### 32.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Automation

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#### Comment Details
- **Zimmerman, George**
  - **Comment Type**: E
  - **Comment Status**: D
  - **Suggested Remedy**: There are multiple amendments missing from the front matter (802.3cn, 802.3cq, and soon 802.3cm) which are now in SA ballot. 802.3cn is now Amendment four, before 802.3cg, as well.
  - **Proposed Response**: Insert missing amendments in correct order in front matter
  - **Response Status**: W
  - **Proposed Acceptance**: PROPOSED ACCEPT.

- **Marris, Arthur**
  - **Comment Type**: E
  - **Comment Status**: D
  - **Suggested Remedy**: Use oxford comma. Replace, "2.5 Gb/s, 5 Gb/s and 10 Gb/s" with "2.5 Gb/s, 5 Gb/s, and 10 Gb/s".
  - **Proposed Response**: PROPOSED ACCEPT.

- **Wienckowski, Natalie**
  - **Comment Type**: E
  - **Comment Status**: D
  - **Suggested Remedy**: Add: IEEE Std 802.3cn-20xx - Amendment 4
  - **Proposed Response**: PROPOSED ACCEPT.

- **Wienckowski, Natalie**
  - **Comment Type**: E
  - **Comment Status**: D
  - **Suggested Remedy**: Amendment 5—after the title for cg and before "This amendment"
  - **Proposed Response**: PROPOSED ACCEPT.
Missing 149C in the description of the amendment.

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

PROPOSED ACCEPT.

---

Comment Type: E  Comment Status: D  EZ
Marris, Arthur  Cadence Design Systems

Title is wrong.

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

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

PROPOSED ACCEPT IN PRINCIPLE.

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Comment Type: T  Comment Status: D  EZ
Zimmerman, George  CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco

This comment was WITHDRAWN by the commenter.

---

Comment Type: E  Comment Status: D  EZ
Wienckowski, Natalie  General Motors

IEEE Std 802.3cm-20xx - Amendment 7

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

PROPOSED ACCEPT.

---

Comment Type: T  Comment Status: D  EZ
Wienckowski, Natalie  General Motors

IEEE Std 802.3cq-20xx - Amendment 6

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

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

**Suggested Remedy**

Change "gray code" to "Gray code".

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

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

---

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

**Suggested Remedy**

Change Minimum to minimum.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

Make suggested change to follow IEEE802.3 style.

---

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Implement change suggested by comment 1 copied below.

In Table 45-3:

Change the name of register 1.2316 to "MultiGBASE-T1 user defined data" in subclause 45.2.1.199
Change the name of register 1.2317 to "MultiGBASE-T1 link partner user defined data" in subclause 45.2.1.200

In 45.2.1.199:

Change the title to "MultiGBASE-T1 user defined data register (Register 1.2316)"
Change the text to: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45–155f. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages."

In Table 45-155f:

Change the title to: "MultiGBASE-T1 user defined data register bit definitions"
Delete the last row of the table.
Change footnote a to "R/W = Read/Write"

In 45.2.1.199.1:

Change the title to: "PHY vendor draftific data (1.2316.15:0)"
Delete 45.2.1.199.2
Create a new level 4 subclause:

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

"The assignment of bits for the MultiGBASE-T1 link partner user defined data register is shown in Table 45–155g. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages."

Create Table 45-155g with title "MultiGBASE-T1 link partner user defined data register bit definitions" and a body the same as the last row of Table 45-155f except that the Name entry for 1.2317.15:0 is "Link partner PHY vendor draftific data" and footnote a is "RO = Read only"

Create a new level 5 subclause:
32.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

"45.2.1.200.1 Link partner PHY vendor draftic data (1.2317.15:0)" with text as per the existing 45.2.1.199.2.

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

**Suggested Remedy**
In Table 45-3:
- Change the name of register 1.2316 to "MultiGBASE-T1 user defined data" in subclause 45.2.1.199
- Change the name of register 1.2317 to "MultiGBASE-T1 link partner user defined data" in subclause 45.2.1.200

In 45.2.1.199:
- Change the title to "MultiGBASE-T1 user defined data register (Register 1.2316)"
- Change the text to: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45–155f. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages."

In Table 45-155f:
- Change the title to: "MultiGBASE-T1 user defined data register bit definitions"
- Delete the last row of the table.
- Change footnote a to "R/W = Read/Write"

In 45.2.1.199.1:
- Change the title to: "PHY vendor specific data (1.2316.15:0)"
- Delete 45.2.1.199.2
- Create a new level 4 subclause: "45.2.1.200 MultiGBASE-T1 link partner user defined data register (Register 1.2317)" with text: "The assignment of bits for the MultiGBASE-T1 link partner user defined data register is shown in Table 45–155g. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages."

Create Table 45-155g with title "MultiGBASE-T1 link partner user defined data register bit definitions" and a body the same as the last row of Table 45-155f except that the Name entry for 1.2317.15:0 is "Link partner PHY vendor specific data" and footnote a is "RO = Read only"

**Proposed Response**
PROPOSED ACCEPT.

---

45.2.1.7.5

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

**Comment Type** E **Comment Status** D **Vendor**
PHY names should not break across lines.

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

**Proposed Response**
PROPOSED ACCEPT.

---

45.2.1.7.4

Anslow, Pete
Ciena

**Comment Type** E **Comment Status** D **Vendor**
The empty rows in Table 45-9 and Table 45-10 should contain an ellipsis

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

**Proposed Response**
PROPOSED ACCEPT.

---

45.2.1.18

Anslow, Pete
Ciena

**Comment Type** E **Comment Status** D **Vendor**
"Add" is not a valid editing instruction. Table 45-21 is not being changed, so should not be shown. Notes should use the paragraph tag "Note"

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

**Proposed Response**
PROPOSED ACCEPT.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Autom

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

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

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

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

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

On page 41 line 33, Change Reserved row to be : 1.2313.12 | Reserved | Value always 0 | RO
and insert three new rows below the new reserved row:
1.2313.11 | Local transmitter precoder override | 0 = Normal Operation
1 = User Override | R/W
1 = Local transmitter precoder setting | 00 = transmit with no precoder
01 = transmit with 1-D precoder
10 = transmit with 1+D precoder
11 = transmit with 1-D2 precoder | R/W
1.2313.8.2 | Reserved | Value always 0 | RO

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

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

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

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

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**Proposed Response**

**Response Status**

**PROPOSED ACCEPT.**

**Proposed Response**

**Response Status**

**PROPOSED ACCEPT IN PRINCIPLE.**

**Proposed Response**

**Response Status**

**PROPOSED ACCEPT IN PRINCIPLE.**

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

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

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

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

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

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

SuggestedRemedy
change the text as follows:
Bits 1.2309.10:9 determine the precoder setting of the transmitter, as defined in
149.3.2.2.20 in the variable precoder_type while in test mode 3.

Proposed Response     Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

These lines are removed by comment #124.

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

SuggestedRemedy
Change "EEE Ability" to "EEE ability"

Proposed Response     Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make suggested change to follow IEEE802.3 style.
The parameter name in Table 45-155b is "Actual precoder requested" and this fits with the text in the description cell as well as the text in 45.2.1.193.5. However, the title of 45.2.1.193.5 is "Actual precoder selected" which does not match.

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Change per comment #123

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Change per comment #123 & tu_3ch_01b_0919.pdf slide 3.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

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

**Comment Type:** ER  **Comment Status:** D  **Precoder**

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

**Suggested Remedy**
Change "Actual precoder selected" to "Actual precoder requested".

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

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

Graba, Jim
Broadcom

**Comment Type:** E  **Comment Status:** D  
"Reed-Solomon 'receiver' interleave setting" does not sound right. Delete the word 'receiver'.

**Suggested Remedy**
Change from: "... the Reed-Solomon receiver interleave setting …" To: "... the Reed-Solomon interleave setting …"

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

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

Make changes defined below to make draft consistent.
P39 L19 - change "Slow wake" to "Slow Wake" P40 L20, P40 L44, & P40 L45 - change "slow wake" to "Slow Wake"

Anslow, Pete
Ciena

**Comment Type:** E  **Comment Status:** D  
The convention used in Clause 45 is to use "is one" and "is zero" rather than "is 1" and "is 0".

**Suggested Remedy**
Change "is 1" to "is one".  Change "is 0" to "is zero".

**Proposed Response**  **Response Status:** W  
PROPOSED ACCEPT.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

P802.3ch D2.1

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

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

Proposed Response
Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Graba, Jim
Comment Type T
Comment Status D
These bits are requested by the link partner via Infofield. The current text is confusing.

Suggested Remedy
Change from: "… communicated to the link partner via Infofields …"
To: "… communicated by the link partner via InfoFields …"

Proposed Response
Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Tu, Mike
Comment Type E
Comment Status D
Both "local device" and "local PHY" are used in this document. Maybe we should stay with "local PHY"?

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

Proposed Response
Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

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

**Suggested Remedy**
- Change "value of 0 0" to "value of 00"
- Change "value of 0 1" to "value of 01"
- Change "value of 1 0" to "value of 10"

**Comment Status**
Anslow, Pete
Ciena

**Response Status**
W

**Proposed Response**

Test mode 2 is described in 149.5.2.3.1

**Suggested Remedy**
- Change "149.5.2.3" to "149.5.2.3.1"

**Proposed Response**

Add a register bit definition table (45-155x) with the following 2 content rows:

- **1.2314.15:8** | MultiGBASE-T1 SNR operating margin | value of current SNR operating margin in dB | RO
- **1.2315.15:8** | MultiGBASE-T1 Minimum SNR margin | value of minimum observed SNR margin in dB | RO

With the following note on the table: \(^{a}aRO = \text{Read only}\)

**Proposed Response**

Add a register bit definition table (45-155y) with the following 2 content rows:

- **1.2314.15:8** | MultIGBASE-T1 SNR operating margin | value of current SNR operating margin in dB | RO
- **1.2315.7:0** | Reserved | Value always 0 | RO

With the following note on the table: \(^{a}aRO = \text{Read only}\)
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

"The values of the bits in these registers are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages."

Identification of the link partner is not defined and is beyond the scope of this specification. I suggest borrowing the text from Clause 55.

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

Change text as requested by comment #1: "The assignment of bits for the MultiGBASE-T1 user defined data register is shown in Table 45–155f. The values of the bits in this register are all zeros unless the PHY identifies the link partner during Auto-Negotiation through communicating OUIs using the NEXT pages."

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

This row is deleted by comment #1.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Table 45-241 bit 3.2308.15 description and 45.2.3.71.1 contain a triplicate shalls to the one in the OAM state diagram (45.2.3.72.1 and the shall on the OAM state diagram, and reads odd, referring to 'state machine' inappropriately. The 'shall' on this bit clearing is actually the state diagram. This is similar to the changes in the receive register 45-243, subject of maintenance request 1327 and I plan to submit it as a maintenance request. Another comment fixes the defect that the OAM state diagrams don't have shall's associated with them. This defect is also in clause 97 and makes the maintenance request complicated, because there are NO PICS in clause 97 for OAM...

**Suggested Remedy**

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

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

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

Bring in PICS RM134 and change "Feature": Register 3.2313 is cleared when register 3.2317 is read.

To: Bit 3.2313.15 self clears when register 3.2317 is read.

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

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

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

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

The highest inserted item is MM231.

**Suggested Remedy**

Change "through MM227" to "through MM231"

**Proposed Response**

PROPOSED ACCEPT.

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT.

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

**Suggested Remedy**

Change "an" to "a"

**Proposed Response**

PROPOSED ACCEPT.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Lo, William Axonne Inc.

Comment Type TR Comment Status D

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

SuggestedRemedy Undo changes from D2.0 comment 224 Page 156 line 22 change link_control_mGigT1 and link_status_mGigT1 to link_control_mGigT1 and link_status_mGigT1 where mGigT1 is 2.5GigT1, 5GigT1, or 10GigT1.

Proposed Response Response Status W PROPOSED ACCEPT.

Anslow, Pete Ciena

Comment Type E Comment Status D

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

SuggestedRemedy Delete the editing instruction at the top of page 68

Proposed Response Response Status W PROPOSED ACCEPT.

Wienckowski, Natalie General Motors

Comment Type E Comment Status D

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

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

Proposed Response Response Status W PROPOSED ACCEPT.

Wienckowski, Natalie General Motors

Comment Type E Comment Status D

"Modify" is not a valid editing instruction.

SuggestedRemedy Change "Modify item" to "Change item"

Proposed Response Response Status W PROPOSED ACCEPT.
P802.3ch D2.1

32.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Comment Type E  Comment Status D  EZ

SuggestedRemedy
Make "Table 104-7" a hyperlink.
Proposed Response Response Status W
PROPOSED ACCEPT.

SuggestedRemedy
Make "Clause 97" a hyperlink and remove the "forest green" color.
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

SuggestedRemedy
"NOTE 2 - AUTO-NEGOTIATION IS OPTIONAL" Auto-Negotiation is only optional for the BASE-T1 PHYs.
Proposed Response Response Status Z
PROPOSED REJECT.
This comment was WITHDRAWN by the commenter.

SuggestedRemedy
Add "FOR BASE-T1 PHYs" after "AUTO-NEGOTIATION IS OPTIONAL"
Proposed Response Response Status Z
PROPOSED REJECT.
This comment was WITHDRAWN by the commenter.

SuggestedRemedy
Make "78" a hyperlink.
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.
Correct the link to improve readability of the draft.

SuggestedRemedy
Remove the gaps in all the numbers in column 2.
Proposed Response Response Status Z
PROPOSED REJECT.
This comment was WITHDRAWN by the commenter.

SuggestedRemedy
149.3.2.2.18 is NOT where the interleaving is described. It is where the scrambler is. The interleaver IS in 149.3.2.2.16, where it was in the previous draft....
Proposed Response Response Status W
PROPOSED ACCEPT.
The transition to or from LPI mode shall not cause any MAC frames to be lost or corrupted.

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

The last part of the sentence is missing?

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

Extra or instead of a period.

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

**Suggested Remedy**

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

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the requested change as current state transitions in our diagrams assume this precedence.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

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

SuggestedRemedy

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

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the following change to correct the draft.

Change page 81, line 16 and line 17 from:
"This primitive allows the Auto-Negotiation or the PHY Link Synchronization algorithm to enable and disable operation of the PMA, as draftified in 98.4.2, redraftively."

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

PMA_Link.request can be set by either the Auto-Negotiation or the PHY Link Synchronization.

SuggestedRemedy

Change from: "Auto-Negotiation generates …"  
To: "Auto-Negotiation or PHY Link Synchronization generates …"

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

PMA_Link.indication also goes to the PHY Link Synchronization.

SuggestedRemedy

Change from: "... and the Auto-Negotiation functions …"  
To: "... and the Auto-Negotiation or PHY Link Synchronization function …"

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Add a reference to 149.4.2.6.4 PHY Link Synchronization State Diagram.

SuggestedRemedy

Change from: "The effect of receipt of this primitive is specified in 98.4.1."
To: "The effect of receipt of this primitive is specified in 98.4.1 for Auto-Negotiation, and in 149.4.2.6.4 for PHY Link Synchronization."

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.
"The subsequent functions of the PCS Transmit process" is meaningless, because the preceding text no longer talks about the generation of 65B blocks.

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

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.

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

Conceptually the interleaving is done prior to or at the same time with the RS-FEC encoding. Also there is a typo on this line: "RS-FE symbols" should be "RS-FEC symbols".

**Suggested Remedy**

Change this sentence from: "... OAM field, then add 340 bits of parity for the RS-FEC, interleave the RS-FE symbols, ..."
To: "... OAM field, then interleave and add 340 bits of parity for the RS-FEC, ..."

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.

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

RS-FE should be RS_FEC

**Suggested Remedy**

change "RS-FE symbols" to "RS-FEC symbols"

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.

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

typo

**Suggested Remedy**

change 'RS-FE' to 'RS-FEC'

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

**Proposed Response**

**Comment Status** D

**Comment Status** D
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auto

McClellan, Brett
Marvell

Comment Type: E
Comment Status: D

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

Suggested Remedy
change to 149.4.2.5 to 149.4.2.4

Proposed Response
Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

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

Correct the link to improve readability of the draft.

Tu, Mike
Broadcom

Comment Type: T
Comment Status: D

I think the last sentence is talking about superframes. So scale both number by L.

Suggested Remedy
Change "3600 bits" to "3600xL bits", and change "1800 PAM4 symbols" to "1800xL PAM4 symbols".

Proposed Response
Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

Delete this sentence per comment #156

McClellan, Brett
Marvell

Comment Type: T
Comment Status: D

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

Suggested Remedy
Delete this sentence.

Proposed Response
Response Status: W

PROPOSED ACCEPT.
‘s_n’ should be ‘S_n’ to match usage in 149.3.4

SuggestedRemedy
change ‘s_n’ to ‘S_n’

PROPOSED ACCEPT IN PRINCIPLE.

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

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

To be consistent, “TxB” should be “tx_coded” and “RxB” should be “rx_coded”.

SuggestedRemedy
Change “The bits of a transmitted or received block are labeled TxB<31:0> and RxB<31:0> where TxB<0> and RxB<0> represent the first transmitted bit.”
To “The bits of a transmitted or received block are labeled tx_coded<64:0> and rx_coded<64:0> respectively where tx_coded<0> and rx_coded<0> represent the first transmitted bit.”.

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make the requested change so the text matches the Figure.

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

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

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

Proposed Response Response Status W
PROPOSED ACCEPT.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

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

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

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

SuggestedRemedy
change 'scrambler' to 'descrambler'

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

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

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

Proposed Response
PROPOSED REJECT.

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

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

Commenter is encouraged to resubmit this comment at SA ballot if it is deemed not to impact the draft.
Figure 149-6 shows the PCS bit ordering, not Figure 149-8.

Suggested Remedy

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

Proposed Response

PROPOSED ACCEPT.

The RS-FEC encoder input of 3260 bits consist of tx_group50x65B AND the 10-bit OAM.

Suggested Remedy

Change line 31 from: "… takes the 3260-bit vector tx_group50x65B, and …"
To: "… takes the 3260-bit vector tx_group50x65B and the 10-bit OAM_field, and …"

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

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

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

Suggested Remedy

Change line 12 from: "tx_RSmessage<3259:0> = tx_group50x65B<3249:0>.
To: "tx_RSmessage<3249:0> = tx_group50x65B<3249:0>.

Change line 14 from: "tx_RSmessage<9:0> = OAM_field<9:0>.
To: "tx_RSmessage<3259:3250> = OAM_field<9:0>.

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the requested change to fix an error in the draft.
PROPOSED ACCEPT IN PRINCIPLE.
This comment does not apply to the substantive changes between IEEE P802.3ch D2.0 and D2.1 or the unsatisfied negative comments from earlier ballots. Hence it is not within the scope of the recirculation ballot.

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

1. On page 101, line 35, insert a new paragraph as follows:
   "n is an index indicating the symbol number".

2. In in 149.3.2.2.18, 149.3.2.2.19, 149.3.2.2.20, and 149.3.2.2.21, applying the following changes:
   2.1 Change all bit notation "A" to "A_n", where "_" means subscript formatting.
   2.2 Change all bit notation "B" to "B_n", where "_" means subscript formatting.
   2.3 Change all "G(j)" to "G(n)".
   2.4 Change all "P(j)" to "P(n)", all "P(j-1)" to "P(n-1)", and "P(j-2)" to "P(n-2)".
   2.5 Change "M(u)" to "M(n)".
   2.5 Change "P(u)" to "P(n)".

3. Change page 103, line 6 from "The PAM4 encoded symbols are denoted M(u), where:" to "The PAM4 encoded symbols are denoted M(n)."

4. Delete page 103, line 8.

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

Make the changes requested in tu_3ch_02_0919.pdf on slides 4, 5, 6, 7, & 9.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Comment Type: E  Comment Status: D

Wienckowski, Natalie  General Motors

Comment Type: E  Comment Status: D

What is "PAM4 mode"?

SuggestedRemedy

Change: PAM4 mode
To: PAM4 encoding

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the requested change to increase reader understanding.

Comment Type: E  Comment Status: D

Tu, Mike  Broadcom

Comment Type: E  Comment Status: D

Redundant statement?

SuggestedRemedy

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

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the requested change to increase reader understanding.
P802.3ch D2.1

32.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Cl 149 SC 149.3.2.3 P 105 L 15 # 134

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

Comment Type T
Comment Status D EZ

"and subject to the timing requirements of 46.1.7" - there are no timing requirements in 46.1.7. 46.1.7 is the mapping of primitives. Do you mean 46.3.1.5 Transmit direction LPI transition?

SuggestedRemedy
Change 46.1.7 to 46.3.1.5

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 149 SC 149.3.2.3.1 P 105 L 37 # 87

Tu, Mike
Broadcom

Comment Type T
Comment Status D Reject OOS

The description should consider the interleaved cases.

SuggestedRemedy
Change from: "... from rx_PAM4_0 to rx_PAM4_1799 (see Figure 149–7)."
To: "... from rx_PAM4_0 to rx_PAM4_1800xL-1, where L is the interleaving depth (see Figure 149–7 for the L=1 case)."

Proposed Response Response Status W
PROPOSED REJECT.

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

In addition, the current text matches the names in Figure 149-7 on the received frame.

Commenter may want to submit a similar comment at SA ballot changing the Figure and the text.

Cl 149 SC 149.3.6 P 108 L 16 # 160

McClellan, Brett
Marvell

Comment Type T
Comment Status D EZ

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

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make the requested change to improve reader understanding.

Cl 149 SC 149.3.6 P 108 L 31 # 154

McClellan, Brett
Marvell

Comment Type E
Comment Status D EZ

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

SuggestedRemedy
change to "offset between the link partners."

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make requested change to improve clarity.
The prior paragraphs talk about the transmitter and signaling, suddenly this paragraph changed topic to receiver behavior.

Suggested Remedy

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

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

Suggested Remedy

change "’An EEE-capable PHY” to “A PHY”

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

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

Make requested change to fix an error in the draft.

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

Suggested Remedy

Replace the last two sentences: "For 10GBASE-T1, 5GBASE-T1, and 2.5GBASE-T1 the SLAVE’s PFC24 are +0/–4, +0/–2, and +0/–1 partial frames respectively with respect to the MASTER’s PFC24."
To: "For the requirements on the SLAVE and the MASTER frame alignment, see 149.4.2.4.10."

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the suggested change to eliminate redundant specifications in the draft.
"For 10GBASE-T1, 5GBASE-T1, and 2.5GBASE-T1 the SLAVE's PFC24 are +0/–4, +0/–2, and +0/–1 partial frames respectively with respect to the MASTER's PFC24."

This sentence contradicts the prior sentence which requires the slave to match the PFC24 of the master.

**Suggested Remedy**

delete the sentence

**Proposed Response**  
Proposed Accept in Principle.

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

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

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

---

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

**Suggested Remedy**

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

**Proposed Response**  
Proposed Accept in Principle.

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

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

The paragraph mentions 2 benefits. The first one listed does not sound like a benefit. The intended benefit is that the ALERTs do not overlap, but we determined that they may overlap a little bit given the tolerance in the standard. The fact that the ALERTs mostly do not overlap is still a benefit. Rephrase as shown below.

**Suggested Remedy**

Change "may overlap" to "mostly will not overlap"

**Proposed Response**  
Proposed Accept.
It is not clear what it means by "the transmitter shall stop transmitting".

Suggested Remedy
- Change the sentence from: "During the quiet period the transmitter shall stop transmitting." to: "During the quiet period the PCS transmitter shall pass zeros to the PMA via the PMA_UNITDATA.request interface."

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

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

---

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

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

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

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

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

Make the suggested change to correct an error in the draft.
P802.3ch D2.1

32.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Cl 149 SC 149.3.6.3 P 111 L 9 # 109
Graba, Jim Broadcom
Comment Type T Comment Status D EEE

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

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

Cl 149 SC 149.3.6.3 P 111 L 11 # 110
Graba, Jim Broadcom
Comment Type E Comment Status D EEE

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

SuggestedRemedy
Delete this sentence.

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

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

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

Cl 149 SC 149.3.7.3 P 116 L 50 # 111
Graba, Jim Broadcom
Comment Type T Comment Status D EZ

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

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

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make requested change to improve clarity.
P802.3ch D2.1  32.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

1. **Comment**
   - **Comment Type:** E
   - **Comment Status:** D

   "65B-RS_FEC" should be "65B RS-FEC".

   **Suggested Remedy**
   - Change "65B-RS_FEC" to "65B RS-FEC".

   **PROPOSED ACCEPT IN PRINCIPLE.**

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

   Make requested change to fix typo.

2. **Comment**
   - **Comment Type:** T
   - **Comment Status:** D

   In Figure 149-18, there are no states named "RECEIVE_LPI" or "RECEIVE_WAKE".

   **Suggested Remedy**
   1. Change "RECEIVE_LPI" to "RX_L".
   2. Change "RECEIVE_WAKE" to "RX_W".
   3. Change "Figure 149-18" to "Figure "149-19".

   **PROPOSED ACCEPT IN PRINCIPLE.**

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

   Make suggested changes to fix errors in the draft.

3. **Comment**
   - **Comment Type:** TR
   - **Comment Status:** D

   Fix corner case out of sync condition between Figure 149-17 and 149-20

   **Scenario:**
   LPI is sent at the initial RS frame just as lp_low_snr=1TX_L state is entered and tx_lpi_req never gets set to true
   Stuck in TX_L state since it is waiting for tx_lpi_active to go true.
   Meanwhile in Figure 149-20 stuck at TX_NORMAL since tx_lpi_req remains false
   so never enters into SEND_SLEEP to set tx_lpi_active to true.
   So we are deadlocked Figure 149-17 waiting for tx_lpi_active to go true while Figure 149-20 is waiting for tx_lpi_req to go true.
   Remedy below breaks the deadlock.

   **Suggested Remedy**
   1. Change "SEND_LPI" to "TX_L".
   2. Change "SEND_WAKE" to "TX_WN".
   3. Change "Figure 149-18" to "Figure "149-17".

   **PROPOSED ACCEPT IN PRINCIPLE.**

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

   Make suggested changes to fix errors in the draft.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

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

Suggested Remedy
Change "3.0.14" to "3.2322.14".

Proposed Response  Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

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

There is no requirement for the OAM state diagrams.

Suggested Remedy
Insert new second sentence in first paragraph of 149.3.9 "When OAM is implemented, behavior shall conform to the state diagrams in Figure 149-24 and Figure 149-25." Add new first PICS item to 149.11.4.2.8 OAM: State diagram behavior [149.3.9.4 | Conforms to Figure 149-24 and 149-25 | OAM: M | Yes [] No []]

Proposed Response  Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make suggested changes to clarify requirement when OAM is implemented.

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

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

Suggested Remedy
Change: 149B
To: Annex 149B

Proposed Response  Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Correct the link to improve readability of the draft.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Comment Type: E  Comment Status: D  EZ

Anslow, Pete  Ciena

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

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

Proposed Response  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

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

Comment Type: T  Comment Status: D  Startup

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

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

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

Proposed Response  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

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

Discuss comment #169 first – if no change is made to bring the 100ms time into Figure 149-33, this comment should be rejected for the reason above.

Otherwise:

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

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

And: Delete PICS item PR2 (149.11.4.3.1, page 181 line 47)
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

The PMA Transmit electrical specifications are given in 149.5.2.

**Suggested Remedy**
Change "149.1.3" to "149.5.2".

**Proposed Response**

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

Correct the link to improve readability of the draft.

---

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

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

**Proposed Response**

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

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

---

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

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

**Proposed Response**

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

Make the suggested change to improve clarity.

---

The PMA Transmit electrical specifications are given in 149.5.2.

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

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

**Proposed Response**

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

Make suggested change to remove issue which could lead to comments during SA ballot.
P802.3ch D2.1

2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Comment Type T Comment Status D
Tu, Mike Broadcom

Need to define the bit mapping of InterleaverDepth and PrecodeSel.

SuggestedRemedy
Change line 45 from: "… PHY capability bits is Oct10<2:1> = InterleaverDepth, Oct10<4:3> = PrecodeSel, …"
To: "… PHY capability bits is Oct10<2:1> = InterleaverDepth[1:0], Oct10<4:3> = PrecodeSel[1:0], …"

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment Type T Comment Status D
Tu, Mike Broadcom

Need to define the bit mapping of VendorSpecificData.

SuggestedRemedy
Change line 47 from: "Oct8<7:0> = VendorSpecificData, and Oct9<7:0> = VendorSpecificData.
To: "Oct8<7:0> = VendorSpecificData[7:0], and Oct9<7:0> = VendorSpecificData[15:8]."

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment Type TR Comment Status D
Souvignier, Tom Broadcom

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

SuggestedRemedy
Change from: "During startup, prior to entering the COUNTDOWN state, the SLAVE shall align …"
To: "During startup, prior to entering the TRAINING state, the SLAVE shall align …"

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

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

Make requested change to fix deficiency in current draft.
To ensure interoperability during the training phase, certain timing allocations between Master, Slave and other steps of training must be observed. We propose to the text of 802.3bz for interoperability and just scale the timing of 10G mode and deduct the timing for PCS_TEST that is set by min_wait_timer.

**Suggested Remedy**

Modify Figure 149-33 as attached and include the associated Table 145.15 in section 149.4.2.4.10 page 147, line 35 to read as follows:

<table>
<thead>
<tr>
<th>Training</th>
<th>Silent</th>
<th>MAX REQUIRED TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training</td>
<td>Training</td>
<td>57.02 msec</td>
</tr>
<tr>
<td>PCS Test</td>
<td>PCS Test</td>
<td>0.98 msec</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>98.00 msec</td>
</tr>
</tbody>
</table>

PROPOSED ACCEPT IN PRINCIPLE.

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

**Proposed Response**

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

In state diagrams, the transitions shouldn’t include “=true” or “=false”, instead you should have the variable_name for true and !variable_name for false.

**Suggested Remedy**

In Figure 149-32, change the following:

- L26 & L31: "send_s_sidget = false" to "send_s_sidget"
- L39: "power_on = true" to "power_on"
- L40: "mr_main_reset = true" to "mr_main_reset"
- L40: "mr_autoneg_enable = true" to "mr_autoneg_enable"
- L49: "mr_autoneg_enable = false" to "mr_autoneg_enable"

PROPOSED ACCEPT IN PRINCIPLE.

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

Update Figure 149-33 as shown in farjadrad_3ch_001_0919.pdf, with editorial license to conform to IEEE802.3 style.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

Comment Type E  Comment Status D  EZ
Zimmerman, George  CME Consulting/ADI, APL Gp, Aquantia, BMW, Cisco
typo: send_s_sidget = true
SuggestedRemedy
  change send_s_sidget to send_s_sigdet

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

Make suggested change to fix typo.

Comment Type E  Comment Status D  EZ
Wienckowski, Natalie  General Motors
In state diagrams, the transitions shouldn't include "=true" or "=false", instead you should have the variable_name for true and !variable_name for false.
SuggestedRemedy
In Figure 149-33, change the following:
L4 & L12:  "auto_neg_imp = true" to "auto_neg_imp"
L4 & L14:  "mr_autoneg_enable = true" to "mr_autoneg_enable"
L6 & L14:  "auto_neg_imp = false" to "fauto_neg_imp"
L6 & L14:  "mr_autoneg_enable = false" to "!mr_autoneg_enable"
L45:  "hi_rfer = false" to "!hi_rfer"
L46:  "hi_rfer = true" to "hi_rfer"
L46:  "block_lock = true" to "block_lock"
L47:  "block_lock = false" to "!block_lock"

PROPOSED ACCEPT IN PRINCIPLE.

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

Make the suggested change to match the IEEE802 style.

Comment Type T  Comment Status D  testing
Gubow, Marty  Keysight Technologies
The most common transmitter connection to an oscilloscope utilizes two 50-ohm channels. Figure 149-36 should be updated.
SuggestedRemedy
Recommened new figure 149-36

PROPOSED ACCEPT IN PRINCIPLE.

Replace Figure 149-36 with the figure in gubow_3ch_01_0919.pdf.
While $F_{max}$ is used for several link segment parameters, it only gets defined for insertion loss. This definition (Equation 149-18) needs to be moved up to 149.7.

**Suggested Remedy**

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

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

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

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

The insertion loss is illustrated in Figure 149-42.

**Proposed Response**

Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

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

Make suggested change to clarify draft.

**Suggested Remedy**

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

**Proposed Response**

Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

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

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

**Comment Type**

TR

**Comment Status**

Reject OOS

**Comment**

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED REJECT.

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

The commenter is encouraged to discuss this with the task force during ad hoc calls and consider entering a comment for SA ballot. It is up to the implementer to design their application to work at the maximum planned speed.

**Comment Type**

T

**Comment Status**

Reject OOS

**Comment**

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

**Comment Type**

T

**Comment Status**

Reject OOS

**Comment**

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

**Suggested Remedy**

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

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

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

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

Remove the text as suggested and remove PICS ES5 on P190 L20.
Comment Type: E  Comment Status: D

Lo, William  Axonne Inc.

Suggested Remedy
Remove the gaps in all the numbers in column 3.

Proposed Response  Response Status: Z
PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Comment Type: E  Comment Status: D

Lo, William  Axonne Inc.

Suggested Remedy
Make "Clause 98" in Feature column a hyperlink.

Proposed Response  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

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

Correct the link to improve readability of the draft.

Comment Type: E  Comment Status: D

Lo, William  Axonne Inc.

Suggested Remedy
Change: 149.3.4.2 to 149.3.5.1 (hyperlink in the document)

Proposed Response  Response Status: W
PROPOSED ACCEPT.
P802.3ch D2.1  

2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

---

**Comment**

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

**SuggestedRemedy**

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

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

PROPOSED ACCEPT IN PRINCIPLE.

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

Correct the link to improve readability of the draft.

---

**Comment**

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

**SuggestedRemedy**

Make "149.5.2" in Feature column a hyperlink.

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

PROPOSED ACCEPT.

---

**Comment**

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

**SuggestedRemedy**

Make "149.5.3" in Feature column a hyperlink.

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

PROPOSED ACCEPT.

---

**Comment**

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

**SuggestedRemedy**

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

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

PROPOSED ACCEPT.

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

Correct the link to improve readability of the draft.

---

**Comment**

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

**SuggestedRemedy**

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

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

PROPOSED ACCEPT IN PRINCIPLE.

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

Correct the link to improve readability of the draft.

---

**Comment**

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

**SuggestedRemedy**

Font size of text in boxes and text in arrows are not consistent

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

Make font sizes of text consistent

PROPOSED ACCEPT IN PRINCIPLE.

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

Make all text size 8 to be consistent.
2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

---

Comment Type: E  Comment Status: D  EZ

Wienckowski, Natalie  General Motors

1. Different font sizes in Figure 149B-2

Suggested Remedy:
- Change all text in figure to be 8.0 pt

Proposed Response:  Response Status: W

PROPOSED ACCEPT.

---

Comment Type: E  Comment Status: D  EZ

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

Suggested Remedy:
- In Figure 149B-2, change the following:
  - L15 & L28:  "mr_rx_clear_rec=true" to "mr_rx_clear_rec"
  - L28:  "mr_rx_clear_rec=false" to "mr_rx_clear_rec"

Proposed Response:  Response Status: W

PROPOSED ACCEPT.

---

Comment Type: E  Comment Status: D  EZ

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

Suggested Remedy:
- In Figure 149B-3, change the following:
  - L15 & L28:  "mr_rx_clear_rec=true" to "mr_rx_clear_rec"
  - L28:  "mr_rx_clear_rec=false" to "mr_rx_clear_rec"

Proposed Response:  Response Status: W

PROPOSED ACCEPT.

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Comment Type: E  Comment Status: D  EZ

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

Suggested Remedy:
- In Figure 149B-3, change the following:
  - L44:  "mr_tx_request_rec_clear = true" to "mr_tx_request_rec_clear"
  - L50:  "mr_rx_rec_cleared = true" to "mr_rx_rec_cleared"

Proposed Response:  Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

---

Comment Type: T  Comment Status: D

Tu, Mike  Broadcom

1. The variable "mr_tx_request_rec_clear" is not defined.

Suggested Remedy:
- In Figure 149B-3, the transition condition should be changed to: "mr_tx_clear_rec = true".

Proposed Response:  Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

---

Comment Type: T  Comment Status: D

Tu, Mike  Broadcom

1. "mr_tx_request_rec_clear = true" to "mr_tx_clear_rec"

Suggested Remedy:
- In Figure 149B-3, change the following:
  - L44:  "mr_tx_request_rec_clear = true" to "mr_tx_request_rec_clear"
  - L50:  "mr_rx_rec_cleared = true" to "mr_rx_rec_cleared"

Proposed Response:  Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

---

Comment Type: T  Comment Status: D

149C has no information on return loss

Suggested Remedy:
- Change: provides information on insertion loss and return loss parameters
  - To: provides information on insertion loss parameters

Proposed Response:  Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

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Comment #56 adds the return loss parameters to 149C.

---
### 2.1 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auton

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<td>L 12</td>
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</table>
DiMinico, Christopher MC Communications

**Comment Type**: TR

**Comment Status**: D

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

**Suggested Remedy**

See presentation diminico_3ch_02_0919.pdf

**Proposed Response**: PROPOSED ACCEPT IN PRINCIPLE.

Add the text proposed in diminico_3ch_02a_0919.pdf

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</table>
DiMinico, Christopher MC Communications

**Comment Type**: T

**Comment Status**: D

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

**Suggested Remedy**

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

diminico_3ch_01_0919.pdf

**Proposed Response**: PROPOSED ACCEPT IN PRINCIPLE.

Make the suggested text changes
Replace Table 149C-1 with the table at the bottom of slide 3 in diminico_3ch_01_0919.pdf.