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

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

REJECT.
This comment was WITHDRAWN by the commenter.

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

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

ACCEPT IN PRINCIPLE.

Wrong comment was referenced.
See comment #163 in Editorial bucket.

Make the change as proposed. In addition, add the abstract of cg on page 10 between cd and ch as agreed to by P902.3cg based on cg comment #351.
<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment Type</th>
<th>SuggestedRemedy</th>
<th>Response</th>
<th>Comment Status</th>
<th>Response Status</th>
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<tbody>
<tr>
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<td>intro</td>
<td>21</td>
<td>27</td>
<td>80</td>
<td>E</td>
<td>Changes &quot;2018comprehensive&quot; to &quot;comprehensive&quot; to match template.</td>
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<td>den Besten, Gerrit</td>
<td>NXP Semiconductors</td>
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<td>IEC references in the in-force standard have an em dash in front of &quot;Part&quot; with no spaces on either side. This is also true for other &quot;-&quot; separators in the title.</td>
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<td>For the IEC reference being added replace &quot;-&quot; before &quot;Part&quot;, &quot;Test&quot;, and &quot;Triaxial&quot; with an em dash with no spaces before and after.</td>
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<td>Anslow, Pete</td>
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<td>IEEE Std 802.3bt-2018 has deleted definition 1.4.294, so the definition for MultiGBASE-T is now 1.4.333</td>
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<td>Insert new definition for MultiGBASE-T1 after 1.4.333 MultiGBASE-T1 (re-numbered from 1.4.334 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:</td>
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<td>Renumber the new definition as 1.4.333a</td>
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</table>
IEEE Std 802.3bt-2018 has deleted definition 1.4.294, so the definition for Type F PoDL System should be 1.4.494b

SuggestedRemedy
In the editing instruction change: "1.4.495a" to "1.4.494a"  
Renumber the new definition as 1.4.494b

Response  
Response Status C  
ACCEPT.

---

Response  
Response Status C  
ACCEPT.

---

Delete "[Notes for editors... (through) ... modified.]", this note isn't to be included in review drafts, per its text. Also applies to clause 78.

SuggestedRemedy
Delete "[Notes for editors... modified.]", P23 L3 to 9. Make same deletion in Clause 78, P50.

Response  
Response Status C  
ACCEPT.
Cl 30 SC 30 P23 L3 # 179

den Besten, Gerrit
NXP Semiconductors

Comment Type E Comment Status A late Editorial

[Notes for editors (not to be included in the published draft - not even D1.0!)]

Suggested Remedy
Forgot to delete???

ACCEPT IN PRINCIPLE.
See comments #109 and #166 - EZ.

Cl 30 SC 30.5.1.1.4 P24 L25 # 126

Zimmerman, George
CME:ADI,Aquantia,AP

Comment Type T Comment Status A Registers

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

Suggested Remedy
Add editing instruction: "Change the 5th sentence of the 8th paragraph of 30.5.1.1.4 as shown." (<US> indicate start of end of underscored insertions)

"Where a Clause 45 MDIO interface is present a zero in the PMA/PMD Receive link status bit (45.2.1.2.4) maps to the enumeration "PMD link fault", a one in the LOF status bit (45.2.2.10.4) maps to the enumeration "WIS frame loss", a one in the LOS status bit (45.2.2.10.5) maps to the enumeration "WIS signal loss", a zero in the PCS Receive link status bit (45.2.3.2.7 <US> or 45.2.3.80<US>) maps to the enumeration "PCS link fault", a one in the Latched high BER status bit (45.2.3.16.2) <US> or a one in the MultiGBASE-T1 PCS status 2 PCS High BER (45.2.3.80) <US> maps to the enumeration "excessive BER", a zero in the DTE XS receive link status bit (45.2.4.2.7) maps to the enumeration "DTS link fault" and a zero in the PHY XS transmit link status bit (45.2.4.2.7) maps to the enumeration "PXS link fault".

ACCEPT.

Cl 44 SC 44.1.3] P27 L50 # 110

McClellan, Brett
Marvell

Comment Type T Comment Status A Clause 44

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

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

Response Response Status C
ACCEPT IN PRINCIPLE.

Implement Suggested Remedy, but Change NOTE 2 to *. 

Pa 27
Page 4 of 42

1/16/2019 4:15:51 PM
IEEE P802.3ch D1.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

P802.3 D1p0

Comment Type: E
Comment Status: A

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

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

Responsible:
Zimmerman, George
CME:ADI,Aquantia,AP

Response:
ACCEPT.

Comment Type: E
Comment Status: A

Clause 44

64B/65B PCS

Suggested Remedy:
RS-FEC PCS (consistency with 10GBASE-T1)

Responsible:
den Besten, Gerrit
NXP Semiconductors

Response:
ACCEPT IN PRINCIPLE.
late
See comment #128.

Comment Type: E
Comment Status: A

Clause 44

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

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

Responsible:
Zimmerman, George
CME:ADI,Aquantia,AP

Response:
ACCEPT.

Comment Type: E
Comment Status: A

Clause 44

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

Suggested Remedy:
Fix line width to match the rest of the table.

Response:
ACCEPT.

Comment Type: E
Comment Status: A

Clause 44

on a single

Suggested Remedy:
over a single

Responsible:
den Besten, Gerrit
NXP Semiconductors

Response:
ACCEPT IN PRINCIPLE.
late Editorial

Comment Type: E
Comment Status: A

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

Suggested Remedy:
Delete the "Notes for Editors"

Responsible:
Anslow, Pete
Ciena

Response:
ACCEPT IN PRINCIPLE.
late Editorial

This is actually Clause 30 on page 23.
The use of "-" between numbers to indicate a range is discouraged by the IEEE style guide. "adjust" is not a valid editing instruction.

**Suggested Remedy**

Change the editing instruction to:

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

**Response**

ACCEPT.

---

Anslow, Pete  
Ciena  

**Comment Type** E  
**Comment Status** A  
**Comment** The rows for registers 1.2309 to 1.2316 are associated with an "Insert" editing instruction, so should not be underlined.

**Suggested Remedy**

Remove the underline from the rows for registers 1.2309 to 1.2316

**Response**

ACCEPT.

---

Lo, William  
Axonne Inc.  

**Comment Type** E  
**Comment Status** A  
**Comment** 45.2.1.1988 should be 45.2.1.198

**Suggested Remedy**

See comment

**Response**

ACCEPT.

---

Zimmerman, George  
CME:ADI,Aquantia,AP  

**Comment Type** E  
**Comment Status** A  
**Comment** 45.2.1.1988 has an extra "8" (probably sitting there next to the cross reference)

**Suggested Remedy**

Change to cross-ref for 45.2.1.198

**Response**

ACCEPT.

---

Zimmerman, George  
CME:ADI,Aquantia,AP  

**Comment Type** E  
**Comment Status** A  
**Comment** "2317through 1.32767" missing space

**Suggested Remedy**

Change "2317through" to "2317 through"

**Response**

ACCEPT.
Comment Type: T
Comment Status: A

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

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

Response: ACCEPT IN PRINCIPLE.
Need to add Table 45-21 to the spec.
Add Editor instruction: Change the identified reserved row in Table 45-21 (as modified by IEEE802.3cb) and insert new rows immediately after it as follows (unchanged rows not shown):
Change Reserved row to be 1.21.15:6
Add rows (with appropriate Description):
1.21.15 5GBASE-T1 ability
1.21.14 2.5GBASE-T1 ability

Add 45.2.1.18.aa and 45.2.1.18.ab as suggested.

Comment Type: E
Comment Status: A

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

Suggested Remedy:
Remove the underline from the strikethrough space between "1" and "x" and add a strikethrough space between the two "x" characters

Response: ACCEPT.

Comment Type: E
Comment Status: A

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

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

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

**Suggested Remedy**

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

**Response**

Response Status: **C**

**ACCEPT.**

---

**Comment Type:** E  **Comment Status:** A  **Comment:** Wienckowski, Natalie  General Motors

**Suggested Remedy**

Typo in register number

**Response**

Response Status: **C**

**ACCEPT.**

---

**Comment Type:** T  **Comment Status:** R  **Comment:** den Besten, Gerrit  NXP Semiconductors

1.2304.10:9

**Suggested Remedy**

Change 1.2304.10:9 to 1.2309.10:9

**Response**

Response Status: **C**

**ACCEPT.**

---

**Comment Type:** E  **Comment Status:** A  **Comment:** den Besten, Gerrit  NXP Semiconductors

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

**Response**

Response Status: **C**

**REJECT.**

---

**Comment Type:** E  **Comment Status:** A  **Comment:** Anslow, Pete  Ciena

Notes should have paragraph tag "Note" applied

**Suggested Remedy**

Apply paragraph tag "Note" to the note.

**Response**

Response Status: **C**

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

**Suggested Remedy**
Fix the formatting at the top of page 34

**Response**

**Response Status** C

ACCEPT.

---

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

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

**Response**

**Response Status** C

ACCEPT IN PRINCIPLE.

---

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

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

**Response**

**Response Status** C

ACCEPT IN PRINCIPLE.

This is covered by Comment #85.
There are 3 registers for precoder setting.  
1.2304.10:9 - Test mode 3 precoder setting  
1.2311.3:2 - Precoder setting you want  
1.2312.3:2 - Precoder setting that the link partner wants.  
The description in 1.2304.10:9 captures some functionality of 1.2312.3:2 which is redundant and may cause confusion.

There is also a wrong register reference.

**Suggested Remedy**

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

**Proposed Response**

This comment was WITHDRAWN by the commenter.

---

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

**Suggested Remedy**

Make "149.3.2.2.19" an active cross reference

**Response**

ACCEPT.

---

In Table 45-155b, "MultiGBASE-T1 OAM Ability" should not have a capital A in Ability

**Suggested Remedy**

Change to "MultiGBASE-T1 OAM ability" as per the heading of 45.2.1.193.1

**Response**

ACCEPT.

---

Receive fault should be latching high to be useful. 802.3cg d2p2 made this change and it survived comment resolution.

**Suggested Remedy**

Change R/W entry for 1.2310.1 to be RO/LH, add "LH = Latching High" to footnote a, and add "The receive fault bit shall be implemented with latching high behavior." to the end of the paragraph in 45.2.1.193.6 (P35 L37).

**Response**

ACCEPT.
This comment applies to 45.2.1.194 and 45.2.1.195.

We defined RS interleaving but have not assigned registers to them.

**Suggested Remedy**

Assign to respective tables

1.2311.12:11 - Interleave Requested
1.2312.12:11 - Link partner interleave Requested

For both registers

- 00 = L=4 for 100BASE-T1, L=2 for 5GBASE-T1 (Reserved for 2.5GBASE-T1)
- 01 = L=2 for 100BASE-T1, L=1 for 5GBASE-T1 (Reserved for 2.5GBASE-T1)
- 10 = L=1 for 100GBASE-T1 (Reserved for SGBASE-T1 and 2.5GBASE-T1)
- 11 = Reserved

45.2.1.194.x Interleave Requested (1.2311.12:11)

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

45.2.1.195.x Link partner Interleave Requested (1.2312.12:11)

Bits 1.2312.12:11 contains the Reed Solomon interleave setting requested by the link partners described in 149.3.2.2.17. This is communicated by the link partner via Infofields as specified in 149.4.2.4.3.

**Response**

ACCEPT IN PRINCIPLE.

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

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

The wording of the new sections will be as shown on page 4 of DenBesten_3ch_01_0119.pdf.
IEEE P802.3ch D1.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

Cl 45 SC 45.2.1.194.1 P36 L9 # 185

den Besten, Gerrit
NXP Semiconductors

Comment Type: E
Comment Status: A
late Editorial

R/W

SuggestedRemedy
R/W

Response
Response Status: C

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

Cl 45 SC 45.2.1.194.2 P36 L24 # 92

Lo, William
Axonne Inc.

Comment Type: E
Comment Status: A
Editorial

Grammar is a bit confusing.

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

Response
Response Status: C

ACCEPT.

Cl 45 SC 45.2.1.194.4 P36 L40 # 186

den Besten, Gerrit
NXP Semiconductors

Comment Type: E
Comment Status: A
late Editorial

up..

SuggestedRemedy
up.

Response
Response Status: C

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

Cl 45 SC 45.2.1.195 P36 L45 # 21

Anslow, Pete
Ciena

Comment Type: E
Comment Status: A
Editorial

Double full stop ".".

SuggestedRemedy
Delete one "."

Response
Response Status: C

ACCEPT.

Cl 45 SC 45.2.1.195.2 P37 L24 # 93

Lo, William
Axonne Inc.

Comment Type: E
Comment Status: A
Editorial

Grammar is a bit confusing.

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

Response
Response Status: C

ACCEPT.

Cl 45 SC 45.2.1.196.1 P37 L48 # 22

Anslow, Pete
Ciena

Comment Type: E
Comment Status: A
Editorial

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

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

Response
Response Status: C

ACCEPT.

Cl 45 SC 45.2.1.196.1 P38 L5 # 23

Anslow, Pete
Ciena

Comment Type: T
Comment Status: A
Registers

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

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

Response
Response Status: C

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

Suggested Remedy
Clause 113: “SNR_margin (4 bits). Represented by Octet 9<7:4>, which reports received decision point SNR margin in 1/2 dB steps. SNR_margin is relative to the SNR required for reception of LDPC-coded DSQ128 at an LDPC frame error ratio of less than 3.2 \times 10^{-9}.

The SNR_margin<7:4> four-bit values, 0010, 0011, 0100, 0101, 0110, 0111, 1000, 1001, 1010, 1011, 1100, 1101, 1110 shall indicate the decision point SNR margin values of –1.5, –1, –0.5, 0, 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4, 4.5 dB, respectively. The value 0001 shall indicate a margin of –2 dB or less, and the value 1111 shall indicate 5 dB or more. Finally the value 0000 shall indicate that the SNR margin value is unknown.”

REJECT.

late
TFTD

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

IEEE uses an en-dash as a minus sign
Suggested Remedy
Change the minus sign to an en-dash (Ctrl-q Shft-p) here and also on line 37
ACCEPT.

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

Suggested Remedy
Delete clause 45.2.1.199 and remove references to register 1.2316.

ACCEPT.
Cl 45 SC 45.2.1.199 P38 L32 # 26
Anslow, Pete Ciena

Comment Type E Comment Status A EZ

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

SuggestedRemedy

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

Response Response Status C

ACCEPT.

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

Comment Type T Comment Status A Registers

This fine-grained signal power resolution seems overdone.

SuggestedRemedy

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

Response Response Status C

ACCEPT IN PRINCIPLE.

This measurement is being deleted by comment #111.

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

Comment Type E Comment Status A EZ

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

SuggestedRemedy

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

Response Response Status C

ACCEPT.
The draft is not consistent regarding the names of registers 3.2309 through 3.2312, 3.2314 through 3.2317, 3.2318 through 3.2319, and 3.2320 through 3.2321.

In Table 45-176, these registers have had "<0:7>" or "<8:11>" added to the name. In 45.2.3.73 and 45.2.3.75 the register names do not include "<0:7>". In 45.2.3.76 and 45.2.3.77 "<8:11>" appears in the incorrect place in the title (should be before "register") and not at all for the other places the register name appears In Table 97-6 "<0:7>" or "<8:11>" is missing from the names.

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

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

The subclause column of Table 45-176 is missing cross-references to 45.2.3.76 through 45.2.3.80 in the inserted rows.

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

Response
ACCEPT.

Ciena

The entry for "3.2318 through 3.32767" in Table 45-176 should be shown as changing to "3.2326 through 3.32767".

Suggested Remedy
Show the "18" in strikethrough and add "25" in underline font.

Response
ACCEPT.

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

Suggested Remedy
Replace the last row with "..."

Response
ACCEPT.
Was BASE-T1 intentionally strikes through here?

Suggested Remedy

REJECT.

This comment was WITHDRAWN by the commenter.

Not a comment.

To answer the question, yes, it was changed so to say "transmitted by the PHY" without specifying the specific PHY.
Comment Type: E  Comment Status: A  OAM
"the remaining 4 octets are"
SuggestedRemedy
Replace by "there are 4 additional octets"
Response  Response Status: C
ACCEPT IN PRINCIPLE.
late
See Comment #87.

Comment Type: T  Comment Status: A  OAM
"the remaining 4 octets are contained in registers" isn't really complete - this is the 4 octets of the OAM status message defined in 149.3.8.2.12. The same comment applies to 45.2.3.75 (P42 L41).
SuggestedRemedy
Change "the remaining 4 octets are contained" to "the 4 octets of the OAM status message defined in 149.3.8.2.12 are contained in" in both 45.2.3.73 and 45.2.3.75
Response  Response Status: C
ACCEPT IN PRINCIPLE.
See Comment #87.

Comment Type: E  Comment Status: A  OAM
"contained in registers 3.2328 and 3.2329" should be "contained in registers 3.2318 and 3.2319"
SuggestedRemedy
Change "3.2328 and 3.2329" to "3.2318 and 3.2319"
Response  Response Status: C
ACCEPT IN PRINCIPLE.
See Comment #87.
Lo, William
Axonne Inc.

This comment affects 45.2.3.74.1 and 45.2.3.77.
The paragraph from 1000BASE-T1 in 45.2.3.74.1 also applies to Multigig.
The new text inserted is not correct as registers 3.2320 to 3.2321 are always updated independent of the messaging process.

SuggestedRemedy
45.2.3.74.1:
Delete: for 1000BASE-T1 and shall self-clear when register 3.2321 is read for MultiGBASE-T1 PHYs
45.2.3.77:
Delete:
For MultiGBASE-T1 PHYs, register 3.2313.15 shall be cleared when register 3.2321 is read.

Response
ACCEPT.

---

den Besten, Gerrit
NXP Semiconductors

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

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

Response
ACCEPT IN PRINCIPLE.

---

Anslow, Pete
Ciena

Comment Type E
In Table 45-244a, the "Name" column has unnecessary line wraps.

SuggestedRemedy
Increase the width of the "Name" column and decrease the width of the "Description" column to remove the line wraps

Response
ACCEPT.
"MultiGBASE-T1" should not split across two lines

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

Response
ACCEPT.

---

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

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

Response
ACCEPT IN PRINCIPLE.

---

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

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

Response
ACCEPT IN PRINCIPLE.

See comment #188

---

Notes should have paragraph tag "Note" applied

Suggested Remedy
Apply paragraph tag "Note" to the note.

Response
ACCEPT.
Comment Type: E  Comment Status: A  Registers
Incorrect Register number in Table 45-244e

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

Response  Response Status: C
ACCEPT.

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

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

Response  Response Status: C
ACCEPT.

Comment Type: E  Comment Status: A  Registers
IEEE uses an en-dash as a minus sign

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

Response  Response Status: C
ACCEPT.
Comment Type: T | Comment Status: A  EEE
What is the tolerance on these time values? There is zero margin between min and max.

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

Response (Response Status: C)  ACCEPT IN PRINCIPLE.

Correct 2.5GTr max to 1.28 instead of 1.282.

Comment Type: TR | Comment Status: A  EEE
2.5GBase-T1 Min/Max should both be 10.24

Response (Response Status: C)  ACCEPT IN PRINCIPLE.
In Table 78-2 swap the Min and Max Ts values for 2.5GBase-T1 and 10GBase-T1.

Comment Type: TR | Comment Status: A  EEE
10GBase-T1 Min/Max should both be 2.56

Response (Response Status: C)  ACCEPT IN PRINCIPLE.
See comment 124.
As far as I can tell, a Type F PoDL PSE and PD has requirements identical to a Type B PoDL PSE and PD. Unless there is a difference in an electrical parameter, we should not be defining a new Type.

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

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

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

Proposed Response
REJECT.

This comment was WITHDRAWN by the commenter.

Suggested Remedy
Remove 8 from the list of possible Interleave options

Response
ACCEPT IN PRINCIPLE.
See comment #49.
Cl  125  SC  125.1.4  P  60  L 30  #  200  
den Besten, Gerrit  NXP Semiconductors  

Comment Type  T  Comment Status  A  late Editorial  
"using 64B/65B encoding"

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

Response  Response Status  C  
ACCEPT IN PRINCIPLE.

See Comment #145.

Cl  125  SC  125.1.4  P  60  L 31  #  145  
Zimmerman, George  CME:ADI,Aquantia,AP  

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

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

Response  Response Status  C  
ACCEPT.

Cl  125  SC  125.1.4  P  60  L 38  #  201  
den Besten, Gerrit  NXP Semiconductors  

Comment Type  T  Comment Status  A  late Editorial  
"using 64B/65B encoding"

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

Response  Response Status  C  
ACCEPT IN PRINCIPLE.

See Comment #145.
IEEE P802.3ch D1p0  Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

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

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

SuggestedRemedy
Change "this clause" to a cross reference to 149.7

Response  Response Status  C  ACCEPT.

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

Comment Type  E  Comment Status  A  EZ
Spaces between numbers and units should be non-breaking.

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

Response  Response Status  C  ACCEPT.

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

Comment Type  E  Comment Status  A  EZ
Space missing "equal to 10"

SuggestedRemedy
Change "equal to 10" to "equal to 10"

Response  Response Status  C  ACCEPT.

Cl 149 SC 149.1.3 P64 L1 # 43
Tu, Mike Broadcom

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

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

Response  Response Status  C  ACCEPT.

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

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

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

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

**Suggested Remedy**

Change "The MASTER and SLAVE shall be synchronized by the PHY Link Synchronization function in the PHY (see 149.4.2.6)."

to "The MASTER and SLAVE is synchronized by the PHY Link Synchronization function in the PHY (see 149.4.2.6)."

Change 149.4.2.6 P121 L49 "If the optional Clause 98 Auto-Negotiation function is disabled or not implemented, then the Link Synchronization function is responsible for establishing the start of PHY PMA training as defined in 149.4.2.4." to "If the optional Clause 98 Auto-Negotiation function is disabled or not implemented, then the Link Synchronization function shall establish the start of PHY PMA training as defined in 149.4.2.4."

**Response**

ACCEPT.

Insert a figure for "Functional block diagram", similar to Figure 97-2 and Figure 126-3.

**Suggested Remedy**

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

**Response**

ACCEPT IN PRINCIPLE.

**Suggested Remedy**

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

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

**Response**

ACCEPT.
<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Response Status</th>
<th>Comment Status</th>
<th>Comment Type</th>
<th>Suggested Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>149</td>
<td>149.1.3.3</td>
<td>P66</td>
<td>22</td>
<td>118</td>
<td>TR</td>
<td>Alert</td>
<td>TR</td>
<td>The PMA Transmit function in the PHY then sends an alert message to the link partner. The Alert signal is a low frequency PAM2 signal. The Alert signal is then followed by a number of Wake frames. After this short recovery time the normal operational mode is resumed.</td>
</tr>
<tr>
<td>149</td>
<td>149.1.3.3</td>
<td>P66</td>
<td>31</td>
<td>119</td>
<td>TR</td>
<td>Alert</td>
<td>TR</td>
<td>initiating a transition to the normal operation mode. The link partner then transmits wake frames which are used as a recovery period. Normal operation can then resume.</td>
</tr>
</tbody>
</table>

**Response:**
Accept in principle.

**Change:** 
Add Alert/Wake details.

**Response Status:**
C

**Comment Status:**
A

**Comment Type:**
TR

---

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

**Response:**
Accept in principle.

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

**Response Status:**
C

**Comment Status:**
A

---

**Comment:**
"detect the presence of the other, validate link, and"

**Suggested Remedy:**
Optionally, ability to support refresh, quiet and alert signaling during LPI operation.

**Response:**
Accept.

**Response Status:**
C

---

**Comment:**
EEE support is optional

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

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

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

REJECT.

This comment was WITHDRAWN by the commenter.

Lo, William Axonne Inc.

Comment Type: E
Comment Status: A
Proposed Response: ACCEPt.

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

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

Response: ACCEPt.

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

SuggestedRemedy: Change \{-3, -1, 1, 3\} to \{-1, -1/3, 1/3, 1\}.

Response: ACCEPt IN PRINCIPLE.

Make the same change on page 126, line 27.

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

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

Response: ACCEPt.

Also delete "SEND_I" text on page 128, lines 34&35 and on page 136, line 36.
Figures referred are incorrect. Correct the references and include the figures. See attachment.

ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.

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

Editorial license.

Equation has rounding error.

ACCEPT IN PRINCIPLE.

Change 177.8 / S ps to 1 / (5.625 x S) ps

ACCEPT IN PRINCIPLE.

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

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

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

ACCEPT.

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

ACCEPT IN PRINCIPLE.

See presentation benyamin_3ch_02_0110.pdf.
The description and Figure 149-7 is a bit ambiguous and subject to misinterpretation. Need a tighter definition if we are going to rely on diagrams instead of text.

Suggested Remedy

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

Response

ACCEPT IN PRINCIPLE.

Do #2 only.
See comment #115.

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

Suggested Remedy

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

Response

ACCEPT IN PRINCIPLE.

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

Also resolves #95 & #98
IEEE P802.3ch D1.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

P802.3 D1p0

Tu, Mike

Broadcom

Comment Type TR  Comment Status A

Wrong indices in Equation 149-3

SuggestedRemedy

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

Response

Response Status C

ACCEPT IN PRINCIPLE.

Change g6 to g34 and change g5 to g33.

Comment Type TR  Comment Status A

Wrong indices in Equation 149-4

SuggestedRemedy

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

Response

Response Status C

ACCEPT.

Comment Type T  Comment Status A

(m_i,9, m_i,8, m_i,7, m_i,6,....)

SuggestedRemedy

These should be 10 bit message symbols: (m_i,9, m_i,8, m_i,7, m_i,6,....)

Response

Response Status C

ACCEPT.

den Besten, Gerrit

NXP Semiconductors

Comment Type T  Comment Status A

Comment: tx_RSmessage<3259:10> = tx_RSmessage<3249:0>.

SuggestedRemedy

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

Response

Response Status C

ACCEPT IN PRINCIPLE.

Implement changes as shown in DenBesten_3ch_02a_0119 with editorial license.

Tu, Mike

Broadcom

Comment Type TR  Comment Status A

Wrong indices in Equation 149-4

SuggestedRemedy

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

Response

Response Status C

ACCEPT.

Comment Type T  Comment Status A

Comment: tx_oam_field<9:0> = tx_oam_field<9:0>.

SuggestedRemedy

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

Response

Response Status C

ACCEPT.

Lo, William

Axonne Inc.

Comment Type T  Comment Status A

Comment: Incorrect index in Figure 149-8

SuggestedRemedy

g32 should be g33

g33 should be g34

Response

Response Status C

ACCEPT.
<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Suggested Remedy</th>
<th>Proposed Response</th>
<th>Response Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>149</td>
<td>149.3.2.2.17</td>
<td>TR</td>
<td>A</td>
<td>In Figure 149-9, certain indices of the input and output sequences are incorrect.</td>
<td>For &quot;RS Encoder #L&quot; input, Change from: ( m_{326xL}, m_{325xL}, \ldots, m_L ) To: ( m_{325xL}, m_{324xL}, \ldots, m_0 ). For &quot;RS Encoder #L&quot; output, Change from: ( m_{326xL}, m_{325xL}, \ldots, m_L, p_{L,33}, \ldots, p_{L,0} ) To: ( m_{325xL}, m_{324xL}, \ldots, m_0, p_{L,33}, \ldots, p_{L,0} )</td>
<td>ACCEPT.</td>
</tr>
<tr>
<td>P89</td>
<td>L31</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>149</td>
<td>149.3.2.2.21</td>
<td>T</td>
<td>A</td>
<td>Indexing incorrect in Figure 149-9 for Encoder #L</td>
<td>Change ( m_{326xL}, m_{325xL}, \ldots, mL ) (2 instances to the left and right of the encoder #L) to ( m_{326xL}, m_{325xL}, \ldots, m_0 )</td>
<td>REJECT.</td>
</tr>
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<td>A</td>
<td>PCS passes</td>
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<td>ACCEPT.</td>
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**ResponseType:** TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

**Comment Status:** D/dispatched A/accepted R/rejected

**Response Status:** O/open W/written C/closed Z/withdrawn

**Page 31 of 42**

1/16/2019 4:15:52 PM

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

COMMENT STATUS: D/dispatched A/accepted R/rejected

RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
When the lpi_tx_mode variable takes the value QUIET and the PMA asserts SEND_N, the PCS passes zeros to the PMA through the PMA_UNITDATA.request primitive.

**Suggested Remedy**

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

**Proposed Response**

REJECT.

This comment was WITHDRAWN by the commenter.

---

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

**Suggested Remedy**

change "A block is invalid if any of the following conditions exists: LIST" to "A block is invalid if any of the following conditions exists:

a) The block type field contains a reserved value.
b) Any control character contains a value not in Table 149–1.
c) Any O code contains a value not in Table 149–1.
d) The block contains information from the payload of an invalid RS-FEC frame.

The PCS Receive function shall check the integrity of the RS-FEC parity bits defined in 149.3.2.2.15. If the check fails the RS-FEC frame is invalid.

R_BLOCK_TYPE of an invalid block is set to E.*

**Response**

ACCEPT IN PRINCIPLE.

---

Review with other interleave comments.
IEEE P802.3ch D1.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

Comment Type: E Comment Status: A EZ
"Annex 149-4" link to Figure 149-4 doesn't belong.
Suggested Remedy: Delete "Annex 149-4".

Comment Type: TR Comment Status: A
The RS code changed to RS(360, 326) 2^10 the frame size is 1800 symbols, all the paragraph needs to be rewritten
Suggested Remedy: See the attached text and equation:

During PMA training, the training pattern is embedded with indicators to establish alignment to the RS-FEC block and the 1015 partial PHY frames that comprise the block. The last partial PHY frame is embedded with an information field used to exchange messages between link partners. PMA training signal encoding is based on the generation, at time n, of the bit Sn. The first bit is inverted in the first 914 partial PHY frames of each RS-FEC block. The first 96 bits of the 105th partial PHY frame is XORed with the contents of the InfoField. Each partial PHY frame is 180 bits long, beginning at Sn where (n mod 180) = 0. See Equation (149–8).

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

ACCEPT IN PRINCIPLE.
See comment #56

Comment Type: TR Comment Status: A
The RS-FEC block is 3600 bits, if there are 15 partial frames then each partial frame is 240 bits.
Suggested Remedy: Change 180 to 240. Make the same change on page 94 lines 2 & 3. on page 94 line 2: change 2520 to 3360, 2615 to 3455, 2700 to 3600
Proposed Response: ACCEPT.

Comment Type: TR Comment Status: A
Suggested Remedy: Need advices from chair and editor:
Option #1: Change "if Sn = 0 then Tn = +1, if Sn = 1 then Tn = -1" to "if Sn = 0 then Tn = -1, if Sn = 1 then Tn = +1".
Option #2: Keep the current text as is, if the TF agree to define PAM2 mapping.
Proposed Response: ACCEPT IN PRINCIPLE.
Implement Option #2, i.e. make no change.
Sn to Tn mapping is not consistent with Figure 149-7

Suggested Remedy
changed to if Sn = 0 then Tn = -1, if Sn = 1, then Tn = +1

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

S_n is already defined in 149.3.4.1.

Suggested Remedy
Delete this line

Response
ACCEPT.

This is in section 149.3.4.4.

Suggested Remedy
Delete section 149.3.4.4.

Response
ACCEPT.

This is in section 149.3.4.2.

Suggested Remedy
Delete section 149.3.4.5.

Response
ACCEPT.

We should specify timing in partial frame units

Suggested Remedy
change 99 RS-FEC frames to 792 partial PHY frame

Response
ACCEPT IN PRINCIPLE.
Change 99 RS-FEC frames to 95 RS-FEC frames.

We should specify timing in partial frame units

Suggested Remedy
change 100 RS-FEC frame to 800 partial PHY frame

Response
ACCEPT IN PRINCIPLE.
Change 100 RS-FEC frames to 96 RS-FEC frames.

Also change 100 RS-FEC frames to 96 RS-FEC frames on page 95, line 24.
Comment Type: T  Comment Status: A
We should specify timing in partial frame units

Suggested Remedy:
- change 50 RS FEC frame to 400 partial PHY frame

Response  Response Status: C
ACCEPT IN PRINCIPLE.

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

Comment Type: TR  Comment Status: A
Subclause 149.3.6 has missing contents

Suggested Remedy:
Copy from 126.3.6 as baseline, with the following modifications:
1. Replace all "LDPC" to "RS FEC"
2. Delete "tx_active_pair" and associated contents
3. Delete "ldpc_two_frame_done" and associated contents
4. Replace "rx_symb_vector" with "rx_symb"
5. Replace "tx_symb_vector" with "tx_symb"

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

Comment Type: TR  Comment Status: A
Add functions used by the above figures

Suggested Remedy:
Add functions used by the above figures

Response  Response Status: C
ACCEPT IN PRINCIPLE.
See presentation benyamin_3ch_02_0110.pdf.

Comment Type: T  Comment Status: A
Update registers based on Clause 45!

Suggested Remedy:
Registers were added in Clause 45, but these were not updated throughout the document.
See presentation with details for all changes.

Response  Response Status: C
ACCEPT IN PRINCIPLE.
Implement changes specified in wienckowski_3ch_01_0119.
Lo, William
Axonne Inc.

Comment Type: T
Comment Status: A

Page 99 lines 37 to page 100 line 17 including Figure 149-13 are not baselined.

Suggested Remedy:
Accept the text as written in D1.0

Response
Response Status: C
ACCEPT.

Wienckowski, Natalie
General Motors

Comment Type: E
Comment Status: A

Need tab in front of OAM<13:12><7:0> to align text correctly.

Suggested Remedy:
Add tab.

Response
Response Status: C
ACCEPT.

Wienckowski, Natalie
General Motors

Add definition for "REC Cleared" in OAM<10><0>

Suggested Remedy:
See presentation.

Response
Response Status: C
ACCEPT IN PRINCIPLE.

Tu, Mike
Broadcom

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

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

Response
Response Status: C
ACCEPT IN PRINCIPLE.

Add an Editor's note that the text in this section should be informative and not normative. Commenters to propose changes and/or deletions to the text as required.
1. Remove editorial highlight on line 42.
2. Need to describe InterleaveDepth and PrecodeSel.

Suggested Remedy
Change this paragraph and then add two more paragraphs.

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

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

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

Response
ACCEPT IN PRINCIPLE.
EEE change to: "The optional EEE capability shall be enabled only if both PHYs set the capability bit EEEen = 1. The optional BASE-T1 OAM capability shall be enabled only if both PHYs set the capability bit OAMen = 1."
Interleave as defined in Comment #91 and refer to 149.3.2.2.17.
Refer to 149.3.2.2.18 for Selectable precoder details.

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

Suggested Remedy
Change: "... its transmit TBD-RS frame to within +0/–1 ...
To: "... its transmit 65B-RS FEC super frame to within +0/–4*S ...
Also remove editorial highlights in this paragraph.

Response
ACCEPT IN PRINCIPLE.
Implement as shown in Suggested Remedy.
See tu_3ch_03a_0119 page 4.

Suggested Remedy
Remove editorial highlights for the first two paragraphs.

Response
ACCEPT.

Data mode transmits PAM4, not PAM3.

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

Response
ACCEPT IN PRINCIPLE.
Remove highlighting on paragraph that is on lines 10 and 11 of page 121. Change PAM3 to PAM4 on line 11.
There is no SEND_IDLE1 state. There is also no SEND_I for tx_mode.

SuggestedRemedy

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

Response

Response Status: C
ACCEPT.

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

SuggestedRemedy

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

Response

Response Status: C
ACCEPT.

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

SuggestedRemedy

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

Response

Response Status: C
ACCEPT.
IEEE P802.3ch D1.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

P802.3 D1p0

Zimmerman, George

Comment Type: T  Comment Status: A  Link Synchronization

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

Suggested Remedy
Delete values of 1000-T1, 100-T1, and None, and their descriptions. Add “Other values are implementation-dependent and beyond the scope of this clause.”

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

Zimmerman, George

Comment Type: T  Comment Status: A  Link Synchronization

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

Suggested Remedy
Change entry to SYNC_DISABLE from "...force_phy_type != 2.5G-T1" to "...(force_phy_type != 2.5G-T1 * force_phy_type != 5G-T1 * force_phy_type != 10G-T1)"

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

Lo, William

Comment Type: T  Comment Status: A  PHY Control

Missing value in SEND DATA state vs. baseline

Suggested Remedy
Add a connection from PCS DATA to INIT_MAXWAIT_TIMER state with minwait_timer_done * loc_rcvr_status = NOT_OK describing the arc.

Change minwait_timer_done to minwait_timer_done in arc from PCS_TEST to SILENT.

Wienckowski, Natalie

Comment Type: E  Comment Status: A  late Editorial

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

Suggested Remedy
Remove Editor’s note as it no longer applies.

Wienckowski, Natalie

Response  Response Status: C

ACCEPT IN PRINCIPLE.

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

Lo, William

Response  Response Status: C

ACCEPT IN PRINCIPLE.

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

Change minwait_timer_done to minwait_timer_done in arc from PCS_TEST to SILENT.

Wienckowski, Natalie

Response  Response Status: C

ACCEPT IN PRINCIPLE.

Add the following to SEND DATA state
stop maxwait_timer after start minwait_timer
Add a connection from SEND DATA to INIT_MAXWAIT_TIMER state with minwait_timer_done * loc_rcvr_status = NOT_OK describing the arc.

Wienckowski, Natalie

Response  Response Status: C

ACCEPT IN PRINCIPLE.

Download PDF
Comment Type: T
Comment Status: A
Test Modes
Implementation of clause 45 MDIO registers is optional. Specification needs to provide for equivalent functionality.

Suggested Remedy
Change "These test modes shall be enabled by setting a control register..." to "If MDIO is implemented these test modes shall be enabled by setting a control register...". Add new 2nd sentence to 2nd paragraph in 149.5.1, "If MDIO is not implemented then equivalent functionality shall be provided."

Response
Response Status: C
ACCEPT.

Comment Type: T
Comment Status: A
Test Modes
Need to define TX_TXCLK_DIV. Suggest divide by 8.

Suggested Remedy
Delete editor's note on lines 21-24, change "This TBD MHz test clock is TBD frequency divided version of TX_TCLK that times the transmitted symbols." to "TX_TCLK_DIV is a one-eighth frequency divided version of TX_TCLK that times the transmitted symbols."

Response
Response Status: C
ACCEPT IN PRINCIPLE.

Delete editor's note on lines 21-24,
Change "This TBD MHz test clock is TBD frequency divided version of TX_TCLK that times the transmitted symbols."

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

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

In Figure 149-24 change TX_TCLK to TX_TCLK_DIV.

Comment Type: T
Comment Status: A
Test Modes
Define test mode 2 to have the same divide by 8 proposed for test mode 1.

Suggested Remedy
Change "three {+3} symbols..." "three {-3} symbols" to "four {+1} symbols..." "four {-1} symbols".

Response
Response Status: C
ACCEPT IN PRINCIPLE.

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

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

In Figure 149-24 change TX_TCLK to TX_TCLK_DIV.

Comment Type: T
Comment Status: A
Test Modes
Transmitter linearity test can't be a PN sequence.

Suggested Remedy
Delete "the sequence of symbols..." through equation 149-15. Add "Editor's note (to be removed prior to draft 2.0): Transmitter linearity test specification and framework contributions needed."

Response
Response Status: C
ACCEPT.
IEEE P802.3ch D1p0
Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet 3rd Task Force review comments

P802.3 D1p0

Zimmerman, George
CME:ADI,Aquantia,AP

Comment Type: T
Comment Status: A

Test Modes
Droop test should scale approximately with transmitter baud rate - so accept the yellow text (transmitter output is fbaud/30).

Suggested Remedy
Accept text in yellow on lines 49 and 50 ("fifteen {...+1}... local clock source."

Response
Response Status: C
ACCEPT.

Zimmerman, George
CME:ADI,Aquantia,AP

Comment Type: T
Comment Status: A

Test Modes
Description of the test mode 7 result is needed, and needs to be adjusted to reflect clause 149.

Suggested Remedy
Delete yellow text on lines 1 through 4 and insert "Instead of encoding received data from MAC, continuous zero data pattern is encoded. In the receive side, after PCS FEC decoding processing, a zero data sequence is expected with no errors. Any non-zero data bit received is counted as error and calculated in BER."

Response
Response Status: C
ACCEPT IN PRINCIPLE.

Delete yellow text on lines 1 through 4 and insert "Instead of encoding received data from MAC, continuous zero data pattern is encoded. In the receive side, after PCS FEC decoding processing, a zero data sequence is expected with no errors. Any block received with non-zero data bits is counted as an error and calculated in RS-FEC block error rate."

Response
Response Status: C
ACCEPT IN PRINCIPLE.

WU, Peter
Marvell

Comment Type: ER
Comment Status: A

Test Modes
80B/81B code has been changed to 64B/65B code

Suggested Remedy

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

Response
Response Status: C
ACCEPT IN PRINCIPLE.

See comment #162.
Comment Type: E  Comment Status: A  EZ
List complete Standards reference
SuggestedRemedy
Replace, "IEC 61967–1/4" with "IEC 61967–1, IEC 61967–4"
Response Response Status: C
ACCEPT.

Comment Type: E  Comment Status: A  EZ
List complete Standards reference
SuggestedRemedy
Replace, "IEC 62132–1/4" with "IEC 62132–1, IEC 62132–4"
Response Response Status: C
ACCEPT.

Comment Type: E  Comment Status: A  EZ
List complete Standards reference
SuggestedRemedy
Replace, "ISO 10605 and IEC 61000-4-2/3" with "ISO 10605, IEC 61000-4-2, IEC 61000-4-3"
Response Response Status: C
ACCEPT.

Comment Type: E  Comment Status: A  EZ
List complete Standards reference
SuggestedRemedy
Replace, "IEC 62215-3 and ISO 7637-2/3" with "IEC 62215-3, ISO 7637-2, and ISO 7637-3"
Response Response Status: C
ACCEPT.