeSel shall be ignored. When bit 1.2313.11 is set to zero, the transmitter shall ignore the bits 1.2313.10:9, and the precoder is set according to the value of PrecodeSel received from the link partner as specified in 149.3.2.2.20. The default value of 1.2313.11 is zero.

45.2.1.196.3 Local transmit precoder setting (1.2313.10:9)

When bit 1.2313.11 is set to one, bits 1.2313.10:9 control the precoder setting of the local transmitter, as defined in 149.3.2.2.20 in the variable precoder\_type. For testing purposes, the precoder can be set using these bits, and the specified test can be carried out in by using these bits, bit 1.2313.11, and enabling test mode 3. During normal operation, bit 1.2313.11 is set to zero, and the precoder is set according to the value of PrecodeSel received from the link partner, and bits 1.2313.10:9 are ignored.

Add PICS items MM232 and MM233(editorial license to number and position appropriately):

(Feature | Subclause | Value/comment | Status | Support)

When bit 1.2313.11 is set to one, the value in bits 1.2313.10:9 control the local transmitter's precoder | 45.2.1.196.2 | M | Yes[] No[]

When bit 1.2313.11 is set to zero, the value in bits 1.2313.10:9 are ignored and the link partner's request controls the local transmitter's precoder | 45.2.1.196.2 | M | Yes [] No []

On page 102 line 27 (149.3.2.2.20), change "The precoder\_type is determined by the PCS decoding two bits in InfoField messages received from the remote PHY during training as:" to: "In normal operation (see 45.2.1.196.3) the value of precoder\_type shall be set to the value of PrecodeSel received from the link partner in the InfoField messages (see 149.4.2.4.5):"

(this PICS is already covered by PCT21)

Response Response Status C

ACCEPT IN PRINCIPLE.

The following response has minor editorial corrections to the Suggested Remedy.

Delete row for 1.2309.10:9 from Table 45-155a (page 35 lines 40-44)

Change reserved row in Table 45-155a (page 35 line 45) from 1.2309.8:0 to 1.2309.10:0

Delete page 36 lines 40-48, subclause 149.2.1.192.4 and renumber.

On page 41 line 33, Change Reserved row to be : 1.2313.12 | Reserved | Value always 0 | RO

and insert three new rows below the new reserved row:

1.2313.11 |Local transmitter precoder override | 0 = Normal Operation

1 = User Override | R/W

1.2313.10:9 | Local transmit precoder setting | 00 = transmit with no precoder

01 = transmit with 1-D precoder

10 = transmit with 1+D precoder

11 = transmit with 1-D2 precoder | R/W

1.2313.8:2 | Reserved | Value always 0 | RO

On page 41 line 47, add new subclauses after 45.2.1.196.1 and renumber appropriately:

45.2.1.196.2 Local transmitter precoder override (1.2313.11)

When bit 1.2313.11 is set to one, the local transmitter's precoder shall be controlled by the value of bits 1.2313.10:9, and the precoder requested by the link partner in PrecodeSel shall be ignored. When bit 1.2313.11 is set to zero, the transmitter shall ignore bits 1.2313.10:9, and the precoder is set according to the value of PrecodeSel received from the link partner as specified in 149.3.2.2.20. The default value of 1.2313.11 is zero.

45.2.1.196.3 Local transmit precoder setting (1.2313.10:9)

When bit 1.2313.11 is set to one, bits 1.2313.10:9 control the precoder setting of the local transmitter, as defined in 149.3.2.2.20 in the variable precoder\_type. For testing purposes, the precoder can be set using these bits, and the specified test can be carried out by using these bits, bit 1.2313.11, and enabling test mode 3. During normal operation, bit 1.2313.11 is set to zero, and the precoder is set according to the value of PrecodeSel received from

the link partner, and bits 1.2313.10:9 are ignored.

Add PICS items MM232 and MM233(editorial license to number and position appropriately):  
(Feature | Subclause | Value/comment | Status | Support)

When bit 1.2313.11 is set to one, the value in bits 1.2313.10:9 control the local transmitter's precoder | 45.2.1.196.2 | | M | Yes[] No[]

When bit 1.2313.11 is set to zero, the value in bits 1.2313.10:9 are ignored and the link partner's request controls the local transmitter's precoder | 45.2.1.196.2 | M | Yes [] No []

On page 102 line 27 (149.3.2.2.20), change "The precoder\_type is determined by the PCS decoding two bits in InfoField messages received from the remote PHY during training as:" to: "In normal operation (see 45.2.1.196.3) the value of precoder\_type shall be set to the value of PrecoderSel received from the link partner in the InfoField messages (see 149.4.2.4.5):"

(this PICS is already covered by PCT21)

<i>Cl</i> 45	<i>SC</i> 45.2.1.194.5	<i>P39</i>	<i>L45</i>	# 125
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Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

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

"This bit shall be set" puts a requirement on the user and is inappropriate for a read/write bit. Reverse the changes from d2.0 in 45.2.1.194.5, 45.2.1.194.6 (note that this language is appropriate for RO registers but not for situations where the MDIO is supposed to write the value into the register, like the ones cited).

*SuggestedRemedy*

Change "shall be set" to "should be set" on page 39 line 45 and on page 39 line 52,

*Response* *Response Status* C

ACCEPT IN PRINCIPLE.

P39 L43 Replace the existing paragraph with:

Support for MultiGBASE-T1 OAM capability shall be advertised if this bit is set to one. Support for MultiGBASE-T1 OAM capability shall not be advertised if this bit is set to zero. Support for MultiGBASE-T1 OAM capability should only be advertised if it is supported by the PHY.

And P39 L50 Replace the existing paragraph with:

Support for EEE capability shall be advertised if this bit is set to one. Support for EEE capability shall not be advertised if this bit is set to zero. Support for EEE operation should only be advertised if it is supported by the PHY.

And MM227 Replace the text in the "Feature" column with: Advertisement of support for MultiGBASE-T1 OAM; and in the "Value/Comment" column put: Support is advertised if bit 1.2311.1 is set to one, and not advertised if bit 1.2311.1 is set to zero

And MM228 Replace the text in the "Feature" column with: Advertisement of support for MultiGBASE-T1 EEE; and in the "Value/Comment" column put: Support is advertised if bit 1.2311.0 is set to one, and not advertised if bit 1.2311.0 is set to zero

Cl 45 SC 45.2.3.72 P43 L42 # 126

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type ER Comment Status A OAM

Table 45-241 bit 3.2308.15 description and 45.2.3.71.1 contain a triplicate shall to the one in the OAM state diagram ( 45.2.3.72.1 and the shall on the OAM state diagram, and reads odd, referring to 'state machine' inappropriately. The 'shall' on this bit clearing is actually the state diagram.

This is similar to the changes in the receive register 45-243, subject of maintenance request 1327 and I plan to submit it as a maintenance request.

Another comment fixes the defect that the OAM state diagrams don't have shall's associated with them. This defect is also in clause 97 and makes the maintenance request complicated, because there are NO PICS in clause 97 for OAM....

SuggestedRemedy

In Table 45-241, Change the second sentence in Description of 2313.15 from: "This bit shall self clear when register 3.2317 is read." to : "This bit self clears when register 3.2317 is read."

In 45.2.3.72.1 change "shall be set to one", to "is set to one" (P44 L27), and on line 29 change "This register shall be cleared by the state machine" to: "This bit self-clears"...

Response Response Status C

ACCEPT IN PRINCIPLE.

P46 L19 - Change: This register shall be cleared when register 3.2317 is read. To: This bit shall self-clear when register 3.2317 is read.

P46 L34 - Delete: Register 3.2313.15 shall be cleared when register 3.2317 is read.

Bring in PICS RM134 and change "Feature": Register 3.2313 is cleared when register 3.2317 is read. To: Bit 3.2313.15 self clears when register 3.2317 is read.

Bring in PICS RM135 and RM136 and "delete" them.

P43 L42 - Change: This bit shall self-clear when registers are loaded by the state machine. To: This bit self clears when registers are loaded by the OAM transmit state diagram.

P44 L29 - Change: This register shall be cleared by the state machine to indicate ... To: This bit self-clears to indicate ...

Bring in PICS RM125, RM126, and RM129 and "delete" them.

Cl 149 SC 149.3.9 P125 L12 # 127

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type TR Comment Status A OAM

There is no requirement for the OAM state diagrams.

SuggestedRemedy

Insert new second sentence in first paragraph of 149.3.9 "When OAM is implemented, behavior shall conform to the state diagrams in Figure 149-24 and Figure 149-25." Add new first PICS item to 149.11.4.2.8 OAM:

State diagram behavior | 149.3.9.4 | Conforms to Figure 149-24 and 149-25 | OAM: M | Yes  
[ ] No [ ]

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested changes to clarify requirement when OAM is implemented.

Cl 125 SC 125.1 P71 L46 # 128

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type TR Comment Status D EZ

"NOTE 2 - AUTO-NEGOTIATION IS OPTIONAL" Auto-Negotiation is only optional for the BASE-T1 PHYs.

SuggestedRemedy

Add "FOR BASE-T1 PHYs" after "AUTO-NEGOTIATION IS OPTIONAL"

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.1.3.1 P77 L44 # 129  
 Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco  
 Comment Type E Comment Status A EZ  
 149.3.2.2.18 is NOT where the interleaving is described. It is where the scrambler is. The interleaver IS in 149.3.2.2.16, where it was in the previous draft....

*SuggestedRemedy*  
 Change cross-ref from 149.3.2.2.18 to 149.3.2.2.16

*Response* Response Status C  
 ACCEPT.

Cl 149 SC 149.1.3.3 P78 L27 # 130  
 Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco  
 Comment Type T Comment Status A EEE  
 "The transition to or from LPI mode shall not cause any MAC frames to be lost or" is a fragment of a sentence and an untestable shall....

*SuggestedRemedy*  
 delete sentence fragment, or change it to read: "The transition to or from LPI mode should not cause any MAC frames to be lost or corrupted."

*Response* Response Status C  
 ACCEPT IN PRINCIPLE.

Change: The transition to or from LPI mode shall not cause any MAC frames to be lost or  
 To: The transition to or from LPI mode is not expected to cause any MAC frames to be lost or corrupted.

Cl 149 SC 149.3.2.2 P91 L12 # 131  
 Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco  
 Comment Type E Comment Status A EZ  
 "The subsequent functions of the PCS Transmit process" is meaningless, because the preceding text no longer talks about the generation of 65B blocks.

*SuggestedRemedy*  
 Change "The subsequent functions of the PCS Transmit process" to "After mapping the XGMII transfers to 64B/65B blocks, the subsequent functions of the PCS Transmit process"

*Response* Response Status C  
 ACCEPT.

Cl 149 SC 149.3.2.2 P91 L13 # 132  
 Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco  
 Comment Type E Comment Status A EZ  
 Typo: RS-FE

*SuggestedRemedy*  
 Change "RS-FE" to "RS-FEC"

*Response* Response Status C  
 ACCEPT.

Cl 149 SC 149.3.2.2.19 P101 L53 # 133  
 Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco  
 Comment Type E Comment Status A EZ  
 Missing comma on parenthetical phrase: "Each pair of bits, {A, B}, where A is the bit arriving first is converted to"

*SuggestedRemedy*  
 change "Each pair of bits, {A, B}, where A is the bit arriving first is converted to" to "Each pair of bits, {A, B}, where A is the bit arriving first, is converted to"

*Response* Response Status C  
 ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to improve readability.

Cl 149 SC 149.3.2.3 P105 L15 # 134  
 Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco  
 Comment Type T Comment Status A EZ  
 "and subject to the timing requirements of 46.1.7" - there are no timing requirements in 46.1.7. 46.1.7 is the mapping of primitives. Do you mean 46.3.1.5 Transmit direction LPI transition?

*SuggestedRemedy*  
 Change 46.1.7 to 46.3.1.5

*Response* Response Status C  
 ACCEPT.

Cl 149 SC 149.4.2.6.4 P151 L25 # 135

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

typo: send\_s\_sidget = true

**SuggestedRemedy**

change send\_s\_sidget to send\_s\_sigdet

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to fix typo.

Cl 149 SC 149.4.2.4.6 P146 L16 # 136

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type TR Comment Status A PMA

The only constraint on DataSwPFC24 is that it is 24 bits and a multiple of 16. A PFC interval is 450 baud intervals, which at 10 gig is 80 nsec. As it is, this allows startup to hang for  $16776960 \times 80 \text{ nsec} = 1.342$  seconds, which is WAY too long for a 100 msec total startup to allocate for a synchronization countdown after both receivers are reporting they are OK. A constraint of 500 (40 usec) should be more than enough, and would still be reasonable at 2.5 gig (160 usec). Also, DataSwPFC24 could be so close to the current PFC that the link partner might not be able to sync.

**SuggestedRemedy**

Add new final sentence to end of paragraph in 149.4.2.4.6: "DataSwPFC24 shall be a minimum of 64 and a maximum of 512 from the current PFC24 value."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Add new final sentence to end of paragraph in 149.4.2.4.6: "DataSwPFC24 shall be a minimum of 4081 and a maximum of 4785 from the current PFC24 value."

Cl 149 SC 149.1.6 P80 L41 # 137

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type T Comment Status A EZ

IEEE 802.3 state diagrams do not have precedence defined other than parentheses. To avoid parentheses around logical functions of relational operators (>, =, <, etc.) or combinations of AND and OR operations, adopting precedence is recommended. Fortunately, 802.3bt did this work and it is in clause 145.

**SuggestedRemedy**

Change "The notation used in the state diagrams follows the conventions of 21.5." to "The notation used in the state diagrams follows the conventions of state diagrams as described in 21.5, along with the extensions described in 145.2.5.2."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change as current state transitions in our diagrams assume this precedence.

Cl 149 SC 149.3.9.1 P125 L36 # 138

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

"OAM field: The OAM10-bit field" - there is no such phrase as OAM10-bit field... And defining the OAM field as the OAM field isn't useful.

**SuggestedRemedy**

Change "The OAM10-bit field in each PHY frame" to "A 10-bit field in each PHY frame reserved for the OAM symbol"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to clarify draft.  
In addition, on P125 L21 change "OAM 10-bit field" to "10-bit OAM field".

CI 149 SC 149.4.2.1 P142 L16 # 139

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type T Comment Status A Startup

"The MultiGBASE-T1 PMA shall take no longer than 100 ms to enter the PCS\_DATA state after exiting from reset or low power mode." is a non-interoperable way of stating a startup time requirement. The startup time may be allocated to one training state in one phy and another training state in another phy. To get interoperability, startup time must be allocated to phy control states.

*SuggestedRemedy*

Task force to discuss. (this requires some consensus building - sorry!)

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Change: The MultiGBASE-T1 PMA shall take no longer than 100 ms to enter the PCS\_DATA state after exiting from reset or low power mode.

To: The MultiGBASE-T1 PMA takes no longer than 100 ms to enter the PCS\_DATA state after exiting from reset or low power mode (see Figure 149-33).

And: Delete PICS item PR2 (149.11.4.3.1, page 181 line 47)

CI 149 SC 149.7.1.3 P165 L31 # 140

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

The Return loss section actually is 3 subclauses, one for each PHY type.

*SuggestedRemedy*

Divide 149.7.1.3 into 149.7.1.3.1 2.5GBASE-T1 link segment return loss, 149.7.1.3.2 5GBASE-T1 link segment return loss, and 149.7.1.3.3 10GBASE-T1 link segment return loss.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to help the reader.

CI 149 SC 149.7.1.3 P167 L23 # 141

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type T Comment Status A EZ

While the title for Figure 149-43 says there are 5 curves, the figure only shows 2 curves (this is due to frequency overlaps), but is confusing. Also, 2.5G no longer has the "N" factor, which makes the figure even more confusing.

*SuggestedRemedy*

Divide Figure 149-43 into 3 figures, one for 2.5G, one for 5G and one for 10G. Alternately, delete the figure.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to help the reader.

CI 149 SC 149.7.1.1 P164 L30 # 142

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A EZ

While Fmax is used for several link segment parameters, it only gets defined for insertion loss. This definition (Equation 149-18) needs to be moved up to 149.7

*SuggestedRemedy*

Insert new second paragraph in 149.7: "For the three different PHY types, link segment parameters are specified to different upper frequencies, given by the parameter Fmax shown in Equation 149-17".

Insert (new) Equation 149-17, which is the current Equation 149-18:  $F_{max} = 4000 \times S$  Followed by "See Table 149-1 for definition of S."

Delete lines 30 through 33, so that 149.7.1.1 after the equation (currently 149-17, now 149-18) reads:

$f$  is the frequency in MHz;  $1 \leq f \leq F_{max}$ .

The insertion loss is illustrated in Figure 149-42.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make suggested change to clarify draft.

Cl 149 SC 149.7.2.1 P169 L9 # 143

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type TR Comment Status A Reject OOS

It is important to limit the noise ingress even outside the bandwidth of the PHY, especially if multiple rates of PHYs are to be used together in the same system. As such, the PSANEXT and PSAFEXT characteristic needs to be specified to the same frequency for all PHY types

*SuggestedRemedy*

Replace Fmax on Page 169 line 9 and Page 170 line 6 with 4000 MHz.

Response Response Status C

ACCEPT IN PRINCIPLE.

Make the change in the Suggested Remedy.

Straw poll #1

I believe we need to do something for the higher frequency PSANEXT and PSAFEXT for 2.5GBASE-T1 and 5GBASE-T1.

Y: 22  
N: 2

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Cl 149 SC 149.9.2.1 P172 L24 # 144

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type E Comment Status A testing

IEEE Std 802.3 does not specify equipment, and can't put a 'shall' on "All equipment subject to this clause...shall conform to the potential environmental stresses", or to the systems integrating the PHY (149.9.2.2). 802.3cg had similar language in ballots and the suggested language is drawn from the remedies there.

*SuggestedRemedy*

Change "shall conform" to "is expected to conform" in 149.9.2.1, and "shall comply" with "is expected to comply" in 149.9.2.2.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the suggested change to conform with latest agreed text in other projects.

Also, delete PICS ES3 and ES4.

Cl 149 SC 149.9.2.2 P172 L43 # 145

Zimmerman, George CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

Comment Type T Comment Status A testing

IEEE Std 802.3 does not restrict the EMC test methods ("PHY shall be tested according to CISPR 25 test methods"). The integrating system will specify the test methods to be used, and even though they usually are CISPR25, there is no need to put that here, and inappropriate to require it.

*SuggestedRemedy*

Delete "The PHY shall be tested according to CISPR 25 test methods defined to measure the PHY's EMC performance in terms of radio frequency (RF) immunity and RF emissions."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

While automotive testing requires the use of CISPR 25, other applications may not use this. P172 L45-48 make it clear that CISPR25 is used for automotive applications.

Remove the text as suggested and remove PICS ES5 on P190 L20.

Cl 45 SC 45.2.1.196.2 P41 L51 # 146

McClellan, Brett Marvell

Comment Type E Comment Status A EZ

Test mode 2 is described in 149.5.2.3.1

SuggestedRemedy

change "149.5.2.3" to "149.5.2.3.1"

Response Response Status C

ACCEPT.

Cl 45 SC 45.2.1.199 P42 L30 # 147

McClellan, Brett Marvell

Comment Type E Comment Status A Vendor

'Reserved' should be 'Link partner vendor specific data'

SuggestedRemedy

change 'Reserved' to 'Link partner vendor specific data'

Response Response Status C

ACCEPT IN PRINCIPLE.

This is moved to a new subclause with a new name by comment #1.

Cl 149 SC 149.3.2.2 P91 L13 # 148

McClellan, Brett Marvell

Comment Type E Comment Status A EZ

typo

SuggestedRemedy

change 'RS-FE' to 'RS-FEC' in multiple locations

Response Response Status C

ACCEPT IN PRINCIPLE.

Change on P91 L13 and P91 L 48

Cl 149 SC 149.3.2.2 P91 L33 # 149

McClellan, Brett Marvell

Comment Type E Comment Status A EZ

incorrect reference. this links to the Link Monitor function. Instead should point to 149.4.2.4

SuggestedRemedy

change to 149.4.2.5 to 149.4.2.4

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Correct the link to improve readability of the draft.

Cl 149 SC 149.3.2.2 P92 L12 # 150

McClellan, Brett Marvell

Comment Type E Comment Status A EZ

's\_n' should be 'S\_n' to match usage in 149.3.4

SuggestedRemedy

change 's\_n' to 'S\_n'

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to be consistent with the terminology used throughout this document.

Cl 149 SC 149.3.2.2.3 P94 L7 # 151

McClellan, Brett Marvell

Comment Type E Comment Status A EZ

arrows are in wrong direction and should point toward the XGMII

SuggestedRemedy

reverse the arrow directions

Response Response Status C

ACCEPT.

Cl 149 SC 149.3.2.2.3 P94 L24 # 152

McClellan, Brett

Marvell

Comment Type E Comment Status A EZ

149.3.2.3.2 uses the term 'descrambler' for the receiver. Should probably match it in this figure.

SuggestedRemedy

change 'scrambler' to 'descrambler'

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change so the Figure matches the text.

Cl 149 SC 149.3.2.2.17 P100 L48 # 153

McClellan, Brett

Marvell

Comment Type E Comment Status A EZ

typo

SuggestedRemedy

change 'an' to 'a'

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to fix an error in the draft.

Cl 149 SC 149.3.6 P108 L31 # 154

McClellan, Brett

Marvell

Comment Type E Comment Status A EZ

"offset by the link partner's." awkward language

SuggestedRemedy

change to "offset between the link partners."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make requested change to improve clarity.

Cl 45 SC 45.2.1.197 P42 L5 # 155

McClellan, Brett

Marvell

Comment Type T Comment Status A SNR

The example values do not match the register definitions for 1.2314 and 1.2315. The examples use a resolution of 1/2560 instead of 0.1dB.

SuggestedRemedy

lines 5 and 13, delete the example text ", 12.7 dB represented by 0xFF00, and -12.7 dB represented by 0x0100"

Response Response Status C

ACCEPT IN PRINCIPLE.

- P42, L5 Change "0x8000" to "0x80"
- P42, L6 Change "0xFF00" to "0xFF"
- P42, L6 Change "0x0100" to "0x01"

P42 L7 Insert the following text: The assignment of bits in the MultiGBASE-T1 SNR operating margin register is shown in Table 45-155x.

Add a register bit definition table (45-155x) with the following 2 content rows:  
 1.2314.15:8 | MultiGBASE-T1 SNR operating margin | value of current SNR operating margin in dB | RO  
 1.2314.7:0 | Reserved | Value always 0 | RO  
 With the following note on the table: ^aRO = Read only

- P42, L13 Change "0x8000" to "0x80"
- P42, L13 Change "0xFF00" to "0xFF"
- P42, L13 Change "0x0100" to "0x01"

P42 L15 Insert the following text: The assignment of bits in the MultiGBASE-T1 Minimum SNR margin register is shown in Table 45-155y.

Add a register bit definition table (45-155y) with the following 2 content rows:  
 1.2315.15:8 | MultiGBASE-T1 Minimum SNR margin | value of minimum observed SNR margin in dB | RO  
 1.2315.7:0 | Reserved | Value always 0 | RO  
 With the following note on the table: ^aRO = Read only

Cl 149 SC 149.3.2.2 P91 L41 # 156

McClellan, Brett

Marvell

Comment Type T Comment Status A PCS

"The 3600 bits in this frame are then encoded into 1800 PAM4 symbols and transferred sequentially to the PMA."  
This statement is incorrect.  
Following the RS-FEC interleaving, there is no longer a 3600 bit frame for L=2 or 4. Further, the bits are scrambled prior to PAM4 mapping.

SuggestedRemedy

Delete this sentence.

Response Response Status C

ACCEPT.

Cl 149 SC 149.3.2.2 P92 L2 # 157

McClellan, Brett

Marvell

Comment Type T Comment Status A EZ

Per Figure 78-1 and 46.4 it is not the MAC but the RS and LPI Client that controls entry to LPI mode.

SuggestedRemedy

Change 'MAC' to 'RS'

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to fix an error in the draft.

Cl 149 SC 149.3.2.2.3 P93 L22 # 158

McClellan, Brett

Marvell

Comment Type T Comment Status A EZ

There's no signals defined as TXD<32> to TXD<63>. Only the XGMII TXD<0> to TXD<31>.

SuggestedRemedy

delete TXD<0>, TXD<31>, TXD<32>, and TXD<63> and move the XGMII line with signal labels down to align with the arrows.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make change as requested as the current implementation could cause additional comments in the future.

Cl 149 SC 149.3.2.2.3 P94 L3 # 159

McClellan, Brett

Marvell

Comment Type T Comment Status A EZ

There's no signals defined as RXD<32> to RXD<63>. Only the XGMII RXD<0> to RXD<31>.

SuggestedRemedy

delete RXD<0>, RXD<31>, RXD<32>, and RXD<63> and move the XGMII line with signal labels down to align with the arrows.

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make change as requested as the current implementation could cause additional comments in the future.

Cl 149 SC 149.3.6 P108 L16 # 160

McClellan, Brett

Marvell

Comment Type T Comment Status A EZ

"The transmit function of the PHY initiates a transition to the LPI transmit mode when it generates 8 RS-FEC frames composed entirely of LPI control characters, as described in 149.3.2.2.22. The transmit function of the link partner signals the transition using the sleep signal" awkward language and why reference the link partner? This text is about the local device and LPI signaling.

SuggestedRemedy

change to "The transmit function of the PHY initiates a transition to the LPI transmit mode by generating the sleep signal comprised of 8 RS-FEC frames composed entirely of LPI control characters, as described in 149.3.2.2.22. "

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to increase reader understanding.

Cl 149 SC 149.3.6 P109 L37 # 161

McClellan, Brett

Marvell

Comment Type T Comment Status A EZ

The prior paragraphs talk about the transmitter and signaling, suddenly this paragraph changed topic to receiver behavior.

SuggestedRemedy

Change text to "The end of LPI mode occurs at the transmission of the alert signal indicating the end of quiet-refresh cycle." also move this orphaned text prior to figure 149-14

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the requested change to increase reader understanding. The editor will try to move the text.

Cl 149 SC 149.3.6.1 P109 L45 # 162

McClellan, Brett

Marvell

Comment Type T Comment Status A EEE

"An EEE-capable PHY in SLAVE mode is responsible for synchronizing its Partial PHY frame Count..." This is not correct. All PHYs in slave mode must sync.

SuggestedRemedy

change ""An EEE-capable PHY" to "A PHY"

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make requested change to fix an error in the draft.

Cl 149 SC 149.3.6.1 P109 L47 # 163

McClellan, Brett

Marvell

Comment Type T Comment Status A EZ

"For 10GBASE-T1, 5GBASE-T1, and 2.5GBASE-T1 the SLAVE's PFC24 are +0/-4, +0/-2, and +0/-1 partial frames respectively with respect to the MASTER's PFC24." This sentence contradicts the prior sentence which requires the slave to match the PFC24 of the master.

SuggestedRemedy

delete the sentence

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the change suggested by comment 104 to remove redundant specifications in the draft.

Replace the last two sentences: "For 10GBASE-T1, 5GBASE-T1, and 2.5GBASE-T1 the SLAVE's PFC24 are +0/-4, +0/-2, and +0/-1 partial frames redraftively with redraft to the MASTER's PFC24."

To: "For the requirements on the SLAVE and the MASTER frame alignment, see 149.4.2.4.10."

Cl 149 SC 149.3.6.3 P111 L9 # 164

McClellan, Brett

Marvell

Comment Type T Comment Status A EEE

There are several problems with this paragraph. Twice it references 149.3.4 however the Infofield and the training sequence are not specified in 149.3.4. It also fails to refer to the appropriate PAM2 mapping.

SuggestedRemedy

change "Two-level PAM refresh symbols are generated using the PMA side-stream scrambler polynomials described in 149.3.4 and exactly as is shown in Figure 149-11 with the exception that the Infofield consists of a sequence of 128 zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission. The training sequence described in 149.3.4 shall be used during the LPI mode, with the scramblers free-running from PCS Reset. "

to "Two-level PAM refresh symbols are generated from the T\_n mapping defined in 149.3.5.1 of S\_n defined in 149.3.5 with the exception that the Infofield consists of a sequence of 128 zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission."

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Make the following change to correct an error in the draft.

change "Two-level PAM refresh symbols are generated using the PMA side-stream scrambler polynomials described in 149.3.4 and exactly as is shown in Figure 149-11 with the exception that the Infofield consists of a sequence of 128 zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission. The training sequence described in 149.3.4 shall be used during the LPI mode, with the scramblers free-running from PCS Reset. "

to "Two-level PAM refresh symbols are generated from the T\_n mapping defined in 149.3.5.1 of S\_n defined in 149.3.5, with the exception that the Infofield consists of zeros. The 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission."

Cl 45 SC 45.2.1.192.4 P36 L43 # 165

McClellan, Brett

Marvell

Comment Type TR Comment Status A Precoder

There are several problems subclause.

First - "Setting these bits forces the precoder to the mode set. "

this sentence makes it appear that simply writing to these bits will cause precoder to use the written setting without other action required when in fact this setting is used only for test mode 3.

Second - "During normal operation, these bits are set according to the precoder requested by the link partner in the Infofield, and reading bits 1.2309.10:9 will represent the value of the request, which has been received and set into the transmitter. "

It is very poor practice to use configuration bits (R/W) also as status bits ( usually RO). It causes issues when read-modify-write operations are performed. It is also not clear whether these bits are supposed to act as RO in normal mode but R/W during test mode. Further, during normal operation the setting of the precoder can already be inferred from 1.2312.3:2 status bits ( Link partner precoder requested)

SuggestedRemedy

change the text as follows:

Bits 1.2309.10:9 determine the precoder setting of the transmitter, as defined in 149.3.2.2.20 in the variable precoder\_type while in test mode 3.

Response Response Status C

ACCEPT IN PRINCIPLE.

These lines are removed by comment #124.

CI 45 SC 45.2.1.199 P42 L18 # 166

McClellan, Brett Marvell  
 Comment Type TR Comment Status A Vendor

"The values of the bits in these registers are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages." Identification of the link partner is not defined and is beyond the scope of this specification. I suggest borrowing the text from Clause 55.

**SuggestedRemedy**

change text to "If during Auto-Negotiation both devices agree on the use of the vendor specific messages, they may be used as a communication channel; otherwise the bits are set to zero."

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolved by the response to comment 1, copied below.

In Table 45-3:  
 Change the name of register 1.2316 to "MultiGBASE-T1 user defined data" in subclause 45.2.1.199  
 Change the name of register 1.2317 to "MultiGBASE-T1 link partner user defined data" in subclause 45.2.1.200  
 In 45.2.1.199:  
 Change the title to "MultiGBASE-T1 user defined data register (Register 1.2316)"  
 Change the text to: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45-155f. The values of the bits in this register are outside the scope of this standard."  
 In Table 45-155f:  
 Change the title to: "MultiGBASE-T1 user defined data register bit definitions"  
 Change the Name to: "MultiGBASE-T1 user defined data"  
 Change the Description to: "16 bits of vendor specific data that the PHY sends to its link partner"  
 Delete the last row of the table.  
 Change footnote a to "R/W = Read/Write"  
 In 45.2.1.199.1:  
 Change the title to: "PHY vendor specific data (1.2316.15:0)"  
 Change text to: "Bits 1.2316.15:0 contain vendor specific data that the PHY may communicate to its link partner during training."  
 Delete 45.2.1.199.2  
 Create a new level 4 subclause:  
 "45.2.1.200 MultiGBASE-T1 link partner user defined data register (Register 1.2317)" with text:  
 "The assignment of bits for the MultiGBASE-T1 link partner user defined data register is shown in Table 45-155g. The values of the bits in this register are outside the scope of this standard."  
 Create Table 45-155g with title "MultiGBASE-T1 link partner user defined data register bit definitions" and a row with Name entry for 1.2317.15:0 is "Link partner PHY vendor specific

data", Description is "16 bits of vendor specific data that the PHY may receive from its link partner", R/W is "RO", and footnote a is "RO = Read only"  
 Create a new level 5 subclause:  
 "45.2.1.200.1 Link partner PHY vendor specific data (1.2317.15:0)" with text "Bits 1.2317.15:0 contain vendor specific data that the PHY may receive from its link partner during training."

CI SC 45.2.1.199 P42 L28 # 167

McClellan, Brett Marvell  
 Comment Type TR Comment Status A Vendor

The use of the vendor specific messages is beyond the scope of this standard, so why is there a restriction that they may only be used by devices from the same vendor?

**SuggestedRemedy**

lines 28 and 31  
 delete 'when the link partner is from the same vendor '

Response Response Status C

ACCEPT IN PRINCIPLE.

This text is removed as rewritten by comment #1.

CI 149 SC 149.4.2.4.5 P L # 168

Razavi, Alireza Aquantia  
 Comment Type E Comment Status R EZ

**SuggestedRemedy**

Response Response Status C

REJECT.

empty comment

Cl 149 SC 149.4.2.4.10 P147 L35 # 169

Razavi, Alireza Aquantia

Comment Type T Comment Status A Startup / late

To ensure interoperability during the training phase, certain timing allocations between Master, Slave and other steps of training must be observed. We propose to the text of 802.3bz for interoperability and just scale the timing of 10G mode and deduct the timing for PCS\_TEST that is set by min\_wait\_timer.

SuggestedRemedy

tModify Figure 149\_33 as attached and Include the associated Table 145.15 in section 149.4.2.4.10 page 147, line 35 to read as follows

MASTER SLAVE MAX REQUIRED TIME

MASTER	SLAVE	MAX REQUIRED TIME
Traning	Silent	40.00 msec
Training	Training	57.02 msec
PCS Test	PCS Test	0.98 msec
TOTAL		98.00 msec

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

Implement the changes defined on slide 5 of zimmerman\_3ch\_01b\_0919.pdf, with editorial license to conform to IEEE 802.3 stlye.

Editorial license to add necessary PICS.

Cl 45 SC 45.2.1.194.1 P38 L42 # 170

Wienckowski, Natalie General Motors

Comment Type E Comment Status A late

This comment is "OOS"; however, the change should be made to make the draft consistent. InfoField is the name for the set of bytes used to indicate the PHY capability; however, the capitalization is not consistent in the draft.

SuggestedRemedy

Make the following changes:  
P38 L42, P39 L50, and P147 L31 - Change: Infocfields  
To: the InfoField

P78 L29, P91 L31, and P144 L11 - Change: Infocfield  
To: InfoField

P177 L16 - Change: infocfield  
To: InfoField

Response Response Status C

ACCEPT IN PRINCIPLE.

Make the following changes:  
In 1.4.289 add statement to the effect that Clause 149 uses a 12 octet Infocfield

Change all instances of "infocfield" with any capitalization to be "Infocfield" throughout the P802.3ch draft.