

CI **FM** SC **FM** P1 L26 # 164
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **E** Comment Status **D** Editorial

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

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Make the change as proposed. In addition, Add the abstract of cg on page 10 between cd and ch.

Text to add:

IEEE Std802.3cgTM-20xx

This amendment to IEEE Std 802.3-2018 specifies additions and appropriate modifications to add 10 Mb/s Physical Layer (PHY) specifications and management parameters for operation, and associated optional provision of power, over a single balanced pair of conductors.

CI **FM** SC **FM** P2 L1 # 163
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **E** Comment Status **D** Editorial

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

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI **FM** SC **0** P1 L # 175
 den Besten, Gerrit NXP Semiconductors

Comment Type **TR** Comment Status **D** late

The clause title currently reads as: Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED REJECT.

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

CI **FM** SC **0** P2 L3 # 176
 den Besten, Gerrit NXP Semiconductors

Comment Type **ER** Comment Status **D** late

adds point-to-point 2.5 Gb/s Physical Layer (PHY), 5 Gb/s Physical Layer (PHY) and 10 Gb/s Physical Layer (PHY) specifications and management parameters for operation on automotive cabling in an automotive application.

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #164.

CI **FM** SC **0** P21 L27 # 177
 den Besten, Gerrit NXP Semiconductors

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

2018comprehensive

SuggestedRemedy

2018 comprehensive (?)

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

See comment #80.

Cl 00 SC 0 P23 L3 # 109
 McClellan, Brett Marvell
 Comment Type E Comment Status D EZ
 this note wasn't intended to be included in draft 1.0
 SuggestedRemedy
 remove the editor's note. Do the same on page 50 line 3.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 1 SC 1.4 P22 L34 # 108
 McClellan, Brett Marvell
 Comment Type E Comment Status D EZ
 typo
 SuggestedRemedy
 change "of1000" to "of 1000"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 1 SC 1.4.344a P22 L34 # 178
 den Besten, Gerrit NXP Semiconductors
 Comment Type E Comment Status D late
 of1000 Mb/s
 SuggestedRemedy
 of 1000 Mb/s
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See comment #108

Cl 1 SC 1.4.344a P22 L31 # 3
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 IEEE Std 802.3bt-2018 has deleted definition 1.4.294, so the definition for MultiGBASE-T is now 1.4.333
 SuggestedRemedy
 Change the editing instruction to:
 Insert new definition for MultiGBASE-T1 after 1.4.333 MultiGBASE-T (re-numbered from 1.4.334 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:
 Renumber the new definition as 1.4.333a
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 1 SC 1.3 P22 L8 # 1
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 IEC references in the in-force standard have an em dash in front of "Part" with no spaces on either side. This is also true for other "-" separators in the title.
 SuggestedRemedy
 For the IEC reference being added replace " - " before "Part", "Test", and "Triaxial" with an em dash with no spaces before and after.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 1 SC 1.4.344a P22 L34 # 165
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status D EZ
 Missing space "of1000"
 SuggestedRemedy
 Change "of1000" to "of 1000"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 1 **SC 1.4.344a** **P22** **L35** # **101**
 Maguire, Valerie The Siemon Company
Comment Type **E** **Comment Status** **D** **EZ**
 Missing space
SuggestedRemedy
 Replace, "of1000 Mb/s" with "of 1000 Mb/s"
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

Cl 23 **SC 23** **P30** **L3** # **5**
 Anslow, Pete Ciena
Comment Type **E** **Comment Status** **D** **EZ**
 The "Notes for Editors" should not be in the draft
SuggestedRemedy
 Delete the "Notes for Editors"
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 This is actually Clause 30 on page 23.

Cl 1 **SC 1.4.495b** **P22** **L38** # **4**
 Anslow, Pete Ciena
Comment Type **E** **Comment Status** **D** **EZ**
 IEEE Std 802.3bt-2018 has deleted definition 1.4.294, so the definition for Type F PoDL System should be 1.4.494b
SuggestedRemedy
 In the editing instruction change: "1.4.495a" to "1.4.494a"
 Renumber the new definition as 1.4.494b
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

Cl 30 **SC 30** **P23** **L3** # **179**
 den Besten, Gerrit NXP Semiconductors
Comment Type **E** **Comment Status** **D** **late**
 [Notes for editors (not to be included in the published draft - not even D1.0!)]
SuggestedRemedy
 Forgot to delete???
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 See comments #109 and #166.

Cl 1 **SC 1.4.82aa** **P22** **L20** # **2**
 Anslow, Pete Ciena
Comment Type **E** **Comment Status** **D** **EZ**
 IEEE Std 802.3cb-2018 has now been approved.
SuggestedRemedy
 Change all occurrences of "IEEE Std 802.3cb-201x" to "IEEE Std 802.3cb-2018" throughout the draft.
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.

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

Cl 30 **SC 30** **P23** **L3** # **166**
 Zimmerman, George CME:ADI,Aquantia,AP
Comment Type **E** **Comment Status** **D** **EZ**
 "[Notes for editors... (through) ... modified.]" - this note isn't to be included in review drafts, per its text. Also applies to clause 78.
SuggestedRemedy
 Delete "[Notes for editors... modified.]" P23 L3 to 9. Make same deletion in Clause 78, P50.
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 30 SC 30.5.1.1.4 P24 L25 # 126
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D Registers

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 30 SC 30.5.1.1.4 P24 L27 # 167
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D Registers

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Depends upon resolution of Comment #126.

CI 44 SC 44.1.4.4 P29 L10 # 180
 den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

64B/65B PCS

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See comment #128.

CI 44 SC 44.1.4.4 P29 L44 # 181
 den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

on a single

SuggestedRemedy

over a single

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Change: for transmission on a single
 To: for transmission over a single

CI 44 SC 44.1.3 P27 L54 # 127
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D Clause 44

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 44 SC 44.1.4.4 P29 L19 # 128
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D Clause 44

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 44 SC 44.1.4.4 P29 L26 # 81
Wienckowski, Natalie General Motors

Comment Type E Comment Status D EZ

Incorrect line width on bottom of 10GBASE-CX4/68 cell.

SuggestedRemedy

Fix line width to match the rest of the table.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 44 SC 44.1.3 P27 L50 # 110
McClellan, Brett Marvell

Comment Type T Comment Status D Clause 44

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE. Clause 125 shows all XGMII interfaces as optional. Change Figure 44-1 to show all XGMII optional to match Clause 125. Otherwise, it may appear that XGMII is mandatory for 10G but is not for 2.5G and 5G.

CI 45 SC 45.2.1.192.1 P33 L16 # 182
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

1.2309.10:9

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED REJECT.

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

CI 45 SC 45.2.1.192.1 P33 L30 # 183
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

Does a reset time of 0.5sec make sense given that the link start-up time should be within 100ms

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED REJECT.

A hard reset time of 0.5s is standard for ethernet PHYs in 802.3. Since that bit is a copy of a standard bit, which already has the reset time defined, changing the requirement for response would be problematic.

This is the same value as for 1000BASE-T1.

CI 45 SC 45.2.1.192.3 P34 L5 # 184
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

"The data path of the MultiGBASE-T1 PMA, depending on type and temperature, may take many seconds to run at optimum error ratio after exiting from reset or lowpower mode."

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 See comment #82.

CI 45 SC 45.2.1.194.1 P36 L9 # 185
 den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

R.W

SuggestedRemedy

R/W

Proposed Response Response Status W

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

CI 45 SC 45.2.1.194.4 P36 L40 # 186
 den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

up..

SuggestedRemedy

up.

Proposed Response Response Status W

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

CI 45 SC 45.2.1.197 P38 L20 # 187
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

TFTD

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

CI 45 SC 45.2.1.198 P38 L27 # 188
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

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

SuggestedRemedy

See previous comment

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Previous comment is #187

TFTD

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

CI 45 SC 45.2.1.199 P38 L34 # 189
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

This fine-grained signal power resolution seems overdone.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED REJECT.

The resolution and range of measurement should be discussed. The resolution used here is the same used in all the MultiGBASE-T power registers for reporting. The allowed range of transmit power is usually only 2 dB in the MultiGBASE-T PHYs, making 0.5 dB steps quite coarse. Currently there is only an upper bound on transmit power in 149.5.2.4, which makes it difficult to provide interoperable noise immunity. comments are invited to provide a lower bound in 149.5.2.4.

CI 45 SC 45.2.3.72.2 P40 L31 # 190
den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

Was BASE-T1 intentionally strikes through here?

SuggestedRemedy

Proposed Response Response Status W

PROPOSED REJECT.

Not a comment.

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

CI 45 SC 45.2.3.73 P41 L5 # 193
den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

"the remaining 4 octets are"

SuggestedRemedy

Replace by "there are 4 additional octets"

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #87.

CI 45 SC 45.2.3.73 P41 L6 # 191
den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

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

SuggestedRemedy

Should be 3.2318 and 2319

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #87.

CI 45 **SC 45.2.3.74** **P41** **L40** # **192**
den Besten, Gerrit NXP Semiconductors

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

This bit shall self clear when register 3.2317 is read.

SuggestedRemedy

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

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

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

CI 45 **SC 45.2.3.75** **P42** **L41** # **195**
den Besten, Gerrit NXP Semiconductors

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

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

SuggestedRemedy

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

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

This is for existing text in Clause 45. Removing the redundant text requires a Maintenance request which George Zimmerman will enter.

CI 45 **SC 45.2.3.75** **P42** **L41** # **194**
den Besten, Gerrit NXP Semiconductors

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

"the remaining 4 octets are"

SuggestedRemedy

Replace by "there are 4 additional octets"

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #87.

CI 45 **SC 45.2.3.77** **P43** **L48** # **196**
den Besten, Gerrit NXP Semiconductors

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

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

SuggestedRemedy

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

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #86.

CI 45 **SC 45.2.3.78** **P44** **L21** # **198**
den Besten, Gerrit NXP Semiconductors

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

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

SuggestedRemedy

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

Proposed Response **Response Status** **W**

PROPOSED REJECT.

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

CI 45 SC 45.2.3.78.1 P44 L44 # 197
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED REJECT.

A hard reset time of 0.5s is standard for ethernet PHYs in 802.3. Since that bit is a copy of a standard bit, which already has the reset time defined, changing the requirement for response would be problematic.

CI 45 SC 45.2.1 P31 L8 # 6
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1 P31 L17 # 7
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

Remove the underline from the rows for registers 1.2309 to 1.2316

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1 P31 L25 # 8
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1 P31 L29 # 130
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D EZ

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

SuggestedRemedy

Change to cross-ref for 45.2.1.198

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1 P31 L29 # 84
Lo, William Axonne Inc.

Comment Type E Comment Status D EZ

45.2.1.1988 should be 45.2.1.198

SuggestedRemedy

See comment

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 **SC 45.2.1** **P31** **L32** # 129

Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **E** **Comment Status** **D** **EZ**

"2317through 1.32767" missing space

SuggestedRemedy
Change "2317through" to "2317 through"

Proposed Response **Response Status** **W**
PROPOSED ACCEPT.

CI 45 **SC 45.2.1.18** **P32** **L10** # 131

Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **T** **Comment Status** **D** **Registers**

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

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

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

Add 45.2.1.18.1aa and 45.2.2.18.1ab as suggested.

CI 45 **SC 45.2.1.185** **P32** **L29** # 9

Anslow, Pete Ciena

Comment Type **E** **Comment Status** **D** **EZ**

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

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

Proposed Response **Response Status** **W**
PROPOSED ACCEPT.

CI 45 **SC 45.2.1.185.2** **P32** **L39** # 10

Anslow, Pete Ciena

Comment Type **E** **Comment Status** **D** **EZ**

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

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

Proposed Response **Response Status** **W**
PROPOSED ACCEPT.

CI 45 **SC 45.2.1.192** **P32** **L45** # 11

Anslow, Pete Ciena

Comment Type **E** **Comment Status** **D** **EZ**

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

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

Proposed Response **Response Status** **W**
PROPOSED ACCEPT.

Cl 45 SC 45.2.1.192 P32 L48 # 12
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 45 SC 45.2.1.192 P33 L11 # 13
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

In the left hand column of Table 45-155a, "1.2309.13:12" should not wrap across two lines

SuggestedRemedy

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

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 45 SC 45.2.1.192.1 P33 L16 # 172
Wienckowski, Natalie General Motors

Comment Type E Comment Status D late

Typo in register number

SuggestedRemedy

Change 1.2304.10:9 to 1.2309.10:9

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 45 SC 45.2.1.192.1 P33 L32 # 132
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 45 SC 45.2.1.192.1 P33 L35 # 14
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

Notes should have paragraph tag "Note" applied

SuggestedRemedy

Apply paragraph tag "Note" to the note.

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 45 SC 45.2.1.192.3 P34 L2 # 15
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

Fix the formatting at the top of page 34

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.2.1.192.3 P34 L5 # 82
 Wienckowski, Natalie General Motors

Comment Type T Comment Status D EEE

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

SuggestedRemedy

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

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.192.4 P34 L12 # 16
 Anslow, Pete Ciena

Comment Type E Comment Status D Precoder

In the heading of 45.2.1.192.4, "(1.2309.14)" should be "(1.2309.10:9)"

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 This is covered by Comment #85.

CI 45 SC 45.2.1.192.4 P34 L12 # 85
 Lo, William Axonne Inc.

Comment Type T Comment Status D Precoder

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

There is also a wrong register reference.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.192.4 P34 L14 # 133
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D EZ

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

SuggestedRemedy

Make "149.3.2.2.19" an active cross reference

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.192.4 P34 L14 # 17
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 "149.3.2.2.19" should be a cross-reference
 SuggestedRemedy
 Make "149.3.2.2.19" a cross-reference
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.1.193.4 P35 L23 # 19
 Anslow, Pete Ciena
 Comment Type E Comment Status D Editorial
 "either bit 1.2318.11 or bit 1.0.11" should be "either bit 1.2309.11 or bit 1.0.11"
 SuggestedRemedy
 Change "1.2318.11" to "1.2309.11"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.1.193 P34 L31 # 18
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 In Table 45-155b, "MultiGBASE-T1 OAM Ability" should not have a capital A in Ability
 SuggestedRemedy
 Change to "MultiGBASE-T1 OAM ability" as per the heading of 45.2.1.193.1
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.1.194 P35 L48 # 20
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 Double full stop ".."
 SuggestedRemedy
 Delete one "."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.1.193 P34 L48 # 134
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Registers
 Receive fault should be latching high to be useful. 802.3cg d2p2 made this change and it survived comment resolution.
 SuggestedRemedy
 Change R/W entry for 1.2310.1 to be RO/LH, add "LH = Latching High" to footnote a, and add "The receive fault bit shall be implemented with latching high behavior." to the end of the paragraph in 45.2.1.193.6 (P35 L37).
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.1.194 P36 L1 # 135
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status D Editorial
 Table 45-155c has the wrong title "1000BASE-T1" should be "MultiGBASE-T1" same for Table 45-155d in 45.2.1.195
 SuggestedRemedy
 Change "1000BASE-T1" to "MultiGBASE-T1" on both Table 45-155c and Table 45-155d titles
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.1.194 P36 L5 # 91
Lo, William Axonne Inc.

Comment Type T Comment Status D Interleave

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

SuggestedRemedy

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

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

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
x will be 1 and all other subclauses of 45.2.1.194 and 45.2.1.195 will be incremented.
In addition to the proposed text in the Suggested Remedy, add the following additional text in 45.2.1.194.1 45.2.1.195.1: Note, these bits are unused for 2.5GBASE-T1. For 2.5GBASE-T1 1.2311.12:11 shall be set to 00.
and 45.2.1.195.1: Note, these bits are unused for 2.5GBASE-T1. For 2.5GBASE-T1 1.2312.12:11 shall be ignored and interleaving shall be 1.

CI 45 SC 45.2.1.194.2 P36 L24 # 92
Lo, William Axonne Inc.

Comment Type E Comment Status D Editorial

Grammar is a bit confusing.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.195 P36 L45 # 21
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

Double full stop ".."

SuggestedRemedy

Delete one "."

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.195.2 P37 L24 # 93
Lo, William Axonne Inc.

Comment Type E Comment Status D Editorial

Grammar is a bit confusing.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.196.1 P37 L48 # 22
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

In the heading of 45.2.1.196.1, "(1.2315.15:13)" should be "(1.2313.15:13)"

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.196.1 P38 L5 # 23
Anslow, Pete Ciena

Comment Type T Comment Status D Registers

In Table 45-155e, the Test mode control bits should be R/W

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.197 P38 L21 # 24
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

IEEE uses an en-dash as a minus sign and also it should not be on a different line from the number.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.198 P38 L28 # 25
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

IEEE uses an en-dash as a minus sign

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.199 P38 L32 # 26
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

it is preferable to use "Rx" rather than "RX" to be an abbreviation of receiver.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.1.199 P38 L31 # 111
McClellan, Brett Marvell

Comment Type T Comment Status D Registers

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

SuggestedRemedy

Delete clause 45.2.1.199 and remove references to register 1.2316.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.3 P38 L44 # 27
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.3 P38 L47 # 174
Wienckowski, Natalie General Motors

Comment Type E Comment Status D late
Editor's note for content added in D1.0 needs to be removed.

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

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.2.3 P39 L9 # 28
Anslow, Pete Ciena

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

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

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

CI 45 SC 45.2.3 P39 L10 # 32
Anslow, Pete Ciena

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

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

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

CI 45 SC 45.2.3 P39 L14 # 29
Anslow, Pete Ciena

Comment Type E Comment Status D EZ
The subclause column of Table 45-176 is missing cross-references to 45.2.3.76 through 45.2.3.80 in the inserted rows

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

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.2.3 P39 L14 # 136
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D OAM

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

SuggestedRemedy

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

Proposed Response Response Status W

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

CI 45 SC 45.2.3 P39 L20 # 30
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.3 P39 L21 # 31
Anslow, Pete Ciena

Comment Type E Comment Status D EZ

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

SuggestedRemedy

Replace the last row with "..."

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.3 P43 L1 # 112
McClellan, Brett Marvell

Comment Type E Comment Status D Editorial

missing editorial instructions for table 45-244

SuggestedRemedy

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

Proposed Response Response Status W

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

CI 45 SC 45.2.3.73 P41 L1 # 87
Lo, William Axonne Inc.

Comment Type T Comment Status D OAM

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

SuggestedRemedy

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

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

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

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 45 SC 45.2.3.73 P41 L6 # 33
 Anslow, Pete Ciena
 Comment Type E Comment Status D OAM
 "contained in registers 3.2328 and 3.2329" should be "contained in registers 3.2318 and 3.2319"
 SuggestedRemedy
 Change "3.2328 and 3.2329" to "3.2318 and 3.2319"
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See Comment #87.

CI 45 SC 45.2.3.73 P41 L6 # 137
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D OAM
 "the remaining 4 octets are contained in registers" isn't really complete - this is the 4 octets of the OAM status message defined in 149.3.8.2.12. The same comment applies to 45.2.3.75 (P42 L41).
 SuggestedRemedy
 Change "the remaining 4 octets are contained" to "the 4 octets of the OAM status message defined in 149.3.8.2.12 are contained in" in both 45.2.3.73 and 45.2.3.75
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See Comment #87.

CI 45 SC 45.2.3.74.1 P42 L20 # 86
 Lo, William Axonne Inc.
 Comment Type T Comment Status D OAM
 This comment affects 45.2.3.74.1 and 45.2.3.77
 The paragraph from 1000BASE-T1 in 45.2.3.74.1 also applies to Multigig.
 The new text inserted is not correct as registers 3.2320 to 3.2321 are always updated independent of the messaging process.
 SuggestedRemedy
 45.2.3.74.1:
 Delete: for 1000BASE-T1 and shall self-clear when register 3.2321 is read for MultiGBASE-T1 PHYs
 45.2.3.77:
 Delete:
 For MultiGBASE-T1 PHYs, register 3.2313.15 shall be cleared when register 3.2321 is read.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.3.76 P43 L31 # 34
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 In Table 45-244a, the "Name" column has unnecessary line wraps.
 SuggestedRemedy
 Increase the width of the "Name" column and decrease the width of the "Description" column to remove the line wraps
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.3.77 P43 L47 # 35
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 "MultiGBASE-T1" should not split across two lines
 SuggestedRemedy
 Replace the hyphen with a non-breaking hyphen [Esc - h (three key presses)]
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.3.78.1 P44 L47 # 36
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ
 Notes should have paragraph tag "Note" applied
 SuggestedRemedy
 Apply paragraph tag "Note" to the note.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.3.80 P46 L44 # 207
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D late
 Incorrect Register number in Table 45-244e
 SuggestedRemedy
 In table 45-244e, change 3.2306.x to 3.2324.x in all rows.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 45 SC 45.2.3.80 P47 L10 # 138
Zimmerman, George CME:ADI,Aquantia,AP

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

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

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.2.3.80.2 P47 L23 # 37
Anslow, Pete Ciena

Comment Type E Comment Status D EZ
IEEE uses an en-dash as a minus sign

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

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.2.9.2.7 P48 L35 # 38
Anslow, Pete Ciena

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

SuggestedRemedy
Change "Change Section 45.2.9.2.7(as..." to "Change 45.2.9.2.7 (as..."

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.2.9.3.2 P48 L50 # 39
Anslow, Pete Ciena

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

SuggestedRemedy
Change "Change Section 45.2.9.3.2(as..." to "Change 45.2.9.3.2 (as..."

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 45 SC 45.5.3 P49 L25 # 139
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D PICS
Add 45.5.3 PICS for clause 45 to the draft

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

Proposed Response Response Status W
PROPOSED ACCEPT.

CI 78 SC 78.2 P50 L49 # 199
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late
What is the tolerance on these time values? There is zero margin between min and max.

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Jim Graba confirmed during D1.0 creation that these should be the same value.
"In 802.3bp we started Sleep if the last 80B/81B block in a frame was an LPI control
character. This was William Lo's innovation 4 years ago. It reduced LPI chattering. Then Ts
min and max are equal. See 802.3bp (1000BASE-T1) table 78-2."

I carried this forward to 802.3ch. So yes this means Ts min and max are equal.

However, Tq is not the same for both values for 1000BASE-T1.

CI 78 SC 78.2 P50 L49 # 124
 Benyamin, Saied Aquantia
 Comment Type TR Comment Status D EEE

SuggestedRemedy

2.5GBase-T1 Min/Max should both be 10.24

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

In Table 78-2 swap the Min and Max Ts values for 2.5GBASE-T1 and 10GBASE-T1.

CI 78 SC 78.2 P51 L12 # 125
 Benyamin, Saied Aquantia
 Comment Type TR Comment Status D EEE

SuggestedRemedy

10GBaes-T1 Min/Max should both be 2.56

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See comment 124.

CI 78 SC 78.3 P51 L17 # 40
 Anslow, Pete Ciena
 Comment Type E Comment Status D EZ

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

SuggestedRemedy

Delete "section" here and on line 22

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 78 SC 78.3 P51 L20 # 140
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status D Editorial

Proper advertisement cross reference will be 149.4.2.4.5

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Update Section, remove highlighting, and make a cross reference.

CI 97 SC 97.3.8.3 P52 L9 # 141
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status D OAM

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 104 SC 104.1.3 P55 L10 # 142
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D PoDL

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

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

Cl 104 **SC 104.9** **P57** **L36** # **143**
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **E** **Comment Status** **D** **PICS**
 Need PICS for clause 104

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

Cl 125 **SC 125.1.4** **P60** **L30** # **200**
 den Besten, Gerrit NXP Semiconductors

Comment Type **T** **Comment Status** **D** **late**
 "using 64B/65B encoding"

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.

See Comment #145.

Cl 125 **SC 125.1.4** **P60** **L38** # **201**
 den Besten, Gerrit NXP Semiconductors

Comment Type **T** **Comment Status** **D** **late**
 "using 64B/65B encoding"

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.

See Comment #145.

Cl 125 **SC 125.1** **P59** **L15** # **144**
 Zimmerman, George CME:ADI,Aquantia,AP

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

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.
 Have found 2 volunteers to "fuss" with all figures to get them lined up for D1.1.

Cl 125 **SC 125.1.2** **P59** **L49** # **83**
 Wienckowski, Natalie General Motors

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

SuggestedRemedy
 Remove " - Part 1 of 2".

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

Cl 125 **SC 125.1.4** **P60** **L19** # **113**
 McClellan, Brett Marvell

Comment Type **E** **Comment Status** **D** **EZ**
 unnecessary period

SuggestedRemedy
 change ":" to "."

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 125 SC 125.1.4 P60 L31 # 145
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D Editorial

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 125 SC 125.1.4 P61 L18 # 146
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D EZ

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 125 SC 125.2.2 P61 L31 # 114
 McClellan, Brett Marvell

Comment Type E Comment Status D Editorial

125.5.2 should be 125.2.2

SuggestedRemedy

change "125.5.2" to "125.2.2"

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.1.3.1 P65 L22 # 202
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

The wording is correct as is (because it goes on to say "and groups two of them"), but is awkward. Use the wording from clause 126 in 802.3-2018. Change "In the transmit direction, in normal mode, the PCS receives four XGMII data octets provided by two transfers on the XGMII service interface on TXD<31:0>, and groups two of them into 64-bit blocks (eight octets)." to "In the transmit direction, in normal mode, the PCS receives eight XGMII data octets provided by two consecutive transfers on the XGMII service interface on TXD<31:0> and groups them into 64-bit blocks with the 64-bit block boundaries aligned with the boundary of the two XGMII transfers."

CI 149 SC 149.1.3.4 P66 L50 # 203
 den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D late

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

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

TFTD. Text is copied from Clause 97.

CI 149 SC 149.1.5 P67 L35 # 204
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status D late

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED REJECT.

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

CI 149 SC 149.1 P63 L18 # 147
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D Editorial

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.1 P63 L20 # 148
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D Editorial

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

SuggestedRemedy

Change "this clause" to a cross reference to 149.7

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.1.3 P63 L46 # 149
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D EZ

Spaces between numbers and units should be non-breaking.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.1.3 P63 L53 # 150
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status D EZ

Space missing "equal to10"

SuggestedRemedy

Change "equal to10" to "equal to 10"

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 **SC 149.1.3** **P64** **L1** # **43**
 Tu, Mike Broadcom

Comment Type **T** **Comment Status** **D** **Interleave**
 Interleaving may be needed to achieve target BER performance

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 149 **SC 149.1.3** **P64** **L15** # **151**
 Zimmerman, George CME:ADI,Aquantia,AP

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

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 149 **SC 149.1.3** **P64** **L45** # **152**
 Zimmerman, George CME:ADI,Aquantia,AP

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

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 149 **SC 149.1.3** **P65** **L11** # **42**
 Tu, Mike Broadcom

Comment Type **T** **Comment Status** **D** **Overview**
 Insert a figure for "Functional block diagram", similar to Figure 97-2 and Figure 126-3.

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

Proposed Response **Response Status** **W**
 PROPOSED ACCEPT.

CI 149 SC 149.1.3.1 P65 L25 # 44
 Tu, Mike Broadcom

Comment Type E Comment Status D Interleave
 Interleaving should be mentioned here as well.

SuggestedRemedy

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

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.1.3.3 P66 L22 # 118
 Benjamin, Saied Aquantia

Comment Type TR Comment Status D Alert

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.1.3.3 P66 L31 # 119
 Benjamin, Saied Aquantia

Comment Type TR Comment Status D Alert

SuggestedRemedy

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.1.4 P67 L20 # 46
 Tu, Mike Broadcom

Comment Type TR Comment Status D Overview
 EEE support is optional

SuggestedRemedy

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

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

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.2 P68 L11 # 88
 Lo, William Axonne Inc.

Comment Type E Comment Status D Editorial
 Incorrect reference

SuggestedRemedy

Clause 28 should be 98.4

Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.2.2.1.1 P70 L1 # 89
 Lo, William Axonne Inc.

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

SuggestedRemedy

Delete the description on SEND_I

Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See comment #47

CI 149 SC 149.2.2.1.1 P70 L1 # 47
 Tu, Mike Broadcom

Comment Type TR Comment Status D PMA

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

SuggestedRemedy

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

Proposed Response Response Status W

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

CI 149 SC 149.2.2.3.1 P71 L46 # 50
 Tu, Mike Broadcom

Comment Type ER Comment Status D PMA

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

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.3.2 P77 L4 # 48
 Tu, Mike Broadcom

Comment Type TR Comment Status D PCS

Figure 149-3 PCS reference diagram need to be revised:

1. OAM is not shown in the figure
2. link_status is missing
3. rx_symb_vector should be rx_symb
4. tx_symb_vector should be tx_symb

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.3.2.2 P59 L1 # 120
 Benyamin, Saied Aquantia

Comment Type TR Comment Status D Interleave

SuggestedRemedy

Remove 8 from the list of possible interleave options

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 See comment #49.

CI 149 SC 149.3.2.2 P78 L25 # 90
 Lo, William Axonne Inc.

Comment Type T Comment Status D PCS

Equation has rounding error.

SuggestedRemedy

change $177.8 / S$ ps to $1 / (5.625 \times S)$ ps

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.3.2.2 P79 L1 # 71
 Wienckowski, Natalie General Motors

Comment Type T Comment Status D Interleave

Agreed the only inerleavers to be used are 1, 2 and 4.

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
 See comment #49.

CI 149 SC 149.3.2.2 P79 L1 # 49
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **D** Interleave

Supported interleaving depths depend on the PHY speed.

SuggestedRemedy

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

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

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 Make Suggested Remedy and remove highlighting.

CI 149 SC 149.3.2.2.4 P80 L13 # 94
 Lo, William Axonne Inc.

Comment Type **T** Comment Status **D** Editorial

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

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 149 SC 149.3.2.2.14 P84 L54 # 95
 Lo, William Axonne Inc.

Comment Type **T** Comment Status **D** PCS

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

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 Update Figure 149-7 as suggested.
 See comment #115.

CI 149 SC 149.3.2.2.14 P85 L10 # 98
 Lo, William Axonne Inc.

Comment Type **T** Comment Status **D** PCS

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

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 See comment #115.

CI 149 SC 149.3.2.2.14 P85 L49 # 115
 McClellan, Brett Marvell

Move 149.3.2.2.14 after 149.3.2.2.15..
 Also resolves #95 & #98

Comment Type T Comment Status D PCS

does not actually show the scrambler implementation leaving it subject to interpretation. Further despite the title indicating 'PSC scramblers' the diagram shows functions outside of the scrambler including gray mapping, precoder, PAM2 mapping and PAM4 mapping. The mapping for PAM2 is incorrect, refer to 149.3.4 which is consistent with other BASE-T devices.

An additional issue is that the text and equations of 149.3.2.2.14 duplicate existing text and equations in 149.3.4.

Finally, the data scrambler description should appear after the RS-FEC section.

SuggestedRemedy

Delete figure 147-7.

replace the text of 149.3.2.2.14 with the following:

"The payload of the PCS PHY frame tx_encoded<3599:0> is scrambled to tx_scrambled<3599:0> with an additive scrambler. Two scrambler bits per symbol are generated from the side-stream scrambler defined in 149.3.4. The first (LSB) bit is DS_n[0] equal to Scr_n[0] defined in 149.3.4. The second (MSB) bit is DS_n[0] equal to Scr_n[3] XOR Scr_n[8].

DS_n[0] and DS_n[1] are applied as additive scrambler sequences to incoming data bits D_n[0] (LSB) and DS_n[1] (MSB) to generate two scrambled data bits {A, B} as follows:

$$A = DS_n[0] \text{ XOR } D_n[0]$$

$$B = DS_n[1] \text{ XOR } D_n[1]$$

(_n denotes subscript)

Move 149.3.2.2.14 after 149.3.2.2.15.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Keep figure 147-7. Label scr n,0 as "A" and label scr n, as "B".

replace the text of 149.3.2.2.14 with the following:

"The payload of the PCS PHY frame tx_encoded<3599:0> is scrambled to tx_scrambled<3599:0> with an additive scrambler. Two scrambler bits per symbol are generated from the side-stream scrambler defined in 149.3.4. The first (LSB) bit is DS_n[0] equal to Scr_n[0] defined in 149.3.4. The second (MSB) bit is DS_n[0] equal to Scr_n[3] XOR Scr_n[8].

DS_n[0] and DS_n[1] are applied as additive scrambler sequences to incoming data bits D_n[0] (LSB) and DS_n[1] (MSB) to generate two scrambled data bits {A, B} as follows:

$$A = DS_n[0] \text{ XOR } D_n[0]$$

$$B = DS_n[1] \text{ XOR } D_n[1].$$

See Figure 149-7."

(_n denotes subscript)

CI 149 SC 149.3.2.2.16 P86 L12 # 51

Tu, Mike Broadcom

Comment Type TR Comment Status D PCS

Wrong indices in Equation 149-3

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Also see comment #96.

Is highest number 33 or 34?

CI 149 SC 149.3.2.2.16 P86 L22 # 52

Tu, Mike Broadcom

Comment Type TR Comment Status D PCS

Wrong indices in Equation 149-4

SuggestedRemedy

Change from: "... + m1 x^36 + m0 x^35"

To "... + m1 x^35 + m0 x^34".

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.3.2.2.16 P86 L32 # 53

Tu, Mike Broadcom

Comment Type ER Comment Status D Editorial

I think the correct name is "tx_oam_field<9:0>"?

SuggestedRemedy

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

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.3.2.2.16 P87 L6 # 96
 Lo, William Axonne Inc.
 Comment Type T Comment Status D PCS
 Incorrect index in Figure 149-8
 SuggestedRemedy
 g32 should be g33
 g33 should be g34
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Also see comment #51.
 Is highest number 33 or 34?

CI 149 SC 149.3.2.2.17 P89 L31 # 45
 Tu, Mike Broadcom
 Comment Type TR Comment Status D Interleave
 In Figure 149-9, certain indices of the input and output sequences are incorrect.
 SuggestedRemedy
 For "RS Encoder #L" input,
 Change from: "m_{326xL}, m_{325xL}, ..., m_L"
 To: "m_{325xL}, m_{324xL}, ..., m_0".
 For "RS Encoder #L" output,
 Change from: "m_{326xL}, m_{325xL}, ..., m_L, p_{L,33}, ..., p_{L,0}"
 To: "m_{325xL}, m_{324xL}, ..., m_0, p_{L,33}, ..., p_{L,0}"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.3.2.2.17 P89 L32 # 97
 Lo, William Axonne Inc.
 Comment Type T Comment Status D Interleave
 Indexing incorrect in Figure 149-9 for Encoder #L
 SuggestedRemedy
 Change m326xL, m325xL, ..., mL
 (2 instances to the left and right of the encoder #L) to
 m325xL, m325xL, ..., m0
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

See commen #45 for resolution.

CI 149 SC 149.3.2.3 P92 L8 # 206
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D late
 LATE COMMENT - Informative descriptive text for the PCS Receive function is listed as
 "TBD"
 SuggestedRemedy
 Replace line 8 "Normal PCS Receive function operation TBD." with text in
 zimmerman_3ch_01_0119.pdf. Editorial license to highlight or remove highlighting, and
 adjust text per other decisions in this meeting.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.3.2.3.1 P92 L27 # 54
 Tu, Mike Broadcom
 Comment Type TR Comment Status D PCS
 Use 97.3.2.3.1 as baseline text.
 SuggestedRemedy
 Change to:
 " When operating in the data mode, the receiving PCS shall form a PAM4 stream from the
 PMA_UNITDATA.indication primitive by concatenating requests in order from rx_PAM4_0
 to rx_PAM4_1799 (see Figure 149-5). It obtains block lock to the PHY frames during the
 PAM2 training pattern using synchronization bits provided in the training sequence.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.3.2.3.3 P92 L39 # 116
 McClellan, Brett Marvell
 Comment Type T Comment Status D PCS
 missing list of conditions for invalid blocks
 SuggestedRemedy
 change "A block is invalid if any of the following conditions exists:
 LIST"
 to
 "A block is invalid if any of the following conditions exists:
 a) The block type field contains a reserved value.
 b) Any control character contains a value not in Table 149-1.
 c) Any O code contains a value not in Table 149-1.
 d) The block contains information from the payload of an invalid RS-FEC frame.
 The PCS Receive function shall check the integrity of the RS-FEC parity bits defined in
 149.3.2.2.15. If the
 check fails the RS-FEC frame is invalid.
 R_BLOCK_TYPE of an invalid block is set to E."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.3.3 P92 L47 # 70
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D EZ
 "Annex 149-4" link to Figure 149-4 doesn't belong.
 SuggestedRemedy
 Delete "Annex 149-4".
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.3.4.1 P93 L41 # 168
 WU, Peter Marvell
 Comment Type TR Comment Status D Partial Frame
 The RS code changed to RS(360, 326) 2^10 the frame size is 1800 symbols, all the
 paragraph needs to be rewritten
 SuggestedRemedy
 See the attached text and equation: During PMA training, the training pattern is embedded
 with indicators to establish alignment to the RS-FEC block and the 1015 partial PHY
 frames that comprise the block. The last partial PHY frame is embedded with an
 information field used to exchange messages between link partners. PMA training signal
 encoding is based on the generation, at time n, of the bit S_n. The first bit is inverted in the
 first 914 partial PHY frames of each RS-FEC block. The first 96 bits of the 105th partial
 PHY frame is XORed with the contents of the InfoField. Each partial PHY frame is 180 bits
 long, beginning at S_n where (n mod 180) = 0. See Equation (149- 8).

$$S_n = \begin{cases} \{ \text{InfoField} \oplus \text{Scr}_n \} & \text{if } (n \bmod 180) = 0 \\ \text{Scr}_n & \text{otherwise} \end{cases}$$

 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See comment #56

CI 149 SC 149.3.4.1 P93 L43 # 55
 Tu, Mike Broadcom
 Comment Type TR Comment Status D Partial Frame
 Need to determine the number of partial frames.
 SuggestedRemedy
 Adopt recommended changes as shown on page 4 of "tu_3ch_01_0119.pdf".
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.4.1 P93 L47 # 117
 McClellan, Brett Marvell
 Comment Type T Comment Status D Partial Frame
 The RS-FEC block is 3600 bits, if there are 15 partial frames then each partial frame is 240 bits.
 SuggestedRemedy
 Change 180 to 240. Make the same change on page 94 lines 2 & 3.
 on page 94 line 2: change 2520 to 3360, 2615 to 3455, 2700 to 3600
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See comment #55

Cl 149 SC 149.3.4.1 P94 L2 # 56
 Tu, Mike Broadcom
 Comment Type TR Comment Status D Partial Frame
 Equation 149-8 is incorrect
 SuggestedRemedy
 Adopt recommended changes as shown on page 4 of "tu_3ch_01_0119.pdf".
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.4.2 P94 L9 # 57
 Tu, Mike Broadcom
 Comment Type TR Comment Status D PAM2
 According to Motion #4 passed in Bangkok, PAM2 mapping is: 0 -> -1, and 1 -> +1. See
 "http://www.ieee802.org/3/ch/public/nov18/souvignier_3ch_05b_1118.pdf" page 3.
 SuggestedRemedy
 Need advices from chair and editor:
 Option #1: Change "if Sn = 0 then Tn = +1, if Sn = 1 then Tn = -1" to "if Sn = 0 then Tn = -1, if Sn = 1 then Tn = +1".
 Option #2: Keep the current text as is, if the TF agree to define PAM2 mapping.
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Motion #7 from Sept, 2018 "Move to adopt PAM2 as the modulation for training and the training side-stream scrambler polynomials from 97.3.4 (same as Clause 55)". 97.3.4.2 has "if Sn = 0 then Tn = +1, if Sn = 1 then Tn = -1" so this is the mapping we should use. Nov. Motion #4 mentions the generator polynomials and the generator functions, but doesn't mention the PAM2 mapping, which is different than (opposite) Clause 97 and 55.

Cl 149 SC 149.3.4.2 P94 L10 # 169
 WU, Peter Marvell
 Comment Type TR Comment Status D PAM2
 Sn to Tn mapping is not consistent with Figure 149-7
 SuggestedRemedy
 changed to if Sn =0 then Tn = -1, if Sn = 1, then Tn = +1
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See Comment #169.
 Update Figure 149-7 to have correct mapping.

Cl 149 SC 149.3.4.4 P94 L19 # 58
 Tu, Mike Broadcom
 Comment Type ER Comment Status D Editorial
 S_n is already defined in 149.3.4.1.
 SuggestedRemedy
 Delete this line
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.4.4 P94 L19 # 72
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D Editorial
 This is in section 149.3.4.1.
 SuggestedRemedy
 Delete section 149.3.4.4.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.4.5 P94 L21 # 59
 Tu, Mike Broadcom
 Comment Type ER Comment Status D Editorial
 T_n is already defined in 149.3.4.2.
 SuggestedRemedy
 Delete this line
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.4.5 P94 L21 # 73
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D Editorial
 This is in section 149.3.4.2.
 SuggestedRemedy
 Delete section 149.3.4.5.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.5 P94 L41 # 121
 Benjamin, Saied Aquantia
 Comment Type T Comment Status D Partial Frame
 We should specify timing in partial frame units
 SuggestedRemedy
 change 99 RS-FEC frames to 792 partial PHY frame
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.5 P94 L45 # 122
 Benjamin, Saied Aquantia
 Comment Type T Comment Status D Partial Frame
 We should specify timing in partial frame units
 SuggestedRemedy
 change 100 RS FEC frame to 800 partial PHY frame
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Also change 100 RS FEC frame to 900 partial PHY frame on page 95, line 24.

Cl 149 SC 149.3.5.1 P95 L30 # 123
 Benjamin, Saied Aquantia
 Comment Type T Comment Status D Partial Frame
 We should specify timing in partial frame units
 SuggestedRemedy
 change 50 RS FEC frame to 400 partial PHY frame
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.3.6 P96 L13 # 69
 Tu, Mike Broadcom
 Comment Type TR Comment Status D PCS
 Subclause 149.3.6 has missing cotents
 SuggestedRemedy
 Copy from 126.3.6 as baseline, with the following modifications:
 1. Replace all "LDPC" to "RS FEC"
 2. Delete "tx_active_pair" and associated contents
 3. Delete "ldpc_two_frame_done" and associated contents
 4. Replace "rx_symb_vector" with "rx_symb"
 5. Replace "tx_symb_vector" with "tx_symb"
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 Copy all of 126.3.6, including all subsections and state diagrams and make the changes indicated in the Suggested Remedy.

CI 149 SC **149.3.7.1** P**96** L**54** # **74**
 Wienckowski, Natalie General Motors
Comment Type T **Comment Status D** *Registers*
 Update registers based on Clause 45!
SuggestedRemedy
 Registers were added in Clause 45, but these were not updated throughout the document. See presentation with details for all changes.
Proposed Response **Response Status W**
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement changes specified in wienckowski_3ch_01_0119

CI 149 SC **149.3.8.2** P**99** L**37** # **99**
 Lo, William Axonne Inc.
Comment Type T **Comment Status D** *OAM*
 Page 99 lines 37 to page 100 line 17 including Figure 149-13 are not baselined. See http://www.ieee802.org/3/ch/public/adhoc/Lo_3ch_02_1218.pdf justifying the text.
SuggestedRemedy
 Accept the text as written in D1.0
Proposed Response **Response Status W**
 PROPOSED ACCEPT.

CI 149 SC **149.3.8.2.12** P**102** L**51** # **76**
 Wienckowski, Natalie General Motors
Comment Type E **Comment Status D** *EZ*
 Need tab in front of OAM<13:12><7:0> to align text correctly.
SuggestedRemedy
 Add tab.
Proposed Response **Response Status W**
 PROPOSED ACCEPT.

CI 149 SC **149.3.8.2.12** P**102** L**54** # **75**
 Wienckowski, Natalie General Motors
Comment Type T **Comment Status D** *OAM*
 Add definition for "REC Cleared" in OAM<10><0>
SuggestedRemedy
 See presentation.
Proposed Response **Response Status W**
 PROPOSED ACCEPT IN PRINCIPLE.
 Implement changes specified in wienckowski_3ch_02_0119.

CI 149 SC **149.3.8.2.12** P**103** L**2** # **79**
 Wienckowski, Natalie General Motors
Comment Type E **Comment Status D** *Editorial*
 Typo
SuggestedRemedy
 Change "the number error RS-FEC block errors" to "the number of RS-FEC block errors".
Proposed Response **Response Status W**
 PROPOSED ACCEPT.

CI 149 SC **149.4.2.4** P**118** L**14** # **60**
 Tu, Mike Broadcom
Comment Type TR **Comment Status D** *PHY Control*
 Subclause 149.4.2.4, 149.2.4.1 to 149.4.2.4 have missing contents, or require revisions.
SuggestedRemedy
 Adopt pages 5 to 9 of "tu_3ch_01_0119.pdf" as baseline. Insert the figures and tables as indicated in that document.
Proposed Response **Response Status W**
 PROPOSED ACCEPT.

Cl 149 SC 149.4.2.4.5 P120 L38 # 61
 Tu, Mike Broadcom

Comment Type ER Comment Status D PHY Control

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

SuggestedRemedy

Change this paragraph to:

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

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 149 SC 149.4.2.4.5 P120 L42 # 62
 Tu, Mike Broadcom

Comment Type TR Comment Status D Control, Interleave, Precoder

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

SuggestedRemedy

Change this paragraph and then add two more paragraphs.

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

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

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

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

Interleave as defined in Comment #91 and refer to 149.3.2.2.17
 Refer to 149.3.2.2.19 for Selectable precoder details.

Cl 149 SC 149.4.2.5 P120 L45 # 63
 Tu, Mike Broadcom

Comment Type ER Comment Status D PHY Control

Remove the editorial highlights in this paragraphs.

SuggestedRemedy

Remove the editorial highlights in this paragraphs.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 149 SC 149.4.2.5 P120 L51 # 64
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **D** PHY Control

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

SuggestedRemedy

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

Also remove editorial highlights in this paragraph.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.
 See tu_3ch_02a_0119.

CI 149 SC 149.4.2.5 P121 L1 # 65
 Tu, Mike Broadcom

Comment Type **ER** Comment Status **D** PHY Control

Remove editorial highlights

SuggestedRemedy

Remove editorial highlights for the first two paragraphs

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 149 SC 149.4.2.5 P121 L11 # 66
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **D** PHY Control

Data mode transmits PAM4, not PAM3.

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 149 SC 149.4.2.5 P121 L13 # 67
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **D** PHY Control

There is no SEND_IDLE1 state. There is also no SEND_I for tx_mode.

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 149 SC 149.4.2.5 P121 L16 # 68
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **D** PHY Control

"PAM3" should be "PAM4". Also the state name should be PCS_TEST.

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 149 SC 149.4.2.6 P121 L28 # 153
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **T** Comment Status **D** Link Synchronization

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

SuggestedRemedy

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

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI 149 SC 149.4.2.6 P122 L2 # 170
WU, Peter Marvell

Comment Type TR Comment Status D PAM2
PAM2 mapping needs to be consistent

Suggested Remedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.
The ""s are copy/paste artifacts.
Change text to: For 10GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then Tn = +1 +1 +1 +1 +1 +1 +1 +1, if Sn[0] = 1 then Tn = -1 -1 -1 -1 -1 -1 -1 -1.
For 5GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then Tn = +1 +1 +1 +1, if Sn[0] = 1 then Tn = -1 -1 -1 -1.
For 2.5GBASE-T1, the bit Sn[0] is mapped to the transmit symbol Tn as follows: if Sn[0] = 0 then Tn = +1 +1, if Sn[0] = 1 then Tn = -1 -1.

CI 149 SC 149.4.2.6.1 P123 L37 # 154
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D Link Synchronization

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

Suggested Remedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

force_phy_type is used in Clause 97 so keep it to be consistent.
Delete values of 1000-T1, 100-T1, and None, and their descriptions. Add "Other values are implementation-dependent and beyond the scope of this clause."

CI 149 SC 149.4.2.6.4 P125 L43 # 155
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status D Link Synchronization

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

Suggested Remedy

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

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

force_phy_type is used in Clause 97 so keep it to be consistent.
Change entry to SYNC_DISABLE from "...force_phy_type != 2.5G-T1" to "...(force_phy_type != 2.5G-T1 * force_phy_type != 5G-T1 * force_phy_type != 10G-T1)"

CI 149 SC 149.4.5 P129 L7 # 77
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D EZ
 Remove Editor's note as it no longer applies.
 SuggestedRemedy
 Remove box around note and all contents.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.4.5 P130 L52 # 100
 Lo, William Axonne Inc.
 Comment Type T Comment Status D PHY Control
 Missing value in SEND DATA state vs. baseline
 Missing transition
 SuggestedRemedy
 All the following to SEND DATA state
 stop maxwait_timer
 Add a connection from PCS DATA to INIT_MAXWAIT_TIMER state with
 minwait_timer_done * loc_rcvr_status = NOT_OK describing the arc.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.4.5 P131 L2 # 173
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D late
 Editor's note for content added in D1.0 needs to be removed.
 SuggestedRemedy
 Remove Editor's note, accpeting Figure 149-21
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P131 L40 # 156
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 Implementation of clause 45 MDIO registers is optional. Specification needs to provide for
 equivalent functionality.
 SuggestedRemedy
 Change "These test modes shall be enabled by setting a control register..." to "If MDIO is
 implemented these test modes shall be enabled by setting a control register...". Add new
 2nd sentence to 2nd paragraph in 149.5.1, "If MDIO is not implemented then equivalent
 functionality shall be provided."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P132 L27 # 157
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 Need to define TX_TXCLK_DIV. Suggest divide by 8.
 SuggestedRemedy
 Delete editor's note on lines 21-24, change "This TBD MHz test clock is TBD frequency
 divided version of TX_TCLK that times the transmitted symbols." to "TX_TCLK_DIV is a
 one-eighth frequency divided version of TX_TCLK that times the transmitted symbols."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P132 L32 # 158
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 Define test mode 2 to have the same divide by 8 proposed for test mode 1.
 SuggestedRemedy
 Change "three {+3} symbols..." "three {-3} symbols" to "four {+1} symbols..." "four {-1}
 symbols"
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.

CI 149 SC 149.5.1 P132 L35 # 159
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 {0,3} symbols - PCS does the mapping from {0,3} to {-1, +1} so this is incorrect
 SuggestedRemedy
 Change {0,3} to {-1, +1}
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P132 L40 # 160
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 Transmitter linearity test can't be a PN sequence.
 SuggestedRemedy
 Delete "the sequence of symbols..." through equation 149-15. add "Editor's note (to be removed prior to draft 2.0): Transmitter linearity test specification and framework contributions needed."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P132 L49 # 161
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 Droop test should scale approximately with transmitter baud rate - so accept the yellow text (transmitter output is fbaud/30).
 SuggestedRemedy
 Accept text in yellow on lines 49 and 50 ("fifteen {+1}... local clock source."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P133 L1 # 162
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D Test Modes
 Description of the test mode 7 result is needed, and needs to be adjusted to reflect clause 149.
 SuggestedRemedy
 Delete yellow text on lines 1 through 4 and insert "Instead of encoding received data from MAC, continuous zero data pattern is encoded. In the receive side, after PCS FEC decoding processing, a zero data sequence is expected with no errors. Any non-zero data bit received is counted as error and calculated in BER."
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.5.1 P133 L2 # 171
 WU, Peter Marvell
 Comment Type ER Comment Status D Test Modes
 80B/81B code has been changed to 64B/65B code
 SuggestedRemedy
 text "80B/81B" is changed to 64B/65B
 Proposed Response Response Status W
 PROPOSED ACCEPT IN PRINCIPLE.
 See comment #162.

CI 149 SC 149.7 P138 L7 # 178
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status D Test Modes EZ
 Remove Editor's note as it no longer applies.
 SuggestedRemedy
 Remove box around note and all contents.
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.9.1 P144 L5 # 41
 Fritsche, Matthias HARTING Technology
 Comment Type E Comment Status D Editorial
 IEC 60950-1 is replaced by IEC 62368-1
 SuggestedRemedy
 Change "IEC 60950-1" to "IEC 62368-1 (former IEC 60950-1)"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.9.2.2 P144 L42 # 103
 Maguire, Valerie The Siemon Company
 Comment Type E Comment Status D EZ
 List complete Standards reference
 SuggestedRemedy
 Replace, "IEC 62132-1/4" with "IEC 62132-1, IEC 62132-4"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.9.2.1 P144 L25 # 106
 Maguire, Valerie The Siemon Company
 Comment Type E Comment Status D EZ
 List complete Standards reference (note: these Standards were added to the main document bibliography by Maintenance Request 1315)
 SuggestedRemedy
 Replace, " ISO 16750-4 and IEC 60068-2-1/27/30/38/52/64/78" with " ISO 16750-4, IEC 60068-2-1, IEC 60068-2-27, IEC 60068-2-30, IEC 60068-2-38, IEC 60068-2-52, IEC 60068-2-64, and IEC 60068-2-78"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.9.2.2 P144 L43 # 104
 Maguire, Valerie The Siemon Company
 Comment Type E Comment Status D EZ
 List complete Standards reference
 SuggestedRemedy
 Replace, "ISO 10605 and IEC 61000-4-2/3" with "ISO 10605, IEC 61000-4-2, IEC 61000-4-3"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.9.2.2 P144 L41 # 102
 Maguire, Valerie The Siemon Company
 Comment Type E Comment Status D EZ
 List complete Standards reference
 SuggestedRemedy
 Replace, "IEC 61967-1/4" with "IEC 61967-1, IEC 61967-4"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

CI 149 SC 149.9.2.2 P144 L44 # 105
 Maguire, Valerie The Siemon Company
 Comment Type E Comment Status D EZ
 List complete Standards reference
 SuggestedRemedy
 Replace, "IEC 62215-3 and ISO 7637-2/3" with "IEC 62215-3, ISO 7637-2, and ISO 7637-3"
 Proposed Response Response Status W
 PROPOSED ACCEPT.

Cl 149 SC 149.10. P145 L28 # 107
Maguire, Valerie The Siemon Company

Comment Type E Comment Status D EZ
Incorrect formatting for table contents

SuggestedRemedy

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

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl intro SC intro P21 L27 # 80
Wienckowski, Natalie General Motors

Comment Type E Comment Status D EZ
Typo

SuggestedRemedy

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

Proposed Response Response Status W
PROPOSED ACCEPT.