

CI various SC various P L # 42
 Benyamin, Saied Aquantia
 Comment Type T Comment Status X
 There are a zillion places where 1000Base-T1 is mentioned; on some, we have crossed out the "1000"
 SuggestedRemedy
 They all need to change to MGBase-T1
 Proposed Response Response Status O

CI FM SC FM P1 L26 # 1
 Anslow, Pete Ciena
 Comment Type E Comment Status X
 IEEE Std 802.3cd-2018 is now approved
 SuggestedRemedy
 Change "IEEE Std 802.3cd-201x" to "IEEE Std 802.3cd-2018"
 Proposed Response Response Status O

CI 149 SC 149.3.8.2.17 P L30 # 211
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing comma and subject/verb agreement
 SuggestedRemedy
 Change: Once the registers are written the management entity sets mr_tx_valid to 1 to indicate that the OAM transmit registers contains a valid OAM message.
 To: Once the registers are written, the management entity sets mr_tx_valid to 1 to indicate that the OAM transmit registers contain a valid OAM message.
 Proposed Response Response Status O

CI FM SC FM P2 L3 # 2
 Anslow, Pete Ciena
 Comment Type E Comment Status X
 The abstract should not contain "Draft D1.1 is prepared for Task Force Review."
 SuggestedRemedy
 Delete "Draft D1.1 is prepared for Task Force Review."
 Proposed Response Response Status O

CI 00 SC 0 P1 L25 # 26
 Maguire, Valere The Siemon Company
 Comment Type E Comment Status X
 IEEE Std 802.3cd-201x has published.
 SuggestedRemedy
 Replace all occurrences of "IEEE Std 802.3cd-201x" with "IEEE Std 802.3cd-2018"
 Proposed Response Response Status O

CI 00 SC 0 P2 L5 # 21
 Maguire, Valere The Siemon Company
 Comment Type E Comment Status X
 Incorrect capitalization
 SuggestedRemedy
 Replace "physical layer" with "Physical Layer"
 Proposed Response Response Status O

CI 00 SC 0 P2 L5 # 22
 Maguire, Valere The Siemon Company
 Comment Type E Comment Status X
 MASTER-SLAVE could be added to the keywords
 SuggestedRemedy
 Insert " MASTER-SLAVE;" after "IEEE 802.3chTM; "
 Proposed Response Response Status O

CI **Introdu** **SC** **Introduction** **P11** **L5** **#** **278**
 den Besten, Gerrit NXP Semiconductors
Comment Type **E** **Comment Status** **X**
 "for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s operation on automotive cabling in an automotive application."
SuggestedRemedy
 replace by: "for operation at 2.5Gb/s, 5Gb/s, and 10Gb/ over single shielded balanced pair of conductors."
Proposed Response **Response Status** **O**

CI **1** **SC** **1.3** **P22** **L6** **#** **131**
 Wienckowski, Natalie General Motors
Comment Type **E** **Comment Status** **X**
 Change wording of Editor's note.
SuggestedRemedy
 Change: Insert the following references in 1.3 alphanumeric order as follows:
 To: Insert the following references in 1.3 in alphanumeric order as follows:
Proposed Response **Response Status** **O**

CI **Page** **SC** **Title page** **P21** **L1** **#** **279**
 den Besten, Gerrit NXP Semiconductors
Comment Type **E** **Comment Status** **X**
 "2019Draft" The 2019 seems not to belong here.
SuggestedRemedy
 Replace by "Draft"
Proposed Response **Response Status** **O**

CI **1** **SC** **1.4** **P22** **L17** **#** **280**
 den Besten, Gerrit NXP Semiconductors
Comment Type **T** **Comment Status** **X**
 "over a single shielded balanced pair of conductors". Signal routing at PCB might not be shielded. Same on lines 23 and 29.
SuggestedRemedy
 Replace by: "over a single balanced pair of conductors using shielded cabling."
Proposed Response **Response Status** **O**

CI **FM** **SC** **FM** **P21** **L1** **#** **3**
 Anslow, Pete Ciena
Comment Type **E** **Comment Status** **X**
 "2019Draft Standard for Ethernet" contains a spurious "2019"
SuggestedRemedy
 Delete "2019"
Proposed Response **Response Status** **O**

CI **1** **SC** **1.4** **P22** **L26** **#** **132**
 Wienckowski, Natalie General Motors
Comment Type **E** **Comment Status** **X**
 Missing space
SuggestedRemedy
 Change: 802.3cb-2018)as
 To: 802.3cb-2018) as
Proposed Response **Response Status** **O**

Cl 1 **SC 1.5** **P22** **L50** # **133**
 Wienckowski, Natalie General Motors
Comment Type **E** *Comment Status* **X**
 Remove note on the type of paragraph to use for Abbreviations.
SuggestedRemedy
 Remove: [abbreviations use paragraph tag AcrList,ac]
Proposed Response *Response Status* **O**

Cl 30 **SC 30.5.1.1.2** **P24** **L12** # **281**
 den Besten, Gerrit NXP Semiconductors
Comment Type **T** *Comment Status* **X**
 "Single shielded balanced pair of conductors PHY". Signal routing at PCB might not be shielded. Same on lines 18 and 23. Recommend to search for "single shielded balanced pair" as this occurs at more places in the spec.
SuggestedRemedy
 Replace by: "Single balanced pair of conductors PHY using shielded cabling."
Proposed Response *Response Status* **O**

Cl 44 **SC 44.1.3** **P27** **L3** # **23**
 Maguire, Valere The Siemon Company
Comment Type **E** *Comment Status* **X**
 Correct grammatical of the word "which"
SuggestedRemedy
 Insert a comma after the last word coming before "which" in these locations: page 27 - line 3, page 35 - line 31, page 61 - line 8, page 69 - line 37, page 70 - line 2, page 80 - line 5, and page 90 - line 51.
Proposed Response *Response Status* **O**

Cl 44 **SC 44.1.3** **P27** **L41** # **282**
 den Besten, Gerrit NXP Semiconductors
Comment Type **T** *Comment Status* **X**
 Figure 44.1 shows "WIS = WAN INTERFACE SUBLAYER" inside the lower diagram of the figure, and not in the list below. This is confusing because WIS does not occur in that lower diagram.
SuggestedRemedy
 Move the definition: "WIS = WAN INTERFACE SUBLAYER" to the list below the figure.
Proposed Response *Response Status* **O**

Cl 44 **SC 44.1.3** **P28** **L3** # **4**
 Anslow, Pete Ciena
Comment Type **E** *Comment Status* **X**
 Item d of 44.1.3 contains five external cross-references that are not in forest green
SuggestedRemedy
 Apply character tag "External" to "Clause 53", "Clause 54", "Clause 55", "Clause 68", and "Clause 52"
Proposed Response *Response Status* **O**

Cl 44 **SC 44.1.4.4** **P29** **L10** # **283**
 den Besten, Gerrit NXP Semiconductors
Comment Type **E** *Comment Status* **X**
 "1-pair RS-FEC PCS & PMA" Inconsistent with 10GBASE-T.
SuggestedRemedy
 Change to "RS-FEC PCS & 1-pair PMA"
Proposed Response *Response Status* **O**

CI 45 SC 45.2.1.18.aa P32 L33 # 5
 Anslow, Pete Ciena
 Comment Type E Comment Status X
 In the editing instruction "before 45.2.1.18a (added by IEEE Std 802.3cb-2018)" the reference "45.2.1.18a" should be "45.2.1.18.a"
 SuggestedRemedy
 In the editing instruction, change "45.2.1.18a" to "45.2.1.18.a"
 Proposed Response Response Status O

CI 45 SC 45.2.1.192.1 P34 L28 # 146
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status D
 Remove timing for restoration of normal operation and refer to 149.4.2.1 instead.
 SuggestedRemedy
 Change: The control and management interface shall be restored to operation within 0.5 s from the setting of bit 1.2309.15.
 To: The control and management interface shall be restored to operation within the time specified in 149.4.2.1 from the setting of bit 1.2309.15.
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

CI 45 SC 45.2.1.192.1 P34 L29 # 284
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 "The control and management interface shall be restored to operation within 0.5 s from the setting of bit 1.2309.15"
 SuggestedRemedy
 Replace by: "The control and management interface shall be restored to operation within max_reset_time as defined in 149.x.x, starting when bit 1.2309.15 is set."
 Proposed Response Response Status O

CI 45 SC 45.2.1.192.3 P35 L13 # 134
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 typo
 SuggestedRemedy
 Change: the device shall, as a minimum
 To: the device shall, at a minimum
 Proposed Response Response Status O

CI 45 SC 45.2.1.192.3 P35 L18 # 293
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 "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
 "The data path of the MultiGBASE-T1 PMA may take max_startup_time as defined in 149.x.x. to resume operation and achieve the required BER after exiting from reset or low-power mode."
 Proposed Response Response Status O

CI 45 SC 45.2.1.192.4 P35 L25 # 6
 Anslow, Pete Ciena
 Comment Type ER Comment Status X
 Comment #16 against D1.0 was:
 In the heading of 45.2.1.192.4, "(1.2309.14)" should be "(1.2309.10:9)"
 The response was:
 ACCEPT IN PRINCIPLE.
 This is covered by Comment #85.
 but comment #85 made no change to the draft.
 SuggestedRemedy
 In the heading of 45.2.1.192.4, change "(1.2309.14)" to "(1.2309.10:9)"
 Proposed Response Response Status O

Cl 45 SC 45.2.1.192.4 P35 L28 # 135
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 verb/noun agreement

SuggestedRemedy

Change: Setting these bits force the precoder to the mode set.
 To: Setting these bits forces the precoder to the mode set.

Proposed Response Response Status O

Cl 45 SC 45.2.1.194.4 P38 L9 # 136
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 We don't need to keep repeating MultiGBASE-T1.

SuggestedRemedy

Change: When set as a one, this bit indicates to the link partner that the MultiGBASE-T1 PHY is advertising MultiGBASE-T1 OAM capability. When set as a zero, this bit indicates to the link partner that the MultiGBASE-T1 PHY is not advertising MultiGBASE-T1 OAM capability. This bit shall be set to zero if the MultiGBASE-T1 PHY does not support MultiGBASE-T1 OAM.

To: When set as a one, this bit indicates to the link partner that the PHY is advertising MultiGBASE-T1 OAM capability. When set as a zero, this bit indicates to the link partner that the 1 PHY is not advertising MultiGBASE-T1 OAM capability. This bit shall be set to zero if the PHY does not support MultiGBASE-T1 OAM.

Proposed Response Response Status O

Cl 45 SC 45.2.1.194.5 P38 L16 # 137
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 We don't need to keep repeating MultiGBASE-T1.

SuggestedRemedy

Change: When set as a one, this bit indicates to the link partner that the MultiGBASE-T1 PHY is advertising EEE capability. When set as a zero, this bit indicates to the link partner that the MultiGBASE-T1 PHY is not advertising EEE capability. This bit shall be set to zero if the MultiGBASE-T1 PHY does not support EEE.

To: When set as a one, this bit indicates to the link partner that the PHY is advertising EEE capability. When set as a zero, this bit indicates to the link partner that the PHY is not advertising EEE capability. This bit shall be set to zero if the PHY does not support EEE.

Proposed Response Response Status O

Cl 45 SC 45.2.1.197 P40 L10 # 297
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X
 How is SNR operating margin defined? We currently don't have a pre-FEC (raw) BER target in the spec. The BER < 1e-12 is post-FEC. So what does 0dB mean here?

SuggestedRemedy

I see three possible solutions here:

- Define a pre-FEC BER target, which will implicitly set a reference SNR level for the SNR margin
- Define a fixed reference SNR pre-FEC
- Report the actual SNR pre-FEC and don't talk about 'margin'. In the latter case the SNR register value becomes strictly positive.

Proposed Response Response Status O

Cl 45 SC 45.2.1.197 P40 L10 # 285
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X
SNR operating margin as currently proposed in the draft is essentially an 8 bit value (255 used values), but it is defined as a 16bit register with 0x8000 as zero dB reference. This is very inefficient as all 16 bits would be toggling between values 0.0dB and -0.1dB.

SuggestedRemedy
Represent the 8-bit SNR margin in bits 7:0 of register 2314, with 0x80 as zero reference for that field.

Proposed Response Response Status O

Cl 45 SC 45.2.1.198 P40 L13 # 287
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X
Register 231 is called minimum margin register, but it is about an SNR valy

SuggestedRemedy
Rename to: minimum SNR margin

Proposed Response Response Status O

Cl 45 SC 45.2.1.198 P40 L17 # 286
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X
minimum SNR margin as currently proposed in the draft is essentially an 8 bit value (255 used values), but it is defined as a 16bit register with 0x8000 as zero dB reference. This is very inefficient as the upper 8 bits would be toggling between values 0.0dB and -0.1dB, but they don't contain information.

SuggestedRemedy
Represent the 8-bit minimum SNR margin in bits 15:8 of register 2314, with 0x80 as zero reference for that field. Free-up register 2315.

Proposed Response Response Status O

Cl 45 SC 45..2.3 P40 L23 # 7
Anslow, Pete Ciena

Comment Type ER Comment Status X
Part of the suggested remedy for Comment #27 against D1.0 was:
In the editing instruction, change: "1.2318 - 1.2320" to: "1.2318 to 1.2324"
The response was:
ACCEPT
but the text in the editing instruction is "1.2318 to 1.2320" where the second number is still incorrect.

SuggestedRemedy
In the editing instruction, change: "1.2318 to 1.2320" to: "1.2318 to 1.2324"

Proposed Response Response Status O

Cl 45 SC 45.2.3.72.5 P42 L15 # 8
Anslow, Pete Ciena

Comment Type E Comment Status X
In the second line of text "8 octet" has been changed to "8-octet".
However, the text in the base standard is "8 octet".
If it is intended that this amendment changes "8 octet" to "8-octet" then this has to be shown with strikethrough and underline font, preferably with "8 octet" in strikethrough and "8-octet" in underline for clarity.

SuggestedRemedy
If it is intended that this amendment changes "8 octet" to "8-octet" then this has to be shown with strikethrough and underline font, preferably with "8 octet" in strikethrough and "8-octet" in underline for clarity.

Proposed Response Response Status O

Cl 45 SC 45.2.3.74 P43 L12 # 9
Anslow, Pete Ciena

Comment Type E Comment Status X

In the "Description" for bit 3.2313.15, "This bit shall self clear when register 3.2317 is read." has been changed to "See 45.2.3.74.1 for self-clearing behavior". However, this is text in the base standard being changed via a "Change" editing instruction so this change has to be shown with strikethrough and underline font.

SuggestedRemedy

In the "Description" for bit 3.2313.15:
show "This bit shall self clear when register 3.2317 is read." in strikethrough font.
and show "See 45.2.3.74.1 for self-clearing behavior." in underline font. Note the addition of "." at the end of this.

Proposed Response Response Status O

Cl 45 SC 45.2.3.74.1 P43 L36 # 299
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X

"This register shall be cleared when register 3.2317 is read." However, the last OAM byte is in register 2319. So it looks like only the first 8 bytes of the message are handshaked. Furthermore the addition of these extra 4 bytes is a bit messy as they are not directly concatenated to the existing 8 bytes in the register map.

SuggestedRemedy

Refer to register 3.2319 in the quoted sentence

Proposed Response Response Status O

Cl 45 SC 45.2.3.74.2 P43 L41 # 298
den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status X

associate: missing d

SuggestedRemedy

associated

Proposed Response Response Status O

Cl 45 SC 45.2.3.75 P44 L3 # 10
Anslow, Pete Ciena

Comment Type E Comment Status X

While the addition of the hyphen in "8-octet" is shown with underline, the removal of the space is not shown with strikethrough.

SuggestedRemedy

Show "8 octet" in strikethrough and "8-octet" in underline for clarity.

Proposed Response Response Status O

Cl 45 SC 45.2.3.76 P44 L42 # 138
Wienckowski, Natalie General Motors

Comment Type T Comment Status X

The details on the OAM Status bytes are defined in 149.3.8.2.12. Refer to that section for these bytes.

SuggestedRemedy

Replace: The message data is user defined and its definition is outside the scope of this standard.

With: See 149.3.8.2.12 for details on the OAM status message definition.

Proposed Response Response Status O

Cl 45 SC 45.2.3.76 P44 L50 # 57
Lo, William Axonne Inc.

Comment Type TR Comment Status X

OAM status message.

It is not clear whether registers 3.2319 and 3.2319 should be R/W or RO.

Referring to page 117 (159.3.8.2.12)

I think 3.2318.7:2,0 and 3.2319 should be RO since the status is from somewhere else.

3.2318.1 should be R/W since the user will go in to make a request to clear.

Is the intent that these registers are automatic, or is the expectation that the user has to manually write in all these statuses?

SuggestedRemedy

If the intent is these registers are automatic then

3.2318 and 3.2319 should all be changed to RO with the exception of 3.2318.1.

Also the footnote should be changed to include RO.

Proposed Response Response Status O

Cl 149 SC 149.2.3.77 P45 L23 # 58
Lo, William Axonne Inc.

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

3.2320 and 2.2321 should be RO since these are statuses from the link partner.

SuggestedRemedy

Change R/W to RO for 3.2320 and 2.2321
Change the footnote from R/W to RO

Proposed Response Response Status

Cl 45 SC 45.2.3.78.1 P46 L1 # 11
Anslow, Pete Ciena

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

Extra ")" at the end of "45.2.3.78.1 PCS reset (3.2322.15)"

SuggestedRemedy

Delete the extra ")"

Proposed Response Response Status

Cl 45 SC 45.2.3.78.1 P46 L14 # 300
den Besten, Gerrit NXP Semiconductors

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

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

SuggestedRemedy

Replace by: ""The control and management interface shall be restored to operation within max_reset_time as defined in 149.x.x, starting when bit 3.2322.15 is set."

Proposed Response Response Status

Cl 45 SC 45.2.3.80.2 P48 L36 # 301
den Besten, Gerrit NXP Semiconductors

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

"PCS high BER": The way it is currently defined is not a BER but a RFER (reed-solomon frame-error-rate) as only frames which cannot be corrected are counted.

SuggestedRemedy

Rename to Frame Error Rate (FER)

Proposed Response Response Status

Cl 45 SC 45.2.3.80.2 P48 L38 # 218
Zimmerman, George CME:ADI,Aquantia,AP

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

"When read as a one, bit 3.2324.9 indicates that the MultiGBASE-T1 PCS receiver is detecting a BER of $> 4 \times 10^{-4}$. When read as a zero, bit 3.2324.9 indicates that the MultiGBASE-T1 PCS is not detecting a BER of $> 4 \times 10^{-4}$."
hi_rfer doesn't really correspond well to a BER and this isn't the place to specify it. What BER hi_rfer corresponds to will depend on the interleaving. Better to rewrite this in terms of the definition of hi_rfer.

SuggestedRemedy

Change "is detecting a BER of $> 4 \times 10^{-4}$ " to "is detecting more than 16 or more RS-FEC errored blocks in 312 500 bit times (one rfer_timer interval)"
Change "is not detecting a BER of $> 4 \times 10^{-4}$." to "is detecting fewer than 16 RS-FEC errored blocks in 312 500 bit times."
Delete editor's note at line 42

Proposed Response Response Status

CI 45 SC 45.2.3.80.2 P48 L39 # 302
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X

The spec text "detecting a BER of > 4e-4" is ambiguous, because actually the frame errors are counted here, not bit errors. Furthermore this number seems way too high. Bit errors at PMA level will mostly be successfully corrected by the RS-FEC, or corrupt a whole RS frame. Counting the number of erroneous RS frames seems the correct approach, but why would we express this as BER instead of RFER? Note that the RFER counter is only 6 bits so apparently this not supposed to happen very often. For a RFER<1e-9 the packet level performance is similar to a transmission scheme without RS-FEC and a PMA BER of about 3e-11.

SuggestedRemedy

Propose to change into: "detecting a RFER > 1e-9

Proposed Response Response Status O

CI 45 SC 45.2.3.80.5 P49 L13 # 139
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

There is a carriage return that shouldn't be there. This section should be a single paragraph.

SuggestedRemedy

Remove the carriage return after "behavior." to bring the following line into the same paragraph.

Proposed Response Response Status O

CI 45 SC 45.2.9.2.7 P49 L51 # 12
Anslow, Pete Ciena

Comment Type E Comment Status X

As noted in Comment #38 against D1.0, space missing before "(" in the editing instruction.

SuggestedRemedy

Add the space.

Proposed Response Response Status O

CI 45 SC 45.2.9.3.2 P50 L30 # 13
Anslow, Pete Ciena

Comment Type E Comment Status X

As noted in Comment #39 against D1.0, space missing before "(" in the editing instruction.

SuggestedRemedy

Add the space.

Proposed Response Response Status O

CI 78 SC 78.2 P52 L42 # 73
Graba, Jim Broadcom

Comment Type TR Comment Status X

Tq is 95 frames.

SuggestedRemedy

Change Tq from [126.72, 63.36, 31.68] us to [121.6, 60.8, 30.4] us for 2.5G/5G/10G respectively in Table 78-2..

Proposed Response Response Status O

CI 96 SC 96.5.1 P56 L8 # 83
Tu, Mike Broadcom

Comment Type ER Comment Status X

The editor note should refer to 98.5.1, not 98.1.5.

SuggestedRemedy

Change the editor note from "... dashed list of 98.1.5 after ..." to "... dashed list of 98.5.1 after ..."

Proposed Response Response Status O

Cl 104 SC 104.5.6.4 P59 L15 # 303
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X
 Type F has been added to the sub-clause, but there is no reference to clause 149 in there. Especially in this sentence that was apparently there for 1000BASE-T1 with reference to the MDI return loss, it seems that just adding Type F in there is not sufficient.

SuggestedRemedy

Change:
 "The ripple and transient specifications for a Type B or Type F PD shall be met for all operating voltages in the range of VPD sourced through a dc bias coupling network with MDI return loss as specified by Clause 97, and over the range of PPD."

into:
 "The ripple and transient specifications for a Type B PD shall be met for all operating voltages in the range of VPD sourced through a dc bias coupling network with MDI return loss as specified by Clause 97, and over the range of PPD..... The ripple and transient specifications for a Type F PD shall be met for all operating voltages in the range of VPD sourced through a dc bias coupling network with MDI return loss as specified by Clause 149, and over the range of PPD."

Proposed Response Response Status O

Cl 104 SC 104.7.2.4 P60 L1 # 14
 Anslow, Pete Ciena

Comment Type E Comment Status X
 The heading for Table 104-9 has a grey background.

SuggestedRemedy

Make it white.

Proposed Response Response Status O

Cl 125 SC 125.1.2 P61 L12 # 147
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 Incorrect wording for MDI

SuggestedRemedy

Change: Media Dependent Interface (MDI)
 To: Medium Dependent Interface (MDI)

Proposed Response Response Status O

Cl 125 SC 125.1.2 P62 L14 # 84
 Tu, Mike Broadcom

Comment Type E Comment Status X
 Change the name of the PCS layer to be consistent with the other 5G/2.5G standards.

SuggestedRemedy

For 2.5GBASE-T1, change "64B/65B RS-FEC PCS" to "2.5GBASE-T1 PCS".
 For 5GBASE-T1, change "64B/65B RS-FEC PCS" to "5GBASE-T1 PCS".

Proposed Response Response Status O

Cl 125 SC 125.1.2 P62 L17 # 140
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 alignment of figure elements

SuggestedRemedy

Need to align MDI box of 5GBASE-T which overlaps the AN box.

Proposed Response Response Status O

Cl 149 SC 149 P66 L2 # 141
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 missing comma

SuggestedRemedy

Change: (PMA) sublayer and
 To: (PMA) sublayer, and

Proposed Response Response Status O

Cl 149 SC 149.1.3 P66 L49 # 142
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing space
 SuggestedRemedy
 Change: at least 15 m.The
 To: at least 15 m. The
 Proposed Response Response Status O

Cl 149 SC 149.1.3 P67 L54 # 143
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status X
 We agreed to call the OAM "MultiGBASE-T1 OAM".
 SuggestedRemedy
 Change: 2.5G/5G/10GBASE-T1 OAM
 To: MultiGBASE-T1 OAM throughout this section and the document.
 Proposed Response Response Status O

Cl 149 SC 149.1.3 P68 L7 # 144
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Use common abbreviation for the combined PHY types.
 SuggestedRemedy
 Change: The 2.5GBASE-T1, 5GBASE-T1, or 10GBASE-T1 PMA
 To: 2.5G/5G/10GBASE-T1 PMA
 Proposed Response Response Status O

Cl 149 SC 149.1.3.3 P69 L15 # 112
 Chen, Steven Broadcom
 Comment Type TR Comment Status X
 The transmit transition to the LPI transmit mode is based on the TXD[31:0] of the XGMII,
 not in the last 64B/64B block of a RS frame.
 SuggestedRemedy
 Change "... an LPI control character in the last 64B/65B block of a Reed-Solomon frame."
 to "... an LPI control character in all four lanes of two consecutive transfers of TXD[31:0]
 that will be mapped into a single 64B/65B block."
 Proposed Response Response Status O

Cl 149 SC 149.1.3.3 P69 L20 # 148
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing comma
 SuggestedRemedy
 Change: Periodically the transmit
 To: Periodically, the transmit
 Proposed Response Response Status O

Cl 149 SC 149.1.3.3 P69 L25 # 149
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Duplicate sentence.
 SuggestedRemedy
 Remove one instance of: The PMA Transmit function in the PHY then sends an alert
 message to the link partner.
 Proposed Response Response Status O

Cl 149 SC 149.1.3.3 P69 L25 # 262
Wei, Dong Futurewei Technologie

Comment Type **ER** Comment Status **X**
Repeat statement

SuggestedRemedy

Delete the sentence:"The PMA Transmit function in the PHY then sends an alert message to the link partner" in line 25~26

Proposed Response Response Status **O**

Cl 149 SC 149.1.3.3 P69 L43 # 150
Wienckowski, Natalie General Motors

Comment Type **E** Comment Status **X**
Original OAM bytes are now named "BASE-T1 OAM".

SuggestedRemedy

Change: 2.5G/5G/10GBASE-T1 OAM
To: BASE-T1 OAM

Proposed Response Response Status **O**

Cl 149 SC 149.1.3.3 P69 L46 # 113
Chen, Steven Broadcom

Comment Type **ER** Comment Status **X**
L46~L49
Need to refer to the appropriate Figures.

SuggestedRemedy

Replace "126-14" with the cross-reference to the figure captioned "PCS 64B/65B Transmit state diagram, part a" currently labelled "149-13".
Replace "126-15" with the cross-reference to the figure captioned "PCS 64B/65B Transmit state diagram, part b" currently labelled "149-14".
Replace "126-16" with the cross-reference to the figure captioned "PCS 64B/65B Receive state diagram, part a" currently labelled "149-15".
Replace "126-17" with the cross-reference to the figure captioned "PCS 64B/65B Receive state diagram, part a" currently labelled "149-16".
Replace "126-18" with the cross-reference to the figure captioned "EEE transmit state diagram"

Proposed Response Response Status **O**

Cl 149 SC 149.1.3.4 P69 L53 # 151
Wienckowski, Natalie General Motors

Comment Type **E** Comment Status **X**
missing comma

SuggestedRemedy

Change: The Link Synchronization function is used when Auto-Negotiation is disabled to synchronize between the ...
To: The Link Synchronization function is used when Auto-Negotiation is disabled, to synchronize between the ...

Proposed Response Response Status **O**

Cl 149 SC 149.1.3.4 P70 L11 # 27
Benyamin, Saied Aquantia

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

We are using link synchronization as Alert, add a paragraph to end of the link synchronization description to mention this

SuggestedRemedy

Add the following paragraph:
When EEE is active, the same link synchronization pattern is used as an alert sequence.
When rx_lpi_active is true, the send_s_sigdet variable which detects the SEND_S pattern is used as alert detect.

Proposed Response Response Status **O**

Cl 149 SC 149.1.3.4 P71 L1 # 43
Benyamin, Saied Aquantia

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

link synchronization detect needs to be added to PCS since it is used as ALERT detect now

SuggestedRemedy

Functional block diagram 149-2 in the attached word document, erroneously numbered 149-3 because I looked at the wrong document

Proposed Response Response Status **O**

Cl 149 SC 149.1.4 P72 L16 # 152
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 missing comma before and

SuggestedRemedy

Change: refresh, quiet and alert signaling
 To: refresh, quiet, and alert signaling

Proposed Response Response Status O

Cl 149 SC 149.1.4 P72 L23 # 153
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 subject/verb agreement

SuggestedRemedy

Change: which enable the receiver
 To: which enables the receiver

Proposed Response Response Status O

Cl 149 SC 149.2 P73 L5 # 15
 Anslow, Pete Ciena

Comment Type E Comment Status X
 "Clause 98.4" should be just "98.4"

SuggestedRemedy

Change "Clause 98.4" to "98.4"

Proposed Response Response Status O

Cl 149 SC 149.2.2 P74 L26 # 130
 Chen, Steven Broadcom

Comment Type TR Comment Status X
 variable loc_phy_ready is not used.

SuggestedRemedy

1. Remove "PMA_PHYREADY.indication(loc_phy_ready)".
2. In page 71 line26, remove "loc_phy_ready" in Figure 149-2.
3. In page 79, remove lines from 1 to 22.
4. In page 82 line 26, remove "loc_phy_ready" in Figure 149-4.
5. In page 134 line 8, remove "loc_phy_ready" in Figure 149-24.
6. In page 147, remove lines from 19 to 26.

Proposed Response Response Status O

Cl 149 SC 149.2.2 P74 L28 # 94
 Tu, Mike Broadcom

Comment Type TR Comment Status X
 Variable "rem_phy_ready" is no longer used

SuggestedRemedy

1. Delete line 28 "PMA_REMPHYREADY.request(rem_phy_ready)"
2. Delete references to "rem_phy_ready" at the following location:
 - 2.1 Page 71, line 34, Figure 149-2, change from "rem_rcvr_status / rem_phy_ready" to "rem_rcvr_status".
 - 2.2 Page 80, delete 149.2.2.10, 149.2.2.10.1, 149.2.2.10.2, and 149.2.2.10.3.
 - 2.3 Page 82, line 24, Figure 149-4, change from "rem_rcvr_status / rem_phy_ready" to "rem_rcvr_status".
 - 2.4 Page 134, line 11, Figure 149-24, change from "rem_rcvr_status / rem_phy_ready" to "rem_rcvr_status".
 - 2.5 Page 148, delete line 14 to line 20.
 - 2.6 Page 75, line 26, delete "PMA_REMPHYREADY.request" and the associated ARROW.

Proposed Response Response Status O

Cl 149 SC 149.2.2.1.1 P74 L48 # 154
 Wienckowski, Natalie General Motors

Comment Type T Comment Status X
 We removed SEND_I, but didn't change the number of values to "three" from "four" in the text.

SuggestedRemedy
 Change: four
 To: three

Proposed Response Response Status O

Cl 149 SC 149.2.2.3 P76 L34 # 114
 Chen, Steven Broadcom

Comment Type ER Comment Status X
 Using XGMII instead.

SuggestedRemedy
 Change "to represent GMII data and ..." to "to represent XGMII data and ..."
 Suggest to search and replace it globally.

Proposed Response Response Status O

Cl 149 SC 149.2.2.3.1 P76 L44 # 155
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 Formatting of text under SYMB and ALERT does not match the rest of the document.

SuggestedRemedy
 Fix the paragraph formatting.

Proposed Response Response Status O

Cl 00 SC 0 P79 L27 # 274
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X
 Delete references to unused loc_phy_ready and rem_phy_ready in in the primitives section, in Figures 149-2, 149-4, and 149-24, and in the variables of PHY Control 149.4.4.1. PHY control uses loc_rcvr_status instead of loc_phy_ready and rem_phy_ready

SuggestedRemedy
 In Figure 149-2 (P71): Delete loc_phy_ready from PMA RECEIVE to PCS TRANSMIT, and rem_phy_ready (just the label, not the arc) from PCS RECEIVE to PHY CONTROL (this arc also has the label rem_rcvr_status, which should remain)

149.2.2 P74 L26, Delete primitives PMA_PHYREADY.indication(loc_phy_ready) and on P74 L28 delete PMA_REMPHYREADY.request (rem_phy_ready)

149.2.2.8 Delete 149.2.2.8 and subclauses 149.2.2.8.1 and 149.2.2.8.2 (P79 L1-22)

149.2.2.10 Delete P80 L1 - 28, Editor's note and 149.2.2.10 PMA_REMPHYREADY.request and subclauses.

In Figure 149-4 (PCS reference diagram, P82 L23), Delete loc_phy_ready input to PCS TRANSMIT from PMA SERVICE INTERFACE. Change label on output from PCS RECEIVE to PMA SERVICE INTERFACE from "rem_rcvr_status/rem_phy_ready" to "rem_rcvr_status".

In Figure 149-24 (PMA reference diagram, P134 L7) delete the first solid line output from PMA RECEVE to PMA SERVICE INTERFACE and label "loc_phy_ready", and change label on rightmost input (2nd from right line) to PHY CONTROL from PMA SERVICE INTERFACE from "rem_rcvr_status/rem_phy_ready" to "rem_rcvr_status"

Proposed Response Response Status O

Cl 149 SC 149.2.2 P80 L3 # 276
 McClellan, Brett Marvell

Comment Type T Comment Status X

I believe this editor's note refers to a special GMII codeword defined and used in Clause 97 only for the purpose of signaling PMA_PHYREADY.indication (loc_phy_ready) to the link partner.

For Clause 97, Idle was split into two different codewords, one for loc_phy_ready = NOT_OK and one for loc_phy_ready = OK.

This points out a problem in the current CH draft.

149.2.2.8 PMA_PHYREADY.indication definition states that "loc_phy_ready is conveyed to the link partner by the PCS as defined in 149.4.4.1."

149.4.4.1 then points back to Table 149-1, "This variable is conveyed to the link partner by the PCS as defined in Table 149-1."

However, Table 149-1 has no codeword to convey loc_phy_ready. loc_phy_ready was created in BP to prevent either side from transmitting frames until both sides are ready. loc_phy_ready is unnecessary for XGMII based PHYs and currently it isn't used in the PMA PHY control state machine. Normal ordered sets of Local Fault and Remote Fault from the Reconciliation Sublayer perform the function of holding off frames until both PHYs are ready.

SuggestedRemedy

- Remove the editor's note.
- Remove the primitive PMA_PHYREADY.indication and any text and figure references related to loc_phy_ready.
- Remove the primitive PMA_REMPHYREADY.request and any text and figure references related to rem_phy_ready.
- Remove loc_phy_ready definition from 149.4.4.1 State diagram variables.
- Remove rem_phy_ready definition from 149.4.4.1 State diagram variables.

Proposed Response Response Status O

Cl 149 SC 149.3.2.1 P82 L45 # 296
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X

Timing specs for PCS reset are missing.

SuggestedRemedy

- Insert the following paragraph:
 The reset shall take less than 10ms (=max_reset_time), and register access shall be available again after that. The link shall resume operation and achieve the required BER within 100ms (=max_training_time)

Proposed Response Response Status O

Cl 149 SC 149.3.2.2 P83 L10 # 156
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X

Add commas for readability.

SuggestedRemedy

- Change: These bits are then mapped two at a time into a PAM4 symbol.
- To: These bits are then mapped, two at a time, into a PAM4 symbol.

Proposed Response Response Status O

Cl 149 SC 149.3.2.2 P83 L22 # 157
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X

Missing open parenthesis

SuggestedRemedy

- Change: Tn)
- To: (Tn)

Proposed Response Response Status O

Cl 149 SC 149.3.2.2 P83 L23 # 158
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X

Change signal value to +1 for consistency.

SuggestedRemedy

- Change: {-1, 1}
- To: {-1, +1}

Proposed Response Response Status O

Cl 149 SC 149.3.2.2 P83 L37 # 232
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X
aggregation into a superframe is not an option - it is written as if it were.

SuggestedRemedy
Change "In order to improve error correction capability, the PHY may aggregate L RS-FEC input frames into an interleaved RS-FEC input superframe."
to
"The PHY aggregates L RS-FEC input frames into an L-interleaved (L=1, 2, or 4) RS-FEC input superframe."

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.1 P84 L4 # 159
Wienckowski, Natalie General Motors

Comment Type E Comment Status X
typo

SuggestedRemedy
Change: 65B-RS_FEC
To: 65B RS-FEC

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.2 P85 L31 # 161
Wienckowski, Natalie General Motors

Comment Type E Comment Status X
extraneous word

SuggestedRemedy
Remove the word "pair" from Figure 149-6. This is left from the 4-pair figure and inst needed here.

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.3 P85 L37 # 185
Wienckowski, Natalie General Motors

Comment Type E Comment Status X
Need to keep this paragraph with the one before it instead of allowing them to be separated by the Figures or the statement "The subscript in the above labels" is out of context.

SuggestedRemedy
Keep paragraphs together through formatting.

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.11 P89 L37 # 25
Maguire, Valere The Siemon Company

Comment Type E Comment Status X
Correct grammatical of the word "which"

SuggestedRemedy
Replace "(which is reserved)" with ", which is reserved"

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.15 P90 L39 # 16
Anslow, Pete Ciena

Comment Type E Comment Status X
Equation (149-1) is truncated
Is this a "Medium" equation?

SuggestedRemedy
If it is not already, make this a "Medium" equation.
"Shrink-wrap" the equation.

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.15 P90 L39 # 265
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Just shows half g of g(x), and half 0 of g0 in Equation (149-1)
 SuggestedRemedy
 Zoom out a little bit for the equation (149-1) to show the full equation.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P93 L33 # 116
 Chen, Steven Broadcom
 Comment Type ER Comment Status X
 The L33~L37 seems being a duplicated copy of the L27~L31.
 SuggestedRemedy
 Remove L33~L37.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.15 P91 L15 # 233
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status X
 "This may be computed". "may" is a special word for "is permitted to". In this case, it is describing an implementation.
 SuggestedRemedy
 Change "may" to "can"
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P93 L36 # 186
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 i,r should be subscripts
 SuggestedRemedy
 For pi,r, change i,r to a subscript of p.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P93 L33 # 263
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Repeat statement
 SuggestedRemedy
 Delete the repeat statement of line 33-37, which are the same as line 27-31
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P94 L19 # 266
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "mL" to "m0"; Figure 149-10, at the RS Encoder #L, the input and output mL should be m0.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P93 L33 # 95
 Tu, Mike Broadcom
 Comment Type ER Comment Status X
 Line 33 to line 37 are the same as line 27 to line 31.
 SuggestedRemedy
 Delete line 33 to line 37.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P94 L19 # 96
 Tu, Mike Broadcom
 Comment Type TR Comment Status X
 Wrong indices. "m_L" should be "m_0" at both the input and the output of the Lth encoder.
 SuggestedRemedy
 Change "m_L" to "m_0" at bot the input and the output of the Lth RS Encoder.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.16 P94 L19 # 117
 Chen, Steven Broadcom
 Comment Type TR Comment Status X
 The last message symbol of the input message symbols should be m0, not mL.
 SuggestedRemedy
 In the input message symbols, change "mL" to "m0".
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.20 P95 L43 # 48
 Lo, William Axonne Inc.
 Comment Type ER Comment Status X
 Refresh is PAM2 so we can delete highlightd paragraph.
 SuggestedRemedy
 delete highlightd paragraph.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.18 P95 L1 # 97
 Tu, Mike Broadcom
 Comment Type ER Comment Status X
 This paragraph seems to be the redundant. Keep line 4 and 5.
 SuggestedRemedy
 Delete Line 1 and line 2.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.20 P96 L3 # 98
 Tu, Mike Broadcom
 Comment Type TR Comment Status X
 "P(r,t)" probably should be "P(u)"
 SuggestedRemedy
 Replace "P(r,t)" on line 3 and line 6 by "P(u)"
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.19 P95 L41 # 63
 Lo, William Axonne Inc.
 Comment Type TR Comment Status X
 The first PAM4 state entered is TX SWITCH
 SuggestedRemedy
 Change PAM4 PCS Test to TX SWITCH state
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.21 P96 L18 # 82
 Graba, Jim Broadcom
 Comment Type TR Comment Status X
 Update TBD
 SuggestedRemedy
 Point to figure containing EEE transmit state diagram
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.19 P95 L43 # 304
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 PAM2 versus PAM4 during refreshes
 SuggestedRemedy
 In order to keep things as simple as possible in EEE mode, I would recommend to go for PAM2 here, so no pre-coder during refreshes.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.2.21 P96 L23 # 64
Lo, William Axonne Inc.

Comment Type TR Comment Status X

Data are processed in units of superframes.
It makes no sense if the 8 RS-FEC partially fill the final superframe.
A related issue is once the LP_IDLE is sent, the transmitter is committed to sending the complete sleep signal (8 RS-FEC frames worth) and not abort early.

Add the sentences below to clarify how the 8 RS-FEC frames of LP_IDLE are packed at the end of line 23.

SuggestedRemedy

The 8 RS-FEC frames of LP_IDLE completely fill two superframes in L=4 interleave or four superframes in L=2 interleave. Once initiated, the complete sleep signal consisting of 8 RS-FEC frames of LP_IDLE shall be transmitted.

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.21 P96 L27 # 187
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

Add comma for readability.

SuggestedRemedy

Change: After the sleep signal is transmitted LPI control characters shall be
To: After the sleep signal is transmitted, LPI control characters shall be

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.21 P96 L46 # 28
Benjamin, Saied Aquantia

Comment Type TR Comment Status X

Alert description is yellowed out, and needs to mention that we use link syncrhonization.
Current paragraph:
When the lpi_tx_mode variable takes the value <TBD: ALERT and the PMA asserts SEND_N, the PCS passes the ALERT vector to the PMA.>

SuggestedRemedy

When the lpi_tx_mode variable takes the value ALERT, the PMA transmits the link synchronization sequence onto the MDI as provided by the link synchronization block via sync_tx_symb

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.21 P96 L51 # 29
Benjamin, Saied Aquantia

Comment Type TR Comment Status X

Alert has a yellow tag around it <TBD Alert>

SuggestedRemedy

remove yellow and <TBD> and change to upper case ALERT

Proposed Response Response Status O

Cl 149 SC 149.3.2.2.21 P97 L4 # 30
Benjamin, Saied Aquantia

Comment Type TR Comment Status X

There is a yellow tag on this line awaiting some description

SuggestedRemedy

Please add the following:
After the alert signal, the PCS completes the transition from LPI mode to normal mode by sending a wake signal containing lpi_wake_time RS-FEC frames composed of IDLE 64B/65B blocks.

Lpi_wake_time is a fixed parameter that is defined in Table 149-1000. Please see attached word doc

Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P97 L14 # 99
Tu, Mike Broadcom

Comment Type ER Comment Status X

Change "65B-RS-FEC" to "65B RS-FEC", same as the convention used in 149.3.2.2.2

SuggestedRemedy

Change "65B-RS-FEC" on line 14 and line 15 to "65B RS-FEC".

Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P97 L14 # 160
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 typo
 SuggestedRemedy
 Change: 65B-RS-FEC
 To: 65B RS-FEC
 Also page 97 line 15 and page 140 line 46.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P97 L38 # 277
 McClellan, Brett Marvell
 Comment Type T Comment Status X
 according to 149.3.4.1, alignment bits are placed every 450 symbols.
 SuggestedRemedy
 Change 80 to 450.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P97 L28 # 188
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Add comma for readability.
 SuggestedRemedy
 Change: monitors the signal quality asserting hi_rfer if excessive
 To: monitors the signal quality, asserting hi_rfer if excessive
 Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P97 L51 # 189
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Add comma for readability.
 SuggestedRemedy
 Change: After these frames the link partner
 To: After these frames, the link partner
 Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P97 L38 # 86
 Tu, Mike Broadcom
 Comment Type TR Comment Status X
 There are 450 PAM2 symbols per partial frame.
 SuggestedRemedy
 Within the highlighted text, change "180" to "450". Then remove the highlights.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.3 P98 L2 # 31
 Benyamin, Saied Aquantia
 Comment Type TR Comment Status X
 There is a yellow TBD as follows
 The quiet-refresh cycle continues until the PMA asserts <TBD Alert> .
 SuggestedRemedy
 The quiet-refresh cycle continues until the link synchronization detect asserts
 send_s_sigdet to indicate that the alert (link synchronization) sequence has been reliably
 detected. After the alert sequence the link partner transmits repeated // characters,
 representing a wake signal. The PHY receive function sends // to the XGMII for 8 RS-
 Frame periods (wake duration) and then resumes normal operation.
 Proposed Response Response Status O

Cl 149 SC 149.3.2.3.2 P98 L16 # 190
Wienckowski, Natalie General Motors

Comment Type T Comment Status X

The equation references are swapped. The Master receive function should use the Slave transmit scrambler to descramble and the Slave receiver should use the Master transmit scrambler to descramble.

SuggestedRemedy

Swap the references to Equation (149-5) and Equation (149-6) in the following text: For side-stream descrambling, the MASTER PHY shall employ the receiver descrambler generator polynomial per Equation (149-5) and the SLAVE PHY shall employ the receiver descrambler generator polynomial per Equation (149-6).

Proposed Response Response Status O

Cl 149 SC 149.3.2.3.3 P98 L24 # 17
Anslow, Pete Ciena

Comment Type E Comment Status X

Two instances of "Table 149-1" (in b) and c)) should be cross-references.

SuggestedRemedy

Make the two instances of "Table 149-1" cross-references.

Proposed Response Response Status O

Cl 149 SC 149.3.3 P98 L43 # 234
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status X

"however there is the possibility that the RS-FEC decoder may have corrected some errors." "may" is a special word for "is permitted to" in this case a fact is being described.

SuggestedRemedy

Change "however there is the possibility that the RS-FEC decoder may have corrected some errors." to "however there is the possibility that the RS-FEC decoder corrected some errors."

Proposed Response Response Status O

Cl 149 SC 149.3.4 P98 L47 # 237
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X

"PMA training side-stream scrambler polynomials" - these are also used in data mode. They're not just for breakfast anymore.

SuggestedRemedy

Delete "PMA Training" so that the header for 149.3.4 reads "Side-stream scrambler polynomials"

Proposed Response Response Status O

Cl 149 SC 149.3.4.1 P99 L37 # 305
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X

"alignment to the RS-FEC block and the 16 partial PHY frames that comprise the block" "block" is confusing here as block is used in the context of 64B/65B block encoding. What is meant here is PAM2 training sequence with the length of 4 RS frames. I think this is called super-frame.

SuggestedRemedy

Replace by: "alignment to the RS-FEC super-frame comprising 16 partial PHY frames"

Proposed Response Response Status O

Cl 149 SC 149.3.4.4 P100 L8 # 49
Lo, William Axonne Inc.

Comment Type ER Comment Status X

Section duplicated

SuggestedRemedy

Delete section.

Proposed Response Response Status O

Cl 149 SC 149.3.4.4 P100 L8 # 191
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status X
 This is a duplicate of 149.3.4.3.
 SuggestedRemedy
 Delete 149.3.4.4.
 Proposed Response Response Status O

Cl 149 SC 149.3.5 P100 L30 # 193
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Add comma for readability.
 SuggestedRemedy
 Change: lpi_qr_time equal to 96 RS-FEC frame periods.
 To: lpi_qr_time, equal to 96 RS-FEC frame periods.
 Proposed Response Response Status O

Cl 149 SC 149.3.5 P100 L25 # 192
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Add comma for readability.
 SuggestedRemedy
 Change: Within the LPI mode PHYs use a repeating quiet-refresh cycle
 To: Within the LPI mode, PHYs use a repeating quiet-refresh cycle
 Proposed Response Response Status O

Cl 149 SC 149.3.5 P100 L34 # 32
 Benyamin, Saied Aquantia
 Comment Type E Comment Status X
 We space alerts so they do not overlap by forcing their start times. It is more clear to refer to alert start time as opposed to alert signal. Also in the same sentence we refer to the link partner. See following text and changes in bold on the right
 lpi_offset is a fixed value equal to lpi_qr_time / 2 + 4 (52 RS-FEC frame periods) that is used to ensure refresh signals and alert signals are appropriately offset by the link partner's.
 SuggestedRemedy
 lpi_offset is a fixed value equal to lpi_qr_time / 2 + 4 (52 RS-FEC frame periods) that is used to ensure refresh signals and alert start times are appropriately offset from the link partner's.
 Proposed Response Response Status O

Cl 149 SC 149.3.5 P100 L29 # 194
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 grammer - the letter L is "el" which requires an in front of it
 SuggestedRemedy
 Change: a LPI
 To: an LPI
 Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L4 # 65
Lo, William Axonne Inc.

Comment Type TR Comment Status X

The method to synchronize the master as slave as described in this section defeats the entire purpose of partial frame count during training as shown in Figure 149-12 and introduces uncertainty in the timing.

SuggestedRemedy

Delete:
The transition to PCS_Test is used as a fixed timing reference for the link partners. Refresh signaling is derived by counting RS-FEC frames from the transition to PCS_Test. At the Master RS-FEC frame count of zero and all multiples of 96 RS-FEC frames thereafter denote the start of the cycle.

Replace with:
Refresh signaling is derived by tracking the partial frame count as shown in Figure 149-12.

Delete (lines 16, 17):

Following the transition to PAM4, the PCS continues to count transmitted RS-FEC frames (tx_rsfec), and uses the counter to generate refresh, ALERT, and wake control signals for the transmit functions.

Replace with:
Following the transition to PAM4, the PCS continues to count partial frames and uses the count to generate refresh, ALERT, and wake control signals for the transmit functions.

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L6 # 195
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

Add commas for readability.

SuggestedRemedy

Change: At the Master RS-FEC frame count of zero and all multiples of 96 RS-FEC frames thereafter denote the start of the cycle.
To: At the Master, a RS-FEC frame count of zero, and all multiples of 96 RS-FEC frames thereafter, denote the start of the cycle.

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L10 # 33
Benyamin, Saied Aquantia

Comment Type TR Comment Status X

Frame counts are based on RS-Frames, not partial frames

SuggestedRemedy

Remove the word partial in three places on line 10 and line 11

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L13 # 34
Benyamin, Saied Aquantia

Comment Type TR Comment Status X

The offset between two link partners is not exactly half cycle, it is 4 frames more than half cycle, change the wording

SuggestedRemedy

Replace the word "half cycle" with "properly"

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L13 # 196
Wienckowski, Natalie General Motors

Comment Type T Comment Status X

The refresh signals are not exactly a half cycle off since one is at 52 and the other is at 96 RS-FEC frames.

SuggestedRemedy

Change: the refresh periods are a half cycle offset.
To: the refresh periods are about a half cycle offset.

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L19 # 72
 Graba, Jim Broadcom

Comment Type TR Comment Status X

Establish a limitation for alert starts so that it does not overlap with the link partner's alert.

SuggestedRemedy

Insert the following paragraph:
 The four RS-Frame long Alert shall start at the beginning of any eighth PHY frame boundary starting at the beginning of the frame following the refresh PHY frame. This offsets the master and slave alert start times by alert_period/2 = 4 PHY frames and provides the following two benefits: The MASTER and SLAVE allowable alert transmissions do not overlap and Alert does not overlap device's own refresh. The MASTER and SLAVE shall derive the tx_refresh_active and tx_alert_start signals from the transmitted PHY frames (tx_rsfc) as shown in Table 149-3 and Table 149-4.

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L19 # 35
 Benyamin, Saied Aquantia

Comment Type TR Comment Status D

We need to establish limitation for alert starts so that it does not overlap with the link partner's alert.

SuggestedRemedy

Add the following paragraph:
 The four RS-Frame long Alert may start at the beginning of every eighth PHY frame boundary starting at the beginning of the frame following the refresh PHY frame. This sets alert_period to 4 PHY frames and provides the following two benefits: The MASTER and SLAVE allowable alert transmissions do not overlap and Alert does not overlap device's own refresh. The MASTER and SLAVE shall derive the tx_refresh_active and tx_alert_start signals from the transmitted PHY frames (tx_rsfc) as shown in Table 149-5 and Table 149-6.

Proposed Response Response Status Z

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.3.5.1 P101 L27 # 36
 Benyamin, Saied Aquantia

Comment Type TR Comment Status X

The table is erroneously referring to wake_period for alert calculation

SuggestedRemedy

Change wake_period to alert_period

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L28 # 70
 Graba, Jim Broadcom

Comment Type TR Comment Status X

Need tx_lpi_full_refresh condition in Table 149-3

SuggestedRemedy

Add row to Table 149-3. First column: tx_lpi_full_refresh=true. Second column: mod(u, lpi_qr_time) = lpi_offset - lpi_refresh_time

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L36 # 37
 Benyamin, Saied Aquantia

Comment Type TR Comment Status X

The table is erroneously referring to wake_period for alert calculation

SuggestedRemedy

Change wake_period to alert_period

Proposed Response Response Status O

Cl 149 SC 149.3.5.1 P101 L38 # 71
 Graba, Jim Broadcom

Comment Type TR Comment Status X

Need tx_lpi_full_refresh condition in Table 149-4

SuggestedRemedy

Add row to Table 149-4. First column: tx_lpi_full_refresh=true. Second column: mod(v, lpi_qr_time) = lpi_quiet_time

Proposed Response Response Status O

Cl 149 SC 149.3.5.3 P101 L47 # 38
Benyamin, Saied Aquantia

Comment Type TR Comment Status X

During LPI, we still need to send the OAM, the following text does not include this, it only mentions that we do not send any infocfield data during refresh with the exception that the infocfield consists of a sequence of 128 zeros.

SuggestedRemedy

with the exception that the infocfield consists of a sequence of 128 zeros and, in addition, the 10-bit OAM symbol to be transmitted is XORed with the last 10 bits of the PAM2 refresh transmission

Proposed Response Response Status O

Cl 149 SC 149.3.6.2.2 P102 L49 # 24
Maguire, Valere The Siemon Company

Comment Type E Comment Status X

Consistency with other text in clause

SuggestedRemedy

Replace "which" with "that"

Proposed Response Response Status O

Cl 149 SC 149.3.6.2.2 P103 L29 # 79
Graba, Jim Broadcom

Comment Type ER Comment Status X

Yellow highlighting is no longer needed

SuggestedRemedy

Remove highlighting

Proposed Response Response Status O

Cl 149 SC 149.3.6.2.3 P104 L2 # 74
Graba, Jim Broadcom

Comment Type E Comment Status X

SuggestedRemedy

Proposed Response Response Status O

Cl 149 SC 149.3.6.2.3 P104 L35 # 219
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X

Need to accept rfer_timer so that hi_rfer function (already accepted) works. This is not a EEE variable. The value scales with the bit rate, but not with interleaving, and relates to 312 500 bit times - for monitoring, the variation with interleaving should be acceptable.

SuggestedRemedy

Accept text in yellow at lines 35 through 39 for rfer_timer.

Proposed Response Response Status O

Cl 149 SC 149.3.6.2.3 P104 L40 # 80
Graba, Jim Broadcom

Comment Type ER Comment Status X

Yellow highlighting is no longer needed

SuggestedRemedy

Remove highlighting from lines 40 - page 105 line 7

Proposed Response Response Status O

Cl 149 SC 149.3.6.2.3 P104 L45 # 81
 Graba, Jim Broadcom
 Comment Type **TR** Comment Status **X**
 lpi_tx_sleep_timer is wrong
 SuggestedRemedy
 Replace 6 RS-FEC with 8 RS-FEC
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.2.4 P105 L13 # 118
 Chen, Steven Broadcom
 Comment Type **ER** Comment Status **X**
 There's no definition for rx_symb_vector. The rx_symb is defined instead.
 SuggestedRemedy
 Change "rx_symb_vector" to "rx_symb".
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.2.4 P105 L25 # 199
 Wienckowski, Natalie General Motors
 Comment Type **E** Comment Status **X**
 awkward wording
 SuggestedRemedy
 Change: belonging to the eight types
 To: belonging to one of the eight types
 Also on page 106, line 11
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.2.4 P105 L42 # 197
 Wienckowski, Natalie General Motors
 Comment Type **E** Comment Status **X**
 Hex alphabetic charcters should be capitalized.
 SuggestedRemedy
 Change: 0x1e
 To: 0x1E
 Also on page 105, line 45
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.2.4 P105 L53 # 198
 Wienckowski, Natalie General Motors
 Comment Type **E** Comment Status **X**
 duplicate sentence.
 SuggestedRemedy
 Delete on instance of: A valid O code is one containing an O code specified in Table 149-1.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.2.5 P106 L47 # 220
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type **T** Comment Status **X**
 Accept rfer counter logic for rfer monitor state machine. These are needed, and should not be controversial.
 SuggestedRemedy
 Accept text in yellow at lines 1 through 6 on page 107, delete editor's note on lines 47 through 51 on page 106.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.2.5 P107 L1 # 102
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Remove editorial highlights from line 1 to line 5.
 SuggestedRemedy
 Remove editorial highlights on line 1 to line 5.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.3 P107 L19 # 222
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type **E** Comment Status **X**
 Accept description of state diagrams
 SuggestedRemedy
 Accept text in yellow on page 107 lines 19 through 36 for PCS state diagrams.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.3 P107 L17 # 101
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 The RFER monitor state diagram is missing.
 SuggestedRemedy
 1. Copy Figure 97-13 as RFER monitor state diagram
 2. On line 17, change Figure 149-TBD to the figure number of this inserted figure.
 3. Before 149.3.6.3, add "149.3.6.2.6 Messages", with content:
 RX_FRAME
 A signal sent to PCS Receive indicating that a full Reed-Solomon frame has been
 decoded and the variable rf_valid is updated.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.3 P107 L20 # 103
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Remove editorial highlights from line 17 to line 35.
 SuggestedRemedy
 Remove editorial highlights from line 17 to line 35.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.6.3 P107 L17 # 221
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type **T** Comment Status **X**
 Need RFER monitor state diagram
 SuggestedRemedy
 Accept text in yellow on P 107 lines 17 & 18. Add figure 97-13 into the draft as the
 referenced "Figure 149-TBD" in line 17. Editorial license to accept and add any necessary
 variables, counters, functions or constants for Figure 97-13 from clause 97 into 149.3.6.2,
 or accept them if missed by other comments (they should all be there in yellow and in other
 comments)
 Proposed Response Response Status **O**

Cl 149 SC 149.3.7.1 P107 L46 # 119
 Chen, Steven Broadcom
 Comment Type **ER** Comment Status **X**
 Change PCS_status to the defined pcs_status for naming consistency.
 SuggestedRemedy
 Change "PCS_status" to "pcs_status"
 Suggest to search and replace it globally.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.7.2 P108 L24 # 223
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **T** Comment Status **X**
 X-bit counter - this is a 6-bit counter, according to the description in clause 45., and the referenced figure for the RFER monitor state diagram is added by another comment.

SuggestedRemedy
 Change x-bit to six bit, and cross reference to RFER Monitor state diagram if added by the other comment.

Proposed Response Response Status **O**

Cl 149 SC 149.3.7.2 P108 L24 # 104
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **X**
 There are only 6 bits in MDIO register bits 3.2324.5:0.

SuggestedRemedy
 Change from "X-bit counter that ..." to "6-bit counter that ...".

Proposed Response Response Status **O**

Cl 149 SC 149.3.7.2 P111 L5 # 120
 Chen, Steven Broadcom

Comment Type **TR** Comment Status **X**
 The "fr_active" and "fr_sigtype" is not defined and should be removed.

SuggestedRemedy
 Change
 "if !fr_active
 rx_raw <= LBLOCK_R
 else
 rx_raw <= fr_sigtype
 end"
 to
 "rx_raw <= LBLOCK_R"

Proposed Response Response Status **O**

Cl 149 SC 149.3.6.3 P112 L44 # 78
 Graba, Jim Broadcom

Comment Type **TR** Comment Status **X**
 Add EEE transmit state diagram

SuggestedRemedy
 Insert EEE transmit state diagram with changes as shown in EeeTransmitStateDiagramMarkUp_Graba_20190222.pdf

Proposed Response Response Status **O**

Cl 149 SC 149.3.7.3 P112 L50 # 93
 Tu, Mike Broadcom

Comment Type **TR** Comment Status **X**
 Change "TBD" to "65B RS-FEC"

SuggestedRemedy
 Change "TBD" to "65B RS-FEC"

Proposed Response Response Status **O**

Cl 149 SC 149.3.7.3 P112 L50 # 224
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type **E** Comment Status **X**
 "a continuous stream of TBD encoded PAM 4 symbols" - the missing word is "RS-FEC"

SuggestedRemedy
 Replace "TBD" with "RS-FEC"

Proposed Response Response Status **O**

Cl 149 SC 149.3.7.3 P112 L50 # 306
 den Besten, Gerrit NXP Semiconductors

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

SuggestedRemedy
 Replace "TBD encoded" with "encoded transmit data"

Proposed Response Response Status **O**

Cl 149 SC 149.3.8 P113 L14 # 121
Chen, Steven Broadcom

Comment Type E Comment Status X

The OAM10 is not defined.

SuggestedRemedy

Change "the OAM10 field" to "the OAM 10-bit field"
Also replace the same issue in page 113 line 30.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.1 P114 L # 288
den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X

I understand the benefit of an separate RS code to protect OAM bytes during LPI mode. However it should be noted that EEE is optional. It doesn't make sense to me that the OAM data during normal operation would be double RS encoded as it is already protected by the regular RS-FEC frame. Therefore I propose to make the OAM RS optional for normal operation.

SuggestedRemedy

I propose to only use the (16,14,10) RS coding for OAM during refreshing and not during normal operation. At least this should not be mandated. During normal operation the OAM bytes are already protected by the RS(360,324,10) scheme. We intentionally selected an RS scheme where one byte was left over for OAM. A transceiver with EEE still can double RS encode the OAM all the time, but an PHY that does not support EEE should not be required to add this additional coding without any purpose. In order to keep it simple with a 16 byte scheme, the last two bytes will be reserved in normal operation, and be transmitted as zero.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.1 P114 L38 # 308
den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status X

"full OAM frame can packed into 8 super frames in the 2x interleave mode, and into 4 super frames in the 4x interleave mode"

SuggestedRemedy

"full OAM frame can be packed into 8 super frames in the 2x interleaved mode, and into 4 super frames in the 4x interleaved mode"

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.1 P114 L41 # 235
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status X

"it may be possible". "may" means "it is permitted to" - "it is permitted to be possible" doesn't really make sense. If it is, indeed possible, "it is possible", if we are unsure, let's figure it out! (in 2 places, also on line 44)

SuggestedRemedy

Change "it may be possible" to "it is possible" on lines 41 and 44

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.1 P115 L3 # 50
Lo, William Axonne Inc.

Comment Type ER Comment Status X

Clarification on the dummy symbol

SuggestedRemedy

Add new paragraph at line 3 as follows:
The dummy OAM symbol is all 0s and its value is ignored at the receiver.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.4 P115 L44 # 200
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

awkward wording

SuggestedRemedy

Change: This bit is set by the PHY to for the link partner to echo on Ping RX.
To: This bit is set by the PHY for the link partner to echo on Ping RX.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.5 P116 L1 # 128
 Chen, Steven Broadcom
 Comment Type **TR** Comment Status **X**
 To exit the LPI would require to change MAC layer.
 SuggestedRemedy
 Remove "Request link partner to exit LPI and send idles"
 Proposed Response Response Status **O**

Cl 149 SC 149.3.8.2.12 P117 L42 # 129
 Chen, Steven Broadcom
 Comment Type **TR** Comment Status **X**
 This standard requires single pair cable. There's no pair swap.
 SuggestedRemedy
 Remove L42 to L47.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.8.2.12 P117 L17 # 201
 Wienckowski, Natalie General Motors
 Comment Type **E** Comment Status **X**
 missing period
 SuggestedRemedy
 Add a period at the end of the sentence.
 Also on page 117, lines 24, 30, 36, 42, and 49.
 Also on page 118, lines 1 and 6.
 Proposed Response Response Status **O**

Cl 149 SC 149.3.8.2.12 P118 L7 # 127
 Chen, Steven Broadcom
 Comment Type **TR** Comment Status **X**
 Unclear which RS-FEC block errors since we have different RS-FEC for both RS-FEC frame and OAM message, respectively.
 SuggestedRemedy
 Change "... RS-FEC block errors" to "... RS-FEC frame block errors"
 Proposed Response Response Status **O**

Cl 149 SC 149.3.8.2.12 P117 L31 # 122
 Chen, Steven Broadcom
 Comment Type **TR** Comment Status **X**
 The definition of "not receiving transmit messaged from the MAC" needs to be clarified.
 SuggestedRemedy
 Change "... not receiving transmit messaged from the MAC" to "... not receiving valid transmit message from the MAC"
 Proposed Response Response Status **O**

Cl 149 SC 149.3.8.2.13 P118 L13 # 56
 Lo, William Axonne Inc.
 Comment Type **T** Comment Status **X**
 The RS(16, 14) is unnecessary circuitry for PHYs that does not implement EEE. The following changes allows the simplification to be made.
 See Lo_3ch_01_0319.pdf slide 3 for the rationale for this change.
 SuggestedRemedy
 See Lo_3ch_01_0319.pdf slide 4 for the text changes
 Proposed Response Response Status **O**

Cl 149 SC 149.3.8.2.13 P118 L14 # 202
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 subject/verb agreement
 SuggestedRemedy
 Change: The RS(16, 14) parity symbols is indicated
 To: The RS(16, 14) parity symbols are indicated
 Proposed Response Response Status O

Cl 149 SC 149.3.8.2.13 P118 L32 # 203
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing period
 SuggestedRemedy
 Add a period at the end of the sentence.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.2.13 P118 L35 # 307
 den Besten, Gerrit NXP Semiconductors
 Comment Type E Comment Status X
 Period missing after "Figure 149–19"
 SuggestedRemedy
 Add period
 Proposed Response Response Status O

Cl 149 SC 149.3.8.2.13 P118 L35 # 204
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing period
 SuggestedRemedy
 Change: Figure 149–19 Before calculation
 To: Figure 149–19. Before calculation
 Proposed Response Response Status O

Cl 149 SC 149.3.8.2.14 P118 L41 # 205
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add periods at the end of the a) and b) statements.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.2.14 P119 L39 # 47
 Lo, William Axonne Inc.
 Comment Type ER Comment Status X
 Title heading incorrect
 SuggestedRemedy
 Delete 1000BASE-T1
 Proposed Response Response Status O

Cl 149 SC 149.3.8.2.15 P119 L48 # 236
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status X
 "that may cause the PHY" - it appears "can cause the PHY" would be more appropriate.
 This is neither permission nor option. Occurs 2 times, also on line 51.
 SuggestedRemedy
 Change "may" to "can" on lines 48 & 51
 Proposed Response Response Status O

Cl 149 SC 149.3.8.17 P120 L16 # 206
Wienckowski, Natalie General Motors

Comment Type T Comment Status X

It is not required that a user defined OAM message require multiple OAM messages to transmit. It is possible that the user defined OAM message fits within the 8 bytes available.

SuggestedRemedy

Change: the OAM message exchange operates on a per OAM message basis that will occur over many OAM frames.

To: the OAM message exchange operates on a per OAM message basis that may occur over many OAM frames.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.17 P120 L22 # 207
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

missing comma

SuggestedRemedy

Change: After the link partner receives the OAM message it transfers it

To: After the link partner receives the OAM message, it transfers it

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.17 P120 L23 # 208
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

missing comma

SuggestedRemedy

Change: One OAM message can be loaded into the OAM transmit registers while another OAM message is being transmitted by the PHY to the link partner while yet another OAM message is being read out at the link partner's OAM receive registers.

To: One OAM message can be loaded into the OAM transmit registers while another OAM message is being transmitted by the PHY to the link partner, while yet another OAM message is being read out at the link partner's OAM receive registers.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.17 P120 L26 # 209
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

subject/verb agreement

SuggestedRemedy

Change: The exchange of OAM messages are occurring concurrently and bi-directionally.

To: The exchange of OAM messages is occurring concurrently and bi-directionally.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.17 P120 L27 # 210
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

missing comma

SuggestedRemedy

Change: On the transmit side mr_tx_valid = 0 indicates that the next OAM message can be written into the OAM transmit registers.

To: On the transmit side, mr_tx_valid = 0 indicates that the next OAM message can be written into the OAM transmit registers.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.17 P120 L33 # 212
Wienckowski, Natalie General Motors

Comment Type E Comment Status X

missing comma

SuggestedRemedy

Change: On the receive side mr_rx_ip_valid indicates that valid OAM message can be read from the OAM receive registers.

To: On the receive side, mr_rx_ip_valid indicates that valid OAM message can be read from the OAM receive registers.

Proposed Response Response Status O

Cl 149 SC 149.3.8.2.17 P120 L35 # 213
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing comma
 SuggestedRemedy
 Change: If mr_rx_lp_valid is not cleared then the OAM
 To: If mr_rx_lp_valid is not cleared, then the OAM
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P127 L12 # 216
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 improve wording to match other statements
 SuggestedRemedy
 Change: Send request to link partner...
 To: Request link partner...
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P125 L27 # 213
 Chen, Steven Broadcom
 Comment Type ER Comment Status X
 The mr_rx_lp_message[95:0] has 12 Octets.
 SuggestedRemedy
 Change "Eight octet BASE-T1 OAM from ..." to "Twelve octet BASE-T1 OAM from ..."
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P127 L17 # 217
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add periods at the end of all 4 "Values" sentences.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P126 L47 # 214
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add period at the end of the 0 and 1 sentences.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P127 L35 # 162
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 We changed to BASE-T1 OAM
 SuggestedRemedy
 Change: 1000BASE-T1 OAM
 To: BASE-T1 OAM
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P127 L11 # 215
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 improve wording to match other statements
 SuggestedRemedy
 Change: Don't send request to link partner...
 To: Don't request link partner...
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P127 L43 # 163
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add periods at the end of both "Values" sentences.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P127 L49 # 164
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing period
 SuggestedRemedy
 Add period at end of "Good" sentence.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P129 L20 # 166
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add periods at the end of all 4 "Values" sentences.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P128 L16 # 39
 Benyamin, Saied Aquantia
 Comment Type T Comment Status X
 rx_boundary description has yellow highlighted
 SuggestedRemedy
 Remove the yellow as the text is correct
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P129 L30 # 40
 Benyamin, Saied Aquantia
 Comment Type T Comment Status X
 tx_boundary description has yellow highlighted
 SuggestedRemedy
 Remove the yellow as the text is correct
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.2 P128 L16 # 45
 Lo, William Axonne Inc.
 Comment Type E Comment Status X
 Highlighted sentence is accurate
 SuggestedRemedy
 Remove highlight
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.2 P129 L30 # 46
 Lo, William Axonne Inc.
 Comment Type E Comment Status X
 Highlighted sentence is accurate
 SuggestedRemedy
 Remove highlight
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P128 L19 # 165
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add periods at the end of both "Values" sentences.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.3 P129 L33 # 167
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing periods
 SuggestedRemedy
 Add periods at the end of both "Values" sentences.
 Proposed Response Response Status O

Cl 149 SC 149.3.8.4.4 P130 L17 # 51
Lo, William Axonne Inc.

Comment Type ER Comment Status X
rx_cnt incorrectly defined

SuggestedRemedy

Change:
A count of received OAM frames
To:
A count of received OAM frame symbols

Proposed Response Response Status O

Cl 149 SC 149.3.8.4.6 P131 L17 # 124
Chen, Steven Broadcom

Comment Type TR Comment Status X
The downward arrow from RECEIVE INIT state to CHECK READ state is missing the transition condition.

SuggestedRemedy

Add conditional label "UCT" for the arrow in the middle.

Proposed Response Response Status O

Cl 149 SC 149.3.8.4.6 P131 L26 # 66
Lo, William Axonne Inc.

Comment Type TR Comment Status X
State machine issues:
Typo from modifying from 1000BASE-T1 and missing transitions and not quite correct exit condition

SuggestedRemedy

Change:
Parity_Check(rx_oam_field<8:0>) = Even
To:
frame_boundary = True * (rx_cnt != 16)

Change:
RECEIVE INIT to CHECK READ transition should be rx_boundary (currently it is blank)

Change:
In the LOAD SYMBOL state change rx_boundary To:
rx_boundary | (rx_cnt = 16)

Add:
rx_cnt <= 0 at the bottom of the LOAD RECEIVE PAYLOAD state

Delete in 2 places
* (frame_boundary = False)

Proposed Response Response Status O

Cl 149 SC 149.4.1 P134 L1 # 44
Benyamin, Saied Aquantia

Comment Type TR Comment Status X
PMA reference diagram shows alert detect, this is replaced by link synchronization

SuggestedRemedy

See attached word document for Figure 149-24 erroneously numbered as 149-34 because I was looking at the wrong pdf

Proposed Response Response Status O

CI 149 SC 149.4.2 P134 L47 # 168
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status X
 Incorrect Figure reference
 SuggestedRemedy
 Change: Figure 149-12
 To: Figure 149-24
 Make the same change on line 49.
 Proposed Response Response Status O

CI 149 SC 149.4.2.1 P135 L4 # 264
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "true.All" to "true. All", just add one space.
 Proposed Response Response Status O

CI 149 SC 149.4.2.1 P135 L4 # 169
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing space
 SuggestedRemedy
 Change: hold true.All
 To: hold true. All
 Proposed Response Response Status O

CI 149 SC 149.4.2.1 P135 L4 # 294
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 "true.All"
 SuggestedRemedy
 Add space
 Proposed Response Response Status O

CI 149 SC 149.4.2.1 P135 L7 # 145
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status D
 Add requirement for time allowed to perform a reset at the end of this section.
 SuggestedRemedy
 Add a new paragraph at the end of this section: The time for the PMA to resume normal transmit and receive functions after pma_reset transitions to OFF shall not exceed 20 ms.
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

CI 149 SC 149.4.2.2 P135 L11 # 170
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 missing comma
 SuggestedRemedy
 Change: onto the MDI pulses modulated
 To: onto the MDI, pulses modulated
 Proposed Response Response Status O

Cl 149 SC 149.4.2.2 P135 L12 # 41
 Benyamin, Saied Aquantia

Comment Type TR Comment Status X
 To allow ALERT to transmit link synchronization, we need to add it to the following statement:
 when sync_link_control = ENABLE

SuggestedRemedy
 when sync_link_control = ENABLE or lpi_tx_mode = ALERT

Proposed Response Response Status O

Cl 149 SC 149.4.2.2 P135 L14 # 171
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 missing comma

SuggestedRemedy
 Change: (DAC) and subsequent
 To: (DAC), and subsequent

Proposed Response Response Status O

Cl 149 SC 149.4.2.2.1 P135 L26 # 172
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X
 improve wording by removing an extra "transmitter".

SuggestedRemedy
 Change: When the PMA_transmit_disable variable is set to true, this function shall turn off the transmitter so that the transmitter Average Launch Power of the Transmitter is less than -53 dBm.
 To: When the PMA_transmit_disable variable is set to true, this function shall turn off the transmitter so that the Average Launch Power of the Transmitter is less than -53 dBm.

Proposed Response Response Status O

Cl 149 SC 149.4.2.3 P135 L34 # 225
 Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X
 RS-FEC error rate specification "The quality of these symbols shall allow RFER of less than TBD after RS-FEC decoding"... 10^-12 BER with an RS-FEC frame of 3260 message bits (with the errored frame replaced by error symbols) means an RFER same as the BER, or 10^-12.

SuggestedRemedy
 Replace "TBD" with "10^-12" (where ^ indicates superscript)

Proposed Response Response Status O

Cl 149 SC 149.4.2.3 P135 L34 # 289
 den Besten, Gerrit NXP Semiconductors

Comment Type T Comment Status X
 TBD

SuggestedRemedy
 1.00E-09

Proposed Response Response Status O

Cl 149 SC 149.4.2.3 P135 L34 # 105
 Tu, Mike Broadcom

Comment Type T Comment Status X
 1. For 1000BASE-T1, RFER = BER (<1e-10) * bits/RS-FEC (3600) < 3.6e-7. See 97.4.2.3.
 2. For 10GBASE-T, LFER = BER (<1e-12) * bits/LDPC frame (3200) < 3.2e-9. See 55.4.2.4.
 3. So it is reasonable for 802.3ch to set RFER = BER (<1e-12) * bits/RS-FEC (3200) < 3.2e-9.

SuggestedRemedy
 Change "TBD" to "3.2 x 10^-9".

Proposed Response Response Status O

CI 149 SC 149.4.2.3 P135 L44 # 173
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 subject/verb agreement
 SuggestedRemedy
 Change: from any other values
 To: from any other value
 Proposed Response Response Status O

CI 149 SC 149.4.2.4 P136 L13 # 18
 Anslow, Pete Ciena
 Comment Type E Comment Status X
 In the third paragraph of 149.4.2.4, "149.4.2.4.2" and "149.4.2.4.8" should be cross-references and "FFigure 149-27" has a spurious extra "F"
 SuggestedRemedy
 Make "149.4.2.4.2" and "149.4.2.4.8" cross-references and delete the spurious "F" in "FFigure 149-27".
 Proposed Response Response Status O

CI 149 SC 149.4.2.4 P136 L14 # 174
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 extra "F"
 SuggestedRemedy
 Change: Ffigure 149-27
 To: Figure 149-27
 Proposed Response Response Status O

CI 149 SC 149.4.2.4.2 P137 L3 # 175
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status X
 The SOF is 3 octets, not 4. Also, fix subject/verb agreement.
 SuggestedRemedy
 Change: The start of Frame Delimiter consist of 4 octets [Octet 1<7:0>, Octet 2<7:0>, Octet 3<7:0>]
 To: The start of Frame Delimiter consists of 3 octets [Octet 1<7:0>, Octet 2<7:0>, Octet 3<7:0>]
 Proposed Response Response Status O

CI 149 SC 149.4.2.1 P137 L7 # 295
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 Timing specs for PMA reset are missing.
 SuggestedRemedy
 Insert the following paragraph:
 The reset shall take less than 10ms (=max_reset_time), and register access shall be available again after that. The link shall resume operation and achieve the required BER within 100ms (=max_training_time)
 Proposed Response Response Status O

CI 149 SC 149.4.2.4.4 P137 L15 # 176
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Not a sentence
 SuggestedRemedy
 Change: Message Field (1 octet).
 To: The Message Field is 1 octet.
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.5 P138 L17 # 177
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Should be the letter "O", not the number "0".
 SuggestedRemedy
 Change: [Oct8<7:0>, Oct9<7:0>, Oct10<7:0>]
 To: [Oct8<7:0>, Oct9<7:0>, Oct10<7:0>]
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P140 L1 # 231
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type E Comment Status X
 Text rewrite to eliminate requirements in what should be descriptive text.
 SuggestedRemedy
 Accept zimmerman_3cg_02_0319.pdf (TFTD)
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.5 P138 L41 # 239
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status X
 The requirements for EEEen and OAM should go here in the description of the fields.
 These are currently in yellow in the PHY control description.
 SuggestedRemedy
 Insert new first 2 sentences of paragraph beginning with "Interleaver Depth..." to read ""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."
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P140 L28 # 59
 Lo, William Axonne Inc.
 Comment Type TR Comment Status X
 Infield text is correst.
 No more scrambler seed exchange so need to delete sentence.
 Section reference
 SuggestedRemedy
 Line 28) Unhighlight text
 Line 29) Delete:
 , and the Seed value used by the localdevice for the data mode scrambler initialization
 Line 30) Change TBD to 149.4.2.4.5
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.5 P138 L42 # 238
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status X
 "data mode precoder" - it's used in training as well. It is not just for data mode.
 SuggestedRemedy
 Change "data mode precoder" to "requested precoder"
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P140 L28 # 87
 Tu, Mike Broadcom
 Comment Type ER Comment Status X
 Remove the editorial highlights
 SuggestedRemedy
 Remove the editorial highlights
 Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P140 L29 # 88
 Tu, Mike Broadcom

Comment Type TR Comment Status X

There is no need to exchange the Seed values. There are no user configurable register bits either. However the PHY shall indicate the precoder and the interleaver selections.

SuggestedRemedy

Change the last sentence to "The PHY Control also sets PMA_state = 00 and sends the PHY capability bits, and select the precoder and the interleaver depth".

Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P140 L44 # 178
 Wienckowski, Natalie General Motors

Comment Type E Comment Status X

Add commas for readability.

SuggestedRemedy

Change: In SLAVE mode PHY Control transitions to the TRAINING state only after the SLAVE PHY acquires timing, converges its equalizers, acquires its descrambler state and sets loc_SNR_margin = OK.

To: In SLAVE mode, PHY Control transitions to the TRAINING state only after the SLAVE PHY acquires timing, converges its equalizers, acquires its descrambler state, and sets loc_SNR_margin = OK.

Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P140 L46 # 100
 Tu, Mike Broadcom

Comment Type ER Comment Status X

Change "65B-RS-FEC" to "65B RS-FEC", same as the convention used in 149.3.2.2.2

SuggestedRemedy

Change "65B-RS-FEC" on line 14 and line 15 to "65B RS-FEC".

Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P141 L16 # 60
 Lo, William Axonne Inc.

Comment Type TR Comment Status X

Text modification to conform to state machine.
 Rest of highlighted text is correct

SuggestedRemedy

Un highlight lines 16 to 26
 Change rem_phy_ready to PCS_status in line 17

Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P141 L16 # 89
 Tu, Mike Broadcom

Comment Type TR Comment Status X

The paragraph should be revised in order to match Figure 149-31 PHY Control state diagram.

SuggestedRemedy

Change the paragraph to "Upon expiration of the minwait_timer and when the condition loc_rcvr_status = OK and PCS_status = OK is satisfied, PHY control transitions to the SEND_DATA state."

Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P141 L19 # 90
 Tu, Mike Broadcom

Comment Type TR Comment Status X

This paragraph needs to be revised to match to the PHY Control state diagram.

SuggestedRemedy

Change the paragraph to "Upon entering the SEND_DATA state, PHY Control starts the minwait_timer and stops the maxwait_timer."

Proposed Response Response Status O

Cl 149 SC 149.4.2.4.10 P141 L22 # 91
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Remove editorial highlights in this paragraph.
 SuggestedRemedy
 Remove editorial highlights in this paragraph.
 Proposed Response Response Status **O**

Cl 149 SC 149.4.2.5 P141 L32 # 125
 Chen, Steven Broadcom
 Comment Type **ER** Comment Status **X**
 Use the Link Synchronization when AN is disabled.
 SuggestedRemedy
 Change the "synchronization ..." to "Link Synchronization ...".
 Proposed Response Response Status **O**

Cl 149 SC 149.4.2.5 P141 L36 # 179
 Wienckowski, Natalie General Motors
 Comment Type **E** Comment Status **X**
 subject/verb agreement
 SuggestedRemedy
 Change: the Auto-Negotiation function set link_control
 To: the Auto-Negotiation function sets link_control
 Proposed Response Response Status **O**

Cl 149 SC 149.4.2.7 P146 L4 # 61
 Lo, William Axonne Inc.
 Comment Type **TR** Comment Status **X**
 No state diagram so no reference
 Update to correct time
 SuggestedRemedy
 Delete:
 The Refresh monitor shall comply with the state diagram of Figure TBD.
 Change:
 16.384/S ms to 1.536/S ms
 Proposed Response Response Status **O**

Cl 149 SC 149.4.2.7 P146 L5 # 75
 Graba, Jim Broadcom
 Comment Type **TR** Comment Status **X**
 Update the moving time window length to be equivalent to 2.5G/5G/10GBASE-T
 SuggestedRemedy
 Change 50 to 256. Change 16.384/S ms to 7.864/S ms
 Proposed Response Response Status **O**

Cl 149 SC 149.4.2.7 P146 L5 # 77
 Graba, Jim Broadcom
 Comment Type **TR** Comment Status **X**
 Update TBD
 SuggestedRemedy
 Point to figure containing EEE Refresh monitor state diagram
 Proposed Response Response Status **O**

Cl 149 SC 149.4.2.8 P146 L13 # 106
 Tu, Mike Broadcom
 Comment Type ER Comment Status X
 Remove editorial highlight.
 SuggestedRemedy
 Remove editorial highlight.
 Proposed Response Response Status O

Cl 149 SC 149.4.3.1 P146 L21 # 180
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status X
 there is only 1 pair
 SuggestedRemedy
 Change: The modulation scheme used over each pair is PAM4.
 To: The modulation scheme used is PAM4.
 Proposed Response Response Status O

Cl 149 SC 149.4.3.1 P146 L27 # 189
 Anslow, Pete Ciena
 Comment Type E Comment Status X
 In "{-1, -1/3, 1/3, 1}" the hyphen should be an en dash
 SuggestedRemedy
 In "{-1, -1/3, 1/3, 1}" change the hyphen to an en dash
 Proposed Response Response Status O

Cl 149 SC 149.4.3.1 P146 L27 # 181
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 fix "-" and add "+" to be consistent with the rest of the document.
 SuggestedRemedy
 Change: {-1, -1/3, 1/3, 1}
 To: {-1, -1/3, +1/3, +1}
 Proposed Response Response Status O

Cl 149 SC 149.4.4.1 P147 L3 # 53
 Lo, William Axonne Inc.
 Comment Type ER Comment Status X
 The following variables are correct and should be un-indented and un highlighted. See list below
 SuggestedRemedy
 Fix indentation and un-highlighted the text associated with the following variables:
 en_slave_tx
 infocfield_complete
 loc_phy_ready
 loc_countdown_done
 PMA_state
 rem_phy_ready
 sync_link_control
 Proposed Response Response Status O

Cl 149 SC 149.4.4.1 P147 L3 # 241
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status D
 Accept variables for en_slave_tx, infocfield_complete, loc_phy_ready, loc_countdown_done, PMA_state, rem_countdown_done, rem_phy_ready, and sync_link_control.
 Do not accept PMA_watchdog_status, as this is not used.
 SuggestedRemedy
 Remove highlighting from en_slave_tx, infocfield_complete, loc_phy_ready, loc_countdown_done, PMA_state, rem_countdown_done, rem_phy_ready, and sync_link_control.
 Delete PMA_watchdog_status at P147 L51- P148 L9
 Proposed Response Response Status Z
 PROPOSED REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 149 SC 149.4.4.1 P147 L3 # 107
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Remove editorial highlight.
 SuggestedRemedy
 Remove editorial highlight from line 3 to line 12.
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.1 P147 L42 # 52
 Lo, William Axonne Inc.
 Comment Type **ER** Comment Status **X**
 Incorrect reference
 SuggestedRemedy
 Change 149.4.3 to 149.4.2.7
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.1 P147 L3 # 273
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type **T** Comment Status **X**
 Accept variables for en_slave_tx, infofield_complete, loc_countdown_done, PMA_state, rem_countdown_done, and sync_link_control.
 Do not accept PMA_watchdog_status, loc_phy_ready, and rem_phy_ready as these are not used.
 SuggestedRemedy
 Remove highlighting from en_slave_tx, infofield_complete, loc_countdown_done, PMA_state, rem_countdown_done, and sync_link_control.
 Delete PMA_watchdog_status at P147 L51- P148 L9
 Delete loc_phy_ready at P147 L18-26
 Delete rem_phy_ready at P148 L14-21
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.1 P147 L47 # 109
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Remove editorial highlight.
 SuggestedRemedy
 Remove editorial highlight from line 47 to line 54
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.1 P147 L53 # 69
 Lo, William Axonne Inc.
 Comment Type **TR** Comment Status **X**
 PMA_watchdog_status definition needs updating
 SuggestedRemedy
 See Lo_3ch_01_0319.pdf slide 2 for text
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.1 P147 L19 # 108
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Remove editorial highlight.
 SuggestedRemedy
 Remove editorial highlight from line 19 to line 30
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.1 P148 L1 # 110
 Tu, Mike Broadcom
 Comment Type **TR** Comment Status **X**
 Change "PAM3" to "PAM4"
 SuggestedRemedy
 On line 1, 2, 4, 5, 7, 9, change "PAM3" to "PAM4".
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4 P148 L1 # 270
WU, Peter Marvell

Comment Type TR Comment Status X
"PAM3 " are still used in pma_Watchdog_status definiiton text and expiration times should be changed as well

SuggestedRemedy
change "OK: the local device has received sufficient PAM3 transitions"
NOT_OK: the local device has not received sufficient PAM3 transitions
During normal operation NOT_OK is assigned when:
— PAM3 symbol 0 consecutively seen on the line for longer than 2 μs ± 0.1 μs
— PAM3 symbol +1 consecutively seen on the line for longer than 3.9 μs ± 0.1 μs
— PAM3 symbol -1 consecutively seen on the line for longer than 3.9 μs ± 0.1 μs
During Low Power Idle operation NOT_OK is assigned when:
— PAM3 symbol not togglin g on the line during one full refresh window"
to
"OK: the local device has received sufficient PAM4 transitions"
NOT_OK: the local device has not received sufficient PAM4 transitions
During normal operation NOT_OK is assigned when:
— PAM4 symbol +3 consecutively seen on the line for longer than 1.9 μs ± 0.1 μs
— PAM4 symbol +1 consecutively seen on the line for longer than 1.9 μs ± 0.1 μs
— PAM4 symbol -1 consecutively seen on the line for longer than 1.9 μs ± 0.1 μs
— PAM4 symbol -3 consecutively seen on the line for longer than 1.9 μs ± 0.1 μs
During Low Power Idle operation NOT_OK is assigned when:
— PAM4 symbol not toggling on the line during one full refresh window"
The timers expire all at 1.9us +/- 0.1us

Proposed Response Response Status O

Cl 149 SC 149.4.4.1 P148 L13 # 111
Tu, Mike Broadcom

Comment Type TR Comment Status X
Transition is from PAM2 to PAM4. Also it only depends on the received InfoField PFC24 counter.

SuggestedRemedy
Change from "... the receiver has transitioned from PAM2 to PAM3 mode and has received a valid PHY frame containing all IDLEs."
to "... the receiver has transitioned from PAM2 to PAM4."

Proposed Response Response Status O

Cl 149 SC 149.4.4 P148 L14 # 271
WU, Peter Marvell

Comment Type ER Comment Status X
PAM3 stilll used

SuggestedRemedy
change "PAM3" to "PAM4"

Proposed Response Response Status O

Cl 149 SC 149.4.4.1 P148 L14 # 54
Lo, William Axonne Inc.

Comment Type ER Comment Status X
rem_countdown_done variable

SuggestedRemedy
Change PAM3 to PAM4

Proposed Response Response Status O

Cl 149 SC 149.4.4.1 P148 L37 # 115
Chen, Steven Broadcom

Comment Type TR Comment Status X
The variable pcs_data_mode is not defined.

SuggestedRemedy
Copy from Clause 55.4.5.1 and insert here.

Proposed Response Response Status O

Cl 149 SC 149.4.4.2 P148 L45 # 67
 Lo, William Axonne Inc.
 Comment Type **TR** Comment Status **X**
 Time way too long for acceptable startup in automotive applications.
 Change to match 1000BASE-T1.
 SuggestedRemedy
 Change:
 2000 ms +/- 10ms
 To:
 97.5 ms +/- 0.5 ms
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.2 P148 L45 # 267
 WU, Peter Marvell
 Comment Type **TR** Comment Status **X**
 Maxwait_timer expiartion period should be much shorten than 2000ms with 100ms link up requirement
 SuggestedRemedy
 Change "2000ms+/-10ms" to "97.5ms+/-0.5ms"
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.2 P148 L50 # 268
 WU, Peter Marvell
 Comment Type **T** Comment Status **X**
 minwait_timer expiartion period changed to the same value used at 802.3bp
 SuggestedRemedy
 change "1ms+0.1s" to "975us+/-50us"
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.2 P148 L50 # 55
 Lo, William Axonne Inc.
 Comment Type **ER** Comment Status **X**
 Name of states incorrec for minwait_timer
 Timer is ok
 SuggestedRemedy
 Change:
 PMA_Training_Init_S, PCS_Test and PCS_Data
 To:
 SILENT, TRAINING, PCS TEST, and SEND DATA
 Timer value is ok ans should be un-highlighted
 Proposed Response Response Status **O**

Cl 149 SC 149.4.4.2 P148 L50 # 242
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type **T** Comment Status **X**
 States where minwait_timer is used need to be entered and aligned with state diagram.
 Delete highlighted "PMA_Training_Init_S," state (this does not exist, and accept "PCS_TEST, and PCS_DATA" currently in yellow, correcting the capitalization
 SuggestedRemedy
 Delete highlighted "PMA_Training_Init_S," state (this does not exist, and accept "PCS_TEST, and PCS_DATA" currently in yellow, correcting the capitalization
 Proposed Response Response Status **O**

Cl 149 SC 149.4.5 P150 L37 # 240
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type **T** Comment Status **X**
 The minwait_timer is started again in TX_SWITCH, but to no purpose, because it is not checked on exit and is started again in both possible subsequent states
 SuggestedRemedy
 delete "start minwait_timer" in TX_SWITCH state
 Proposed Response Response Status **O**

Cl 149 SC 149.4.5 P150 L37 # 126
Chen, Steven Broadcom

Comment Type TR Comment Status X
The "start minwait_timer" does not seem needed in the TX_SWITCH state.

SuggestedRemedy
Remove "start minwait_timer".

Proposed Response Response Status O

Cl 149 SC 149.4.5 P150 L42 # 92
Tu, Mike Broadcom

Comment Type TR Comment Status X
The tx_mode has already been set to "SEND_N" in the "TX_SWITCH" state. There is no need to set it again.

SuggestedRemedy
1. In the "PCS_TEST" block, remove "tx_mode <= SEND_N"
2. In the "SEND_DATA" block, remove "tx_mode <= SEND_N"

Proposed Response Response Status O

Cl 149 SC 149.4.5 P151 L18 # 68
Lo, William Axonne Inc.

Comment Type TR Comment Status X
Missing watchdog conditions and refresh status link down conditions

SuggestedRemedy
See Lo_3ch_01_0319.pdf slide 2 for correct state machine.

Proposed Response Response Status O

Cl 149 SC 149.4.5.x P151 L27 # 76
Graba, Jim Broadcom

Comment Type TR Comment Status X
Add EEE Refresh monitor state diagram

SuggestedRemedy
Use same EEE Refresh monitor state diagram from 802.3bz (Figure 126-30)

Proposed Response Response Status O

Cl 149 SC 149.5.1 P151 L37 # 182
Wienckowski, Natalie General Motors

Comment Type E Comment Status X
Add commas for readability.

SuggestedRemedy
Change: If MDIO is implemented these test modes shall be enabled by setting a control register 1.2313.15:13 as
To: If MDIO is implemented, these test modes shall be enabled by setting a control register, 1.2313.15:13, as

Proposed Response Response Status O

Cl 149 SC 149.5.1 P152 L7 # 243
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type E Comment Status X
Table 149-12 - the highlighted text is correct,

SuggestedRemedy
Remove highlighting on Test mode descriptions for modes 1, 5 and 7 in Table 149-12

Proposed Response Response Status O

Cl 149 SC 149.5.1 P152 L28 # 62
Lo, William Axonne Inc.

Comment Type TR Comment Status X
Dividing a clock down does not change the clock jitter.
Recommended divide by 32 or 64 so TX_TCLK_DIV is 175.8 or 87.9MHz.

Note that I am ok with either 32 or 64 depending on what people like.

See Lo_3ch_01_0319.pdf slide 5 for a intuitive diagram.

SuggestedRemedy
Change divided by 16 to divided by 32

Proposed Response Response Status O

Cl 149 SC 149.5.1 P152 L36 # 183
 Wienckowski, Natalie General Motors
 Comment Type E Comment Status X
 Remove extraneous comma
 SuggestedRemedy
 Change: , or,
 To: , or
 Proposed Response Response Status O

Cl 149 SC 149.5.1.1 P154 L26 # 184
 Wienckowski, Natalie General Motors
 Comment Type T Comment Status X
 SuggestedRemedy
 Remove "Link Partner" box in Figure 149-36 over the Figure title.
 Proposed Response Response Status O

Cl 149 SC 149.5.1 P154 L27 # 269
 WU, Peter Marvell
 Comment Type ER Comment Status X
 Figure 149-36 with wrong piece copied
 SuggestedRemedy
 remove the block of " link partner" in the figure
 Proposed Response Response Status O

Cl 149 SC 149.5.2.4 P155 L19 # 226
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status X
 Transmit power needs to be constrained, not just less than 3 dBm. A 2 dB range has been acceptable for similar PHYs. For this speed of signal, measuring with a power meter is more appropriate. Then we can delete the peak transmit level.
 SuggestedRemedy
 Change "less than 3 dBm" to "in the range of 1 dBm to 3 dBm".
 Proposed Response Response Status O

Cl 149 SC 149.5.2.4 P155 L24 # 290
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 The current transmit PSD mask practically not providing any constraint to the signaling. With the current limits this does not add any value except for being a complicated way to define the signal swing.
 SuggestedRemedy
 I will make a separate presentation with a proposal for an updated mask.
 Proposed Response Response Status O

Cl 49 SC 49.5.2.4 P155 L38 # 246
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "f is the" to "f is the"
 Proposed Response Response Status O

Cl 49 SC 49.5.2.4 P155 L41 # 247
 Wei, Dong Futurewei Technologie

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

There is no definition of variable S in equation (149-16).

SuggestedRemedy

Need to define or make a statement about the meaning of variable S meaning

Proposed Response Response Status **O**

Cl 149 SC 149.5.2.5 P156 L33 # 227
 Zimmerman, George CME:ADI,Aquantia,AP

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

Constraining the transmit power, the distortion and the PSD, specifying peak differential output is unneeded.

SuggestedRemedy

Delete 149.5.2.5 and content (lines 32 to 37)

Proposed Response Response Status **O**

Cl 149 SC 149.5.2.5 P156 L35 # 275
 Souvignier, Tom Broadcom

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

Max transmitter peak differential output of 1.2V. 20% over nominal to allow for process and design variation.

SuggestedRemedy

Replace "TBD" with "0.2"

Proposed Response Response Status **O**

Cl 149 SC 149.5.2.5 P156 L35 # 291
 den Besten, Gerrit NXP Semiconductors

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

TBD

SuggestedRemedy

Propose to make this 1.3Vppd, like 1000BASE-T1

Proposed Response Response Status **O**

Cl 149 SC 149.5.2.6 P156 L40 # 272
 WU, Peter Marvell

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

The clock is still defined for 2.5G-T1,

SuggestedRemedy

change "1406.25 MHz ± 50 ppm"
 to "5625*S MHz± 50 ppm"

Proposed Response Response Status **O**

Cl 149 SC 149.5.2.6 P156 L40 # 85
 Tu, Mike Broadcom

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

The transmission rate should scale by the factor "S".

SuggestedRemedy

Proposed Response Response Status **O**

Cl 149 SC 149.5.3.2 P157 L7 # 228
 Zimmerman, George CME:ADI,Aquantia,AP

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

Need to rewrite this text so the equivalent noise is added at the MDI. See 802.3cg draft 2.3 or later. Also bandwidth is the bandwidth of the PHY signal, but the noise level will have to be determined when we get a cabling specification.

SuggestedRemedy

Change "-100 dBm/Hz" to "TBD dBm/Hz is present at the MDI of the DUT." Delete "The noise is added at the MDI of the DUT."

Add "Editor's Note - (to be removed prior to Working Group ballot) - the noise level needs to be determined jointly with adding an alien crosstalk coupling specification to the link segment."

Proposed Response Response Status **O**

CI 149 SC 149.5.3.2 P157 L12 # 244
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X
"frame loss ratio is less than TBD for TBD-octet packets" should be scalable directly from 1000BASE-T1 since the RS-FEC frame lengths are comparable. Since 10^-10 is the BER for 1000BASE-T1 and 10^-12 is for multigig, two orders of magnitude are needed.

SuggestedRemedy
Change "TBD for TBD-octet" to "10^-9 for 125-octet"

Proposed Response Response Status O

CI 149 SC 149.6.1 P157 L38 # 230
Zimmerman, George CME:ADI,Aquantia,AP

Comment Type T Comment Status X
Remaining parameters will be communicated via infocfields. List is complete at this time.

SuggestedRemedy
Delete editor's note at 157 line 38

Proposed Response Response Status O

CI 149 SC 149.7.1.1 P158 L24 # 248
Wei, Dong Futurewei Technologie

Comment Type ER Comment Status X
Typo

SuggestedRemedy
Change "f is the" to "f is the"

Proposed Response Response Status O

CI 149 SC 149.7.1.1 P158 L27 # 249
Wei, Dong Futurewei Technologie

Comment Type ER Comment Status X
Typo

SuggestedRemedy
Delete the unit of "MHz", Fmax is just the number.

Proposed Response Response Status O

CI 149 SC 149.7.1.3 P159 L44 # 250
Wei, Dong Futurewei Technologie

Comment Type ER Comment Status X
Typo

SuggestedRemedy
Change "f is the" to "f is the"

Proposed Response Response Status O

CI 149 SC 149.7.1.3 P160 L10 # 251
Wei, Dong Futurewei Technologie

Comment Type ER Comment Status X
Typo

SuggestedRemedy
Change "f is the" to "f is the"

Proposed Response Response Status O

CI 149 SC 149.7.1.3 P160 L13 # 252
Wei, Dong Futurewei Technologie

Comment Type ER Comment Status X
typo

SuggestedRemedy
Change "N" to "N =" in the equation (149-21)

Proposed Response Response Status O

Cl 149 SC 149.7.1.3 P160 L30 # 253
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "f is the" to "f is the"
 Proposed Response Response Status O

Cl 149 SC 149.7.1.3 P160 L33 # 254
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 typo
 SuggestedRemedy
 Change "N" to "N = " in the equation (149-23)
 Proposed Response Response Status O

Cl 149 SC 149.7.1.3 P160 L38 # 255
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 typo
 SuggestedRemedy
 Change "N=1" to "N=1" in the equation (149-23)
 Proposed Response Response Status O

Cl 149 SC 149.7.1.4 P161 L42 # 256
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "f is the" to "f is the"
 Proposed Response Response Status O

Cl 149 SC 149.7.1.4 P161 L42 # 245
 ITO, HIROAKI Yazaki Corporation
 Comment Type TR Comment Status X
 The frequency range for coupling attenuation is remained up to 5500MHz.
 SuggestedRemedy
 The frequency range for coupling noise should be changed to up to 4000MHz as well as other parameters like IL, RL.
 Proposed Response Response Status O

Cl 149 SC 149.7.2 P162 L34 # 229
 Zimmerman, George CME:ADI,Aquantia,AP
 Comment Type T Comment Status X
 (there is no 149.7.2) the draft needs alien crosstalk coupling specs.
 SuggestedRemedy
 Insert "149.7.2 Coupling parameters between link segments." with 2 subclauses - 149.7.2.1 Power sum alien near-end crosstalk (PSANEXT), and 149.7.2.2 Power sum alien attenuation to crosstalk ratio far-end (PSAACR-F). Contents of all 3 should be "TBD".
 Proposed Response Response Status O

Cl 149 SC 149.8.2.1 P163 L12 # 257
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "f is the" to "f is the"
 Proposed Response Response Status O

Cl 149 SC 149.8.2.1 P163 L15 # 258
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "4000 MHz × S" to "4000 × S MHz"
 Proposed Response Response Status O

Cl 98B SC 98B.3 P168 L24 # 259
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "A6through" to "A6 through"
 Proposed Response Response Status O

Cl 149 SC 149.8.2.2 P163 L46 # 292
 den Besten, Gerrit NXP Semiconductors
 Comment Type T Comment Status X
 We reached consensus on coupling and shielding attenuation, but the paragraph on the first topic is empty and the paragraph about the second doesn't exist yet.
 SuggestedRemedy
 Need to add the limit formulas and graph on coupling attenuation to this paragraph. Need to add an paragraph in shielding attenuation. I would be happy to provide editorial assist on the wording.
 Proposed Response Response Status O

Cl 149A SC 149A.2 P169 L26 # 260
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "23°C ± 5°C" to "23 ± 5°C"
 Proposed Response Response Status O

Cl 149 SC 149.9.1 P164 L5 # 20
 Anslow, Pete Ciena
 Comment Type TR Comment Status X
 This now says "shall conform to IEC 62368-1 (former IEC 60950-1)". This would be ok if IEC 60950-1 had simply been re-numbered to become IEC 62368-1, but I do not believe that this is the case. I believe that these are different standards with different contents, in which case this text is inappropriate.
 SuggestedRemedy
 Delete "(former IEC 60950-1)"
 Proposed Response Response Status O

Cl 149A SC 149A.4 P170 L33 # 261
 Wei, Dong Futurewei Technologie
 Comment Type ER Comment Status X
 Typo
 SuggestedRemedy
 Change "Testfixture" to "Test Fixture"
 Proposed Response Response Status O