The transmission characteristics between the Tx Function and Rx Function including the host PCB are not defined.

**Suggested Remedy**

Create an annex to provide information on channel transmission characteristics defined between the Tx function to Rx function inclusive of the host PCB, MDI and link segment that might not be testable in an implemented system. ide

Commentor to provide draft annex.

** Proposed Response **

**Response Status**: W

PROPOSED REJECT.

Commentor has not provided text.
I think the name of the amendment could be improved from "Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet".

This is an amendment for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s PHYS and the title should state that.

Also there is likely to be a project for a 25G automotive PHY in the future and this would also be greater than 1G.

**Suggested Remedy**

Change the title of the amendment to:

"Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Automotive Ethernet"

**PROPOSED ACCEPT IN PRINCIPLE.**

"operation on automotive cabling in an automotive application". Other definitions in the spec refer to "single balanced pair". It seems useful to make the abstract consistent with that.

**Suggested Remedy**

Change to: "operation over single balanced pair cabling and suitable for automotive applications."

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

"operation on automotive cabling in an automotive application."

To: on a single balanced pair of conductors suitable for automotive applications.

**Suggested Remedy**

Consider a title listing 2.5 Gb/s, 5 Gb/s, 10 Gb/s operation to make it clear that the >10 Gb/s interfaces are not included.

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

"operation on automotive cabling in an automotive application."

To: Draft Standard for Ethernet Amendment: Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Electrical Ethernet.*

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.

"operation over a single balanced pair copper cable" with "operation over a single balanced pair of conductors."

**Suggested Remedy**

Replace, "amendments, and adds" with "amendments and adds."

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.

802.3cg is specified for operation over a single balanced pair of conductors.

**Suggested Remedy**

Replace, "operation on a single balanced pair copper cable" with "operation over a single balanced pair of conductors."

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT.
In the ToC, 3rd level headings from 149.11.1 onwards run together with the text. This may be the first time 6 digits appeared in a 3rd level heading.

**Suggested Remedy**

Adjust the ToC format to provide space between the number and the text for these headings.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Perform instructions provided by Pete: Take a fresh copy of the latest 802.3 template and with your latest P802.3ch book open, open the TOC file from the template.

In the left hand pane, highlight the TOC file from your book. File, Import, Formats, Deselect all, check Paragraph Formats, Import, OK.

- **Comment Type**: E  
- **Comment Status**: D  
- **Proposed Response**: PROPOSED ACCEPT.

**Empty section 1.5**

- **Comment Type**: E  
- **Comment Status**: D  
- **Proposed Response**: PROPOSED ACCEPT.

- **Comment Type**: E  
- **Comment Status**: D  
- **Proposed Response**: PROPOSED ACCEPT.

- **Comment Type**: E  
- **Comment Status**: D  
- **Proposed Response**: PROPOSED ACCEPT.

- **Comment Type**: E  
- **Comment Status**: D  
- **Proposed Response**: PROPOSED ACCEPT.

- **Comment Type**: E  
- **Comment Status**: D  
- **Proposed Response**: PROPOSED ACCEPT.
<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Comment</th>
<th>Proposed Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>44.1.4.4</td>
<td>TR</td>
<td>D</td>
<td>Autonegotiation column is not in table 44-1. In Table 125-2 (page 67) there is a column 98 showing Auto-Negotiation is optional for both 2.5GBASE-T1 and 5GBASE-T1. However, there isn’t one for 10GBASE-T1. Also note that autonegotiation is missing for 10GBASE-T as well.</td>
<td>Suggested Remedy: Add column for clause 98 Auto-Negotiation to Table 44-1 and put O in the 10GBASE-T1 row. As a service to humanity, we can optionally fix this for 10GBASE-T by putting a column for clause 28 Auto-Negotiation and put M in the 10GBASE-T row.</td>
</tr>
<tr>
<td>44</td>
<td>44.3</td>
<td>E</td>
<td>D</td>
<td>Editing instruction says to insert &quot;a&quot; row - three rows are inserted. Also, the row for 2x interleave is overly tall.</td>
<td>Suggested Remedy: Change &quot;a row&quot; to &quot;new rows&quot; in editing instruction, and adjust the height of the row for 2x interleave to match the others.</td>
</tr>
<tr>
<td>44</td>
<td>45.2.1.16</td>
<td>T</td>
<td>D</td>
<td>Editing instruction says to insert &quot;a&quot; row - three rows are inserted. Also, the row for 2x interleave is overly tall.</td>
<td>Suggested Remedy: Change &quot;a row&quot; to &quot;new rows&quot; in editing instruction, and adjust the height of the row for 2x interleave to match the others.</td>
</tr>
<tr>
<td>44</td>
<td>44.1.4.4</td>
<td>E</td>
<td>D</td>
<td>Editing instruction says to insert &quot;a&quot; row - three rows are inserted. Also, the row for 2x interleave is overly tall.</td>
<td>Suggested Remedy: Change &quot;a row&quot; to &quot;new rows&quot; in editing instruction, and adjust the height of the row for 2x interleave to match the others.</td>
</tr>
</tbody>
</table>

*Note: Table and text content have been partially redacted for brevity.*
Comment Type: TR/technical required  ER/editorial required  GR/general required  T/technical  E/editorial  G/general

SORT ORDER: Page, Line

COMMENT STATUS: D/dispatched  A/accepted  R/rejected  RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn

Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial W

---

**Cl 45 SC 45.2.1.18 P33 L12 # 98**

Lo, William
Axonne Inc.

Comment Type: TR  Comment Status: D  Registers

The 2 bits 1.21.5 and 1.21.4 are redundant since they are already defined in 1.18.5 and 1.18.4. Note that 1.11.11 states register 1.18 is for BASE-T1 ability.

Note that register 1.21 causes some issues in that is for 2.5G/5G abilities and 2.5/5GBASE-T1 fits the criteria for both 1.18 and 1.21.

Nevertheless I don't think any other PHY capabilities are advertised twice and I think it is best if we advertise only in one location instead of 2.

**Suggested Remedy**
Delete content in page 33 lines 11 to 48

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT.

---

**Cl 45 SC 45.2.1.18 aa P33 L37 # 109**

Regev, Alon
Keysight Technologies

Comment Type: E  Comment Status: D  ER

ability misspelled as “ability” in 4 places; titles of clause 45.2.1.18 aa and 45.2.1.18 ab as well as the two related entries in the Table of Contents

**Suggested Remedy**
change all occurrences of “ability” to “ability”

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT.

---

**Cl 45 SC 45.2.1.18 ab P33 L43 # 190**

Brandt, David
Rockwell Automation

Comment Type: E  Comment Status: D  ER

Misspelling

**Suggested Remedy**
change: “ability”, To: “ability”

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT.

---

**Cl 45 SC 45.2.1.18 ab P33 L43 # 5**

Kolesar, Paul
CommScope

Comment Type: E  Comment Status: D  ER

typo

**Suggested Remedy**
change ability to ability

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT.

---

**Cl 45 SC 45.2.1.18 aa P33 L37 # 8**

Kolesar, Paul
CommScope

Comment Type: E  Comment Status: D  ER

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT.

---

**Cl 45 SC 45.2.1.18.aa P33 L24 # 260**

den Besten, Gerrit
NXP Semiconductors

Comment Type: T  Comment Status: D  Registers

What's the purpose to duplicate BASE-T1 abilities to register 21, as these are already covered by the BASE-T1 extended ability register 18. Register 11 indicates whether or not BASE-T1 extended abilities or 2.5G/5G extended abilities. Why would a 2.5G/5GBASE-T1 need to indicate 2.5G/5G extended abilities next to BASE-T1 extended abilities?

**Suggested Remedy**
Propose to remove BASE-T1 abilities from register 21.

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove the duplicate BASE-T1 abilities from register 1.21. In addition, add a note below Register 1.21 that the BASE-T1 abilities can be found in register 1.18.

---

**Cl 45 SC 45.2.1.18.aa P33 L36 # 189**

Brandt, David
Rockwell Automation

Comment Type: E  Comment Status: D  ER

Misspelling

**Suggested Remedy**
Change: “ability”, To: “ability”

**Proposed Response**

**Response Status: W**

PROPOSED ACCEPT.
Transmit fault descriptions are in 45.2.1.7.4, Table 45-9, and Receive fault descriptions are in 45.2.1.7.5, Table 45-10. These need to be brought into the draft and updated to include the clause 149 references for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1. Additionally, I cannot find the reference to Transmit and Receive Faults in clause 149, although the abilities are referenced in 1.2310.

**Suggested Remedy**

- Bring 45.2.1.7.4 and Table 45-9, adding rows for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1 referencing the appropriate section of clause 149 for transmit faults.
- Bring 45.2.1.7.5 and Table 45-10, adding rows for 2.5GBASE-T1, 5GBASE-T1, and 10GBASE-T1 referencing the appropriate section of clause 149.
- Add text, if necessary, for transmit and receive faults to clause 149.

**Proposed Response**

Proposed ACCEPT IN PRINCIPLE.

Add the requested sections into the document.

TFTD text to be added.

---

It might be wise to keep some reserved registers after 2308 for future extension instead of directly abutting the multi-gig register addresses to 1Gbps addresses. Note that for other IEEE 802.3 PHYs there is also some reserved address between PHY types.

**Suggested Remedy**

Delete "current" on P36 L9

**Proposed Response**

Proposed ACCEPT.

"Bits 1.2309.10:9 control the current precoder setting of the transmitter," - because "current" can have meaning both as time and as an electrical parameter, this isn't a great way to say this. The rest of the paragraph, particularly the sentence "Setting these bits forces the precoder to the mode set," is clarity enough, and the word "current" is unneeded.

**Suggested Remedy**

Delete "current" on P36 L9

**Proposed Response**

Proposed ACCEPT.

that the polarity of the receiver is reversed.

**Suggested Remedy**

Change: that the polarity of the receiver is reversed.

To: that the polarity of the receiver is reversed.

**Proposed Response**

Proposed ACCEPT.
<table>
<thead>
<tr>
<th>CI</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Precoder</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>45.2.1.194</td>
<td>P38</td>
<td>13</td>
<td>277</td>
<td>TR</td>
<td>D</td>
<td>Slow wake request is an indication in one direction, which leaves the option open that it would still require to support regular wake-up in the other direction. I think it would be better to specify that if one of the transceivers on a link request slow-wake, that the slow-wake is applied in both directions.</td>
</tr>
<tr>
<td>45</td>
<td>45.2.1.194.2</td>
<td>P38</td>
<td>32</td>
<td>279</td>
<td>TR</td>
<td>D</td>
<td>In D2.0, the &quot;Precoder requested&quot; bit values are configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField. It may be more robust to optionally allow the PHY to choose the precoder on-the-fly based on channel and noise conditions.</td>
</tr>
<tr>
<td>45</td>
<td>45.2.1.194.3</td>
<td>P38</td>
<td>40</td>
<td>278</td>
<td>TR</td>
<td>D</td>
<td>In D2.0, the &quot;Precoder requested&quot; bit values are configured by user. The PHY simply reads in these register bit values and sends to the link partner via InfoField. It may be more robust to optionally allow the PHY to choose the precoder on-the-fly based on channel and noise conditions.</td>
</tr>
</tbody>
</table>

**Suggested Remedy**
See page 3 of "tu_3ch_01_0719.pdf".

**Proposed Response**
PROPOSED ACCEPT IN PRINCIPLE.

TFTD after reviewing the presentation.
Does the following statement imply that once the device has seen an link up the bits in register 1.2112 are then valid forever? "The values in this register are not valid until link is up."

**Suggested Remedy**

Change:

"The values in this register are not valid until link is up." to

"The values in this register are not valid when the link is down."

**Proposed Response**

**Response Status** W

**PROPOSED ACCEPT.**

Link partner slow wake request is an indication in one direction, which leaves the option open that it would still require to support regular wake-up in the other direction. I think it would be better to specify that if one of the transceivers on a link request slow-wake, that the slow-wake is applied in both directions.

**Suggested Remedy**

Add the sentence to the paragraph:

If either this PHY or its link partner request slow wake, the PHY may only transmit alert immediately following refresh.

**Proposed Response**

**Response Status** W

**PROPOSED REJECT.**

The desire was to allow these to be different in each direction.

**JITTER TEST MODE** The jitter test in 149.5.2.3.1 is designed for the low-frequency square wave signal used in BASE-T PHYs and the test in 149.5.2.3.2 is designed for the at-speed test patterns (JP03A & JP03B) used in backplane phys. A control bit is needed to allow test mode 2 to support both tests, and additional language is needed specifying which signals to use in which tests.

Comments tagged JITTER TEST MODE should be treated as a group.

**Suggested Remedy**

Table 45-155e: Add new rows after Reserved row, and adjust reserved row to allocate bits 0,1 of register 1.2313 (Test mode control) register based: 1.2313.1:0 = 00 (Normal Square Wave), 1.2313.1:0 = 01 (JP03A pattern), 1.2313.1:0 = 10 (JP03B pattern), 1.2313.1:0 = 11 (Reserved),

Insert new subclause 45.2.1.196.2 as follows:

45.2.1.196.2 Jitter test control (1.2313.1:0)

When the transmitter is in test mode 2, bits 1.2313.1:0 control the pattern of the jitter test signal. A value of 0 0 transmits a square wave from the transmitter, a value of 0 1 transmits the JP03A pattern, and a value of 1 0 transmits the JP03B pattern. See 149.5.1 for more information.

**Proposed Response**

**Response Status** W

**PROPOSED ACCEPT IN PRINCIPLE.**

Implement as proposed but refer to 145.5.2.3 which is where the jitter tests are defined.

Table 45-155e: Add new rows after Reserved row, and adjust reserved row to allocate bits 0,1 of register 1.2313 (Test mode control) register based: 1.2313.1:0 = 00 (Normal Square Wave), 1.2313.1:0 = 01 (PRBS13Q pattern), 1.2313.1:0 = 10 (Reserved), 1.2313.1:0 = 11 (Reserved),

Insert new subclause 45.2.1.196.2 as follows:

45.2.1.196.2 Jitter test control (1.2313.1:0)

When the transmitter is in test mode 2, bits 1.2313.1:0 control the pattern of the jitter test signal. A value of 0 0 transmits a square wave from the transmitter and a value of 0 1 transmits the PRBS13Q pattern. See 145.5.2.3 for more information.
### Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial W

#### Comment: CI 45 SC 45.2.1.197 P40 L53 # 196

**Dawe, Piers Mellanox**

**Comment Type**: TR

**Comment Status**: D

**Registers**

This register should contain "the current SNR operating margin measured at the slicer input ... to an accuracy of 0.5 dB", yet there is no indication of what "SNR operating margin" means (is the PHY supposed to measure the noise of the signal? or infer it from FEC errors? or...) nor is "the slicer input" defined. Trying to set an accuracy on something so vague is not appropriate. Anyway, providing that accuracy at the extremes of the range is probably difficult and unnecessary.

**Suggested Remedy**

Delete "to an accuracy of 0.5 dB"

**Proposed Response**

**Response Status**: W

PROPOSED REJECT.

This was discussed during a previous meeting and the decision of the group was to keep the accuracy, which matches MultiGBASE-T PHY's.

#### Comment: CI 45 SC 45.2.1.198 P41 L8 # 56

**Remein, Duane Futurewei Technologies, Inc.**

**Comment Type**: TR

**Comment Status**: D

**Registers**

It strikes me a odd that 1.2314 (SNR) is in "offset binary notation" and Register 1.2315 is in "is in offset two's complement notation". Furthermore I could find no reference for "offset two's complement notation" (hence the "Must Be Satisfied = YES) while offset binary notation is at least informally described in Wikipedia.

**Suggested Remedy**

Change "offset two's complement notation" to " offset binary notation"

**Proposed Response**

**Response Status**: W

PROPOSED ACCEPT.

#### Comment: CI 45 SC 45.2.1.197 P41 L1 # 99

**Lo, William Axonne Inc.**

**Comment Type**: T

**Comment Status**: D

**Registers**

The intent of registers 1.2314 and 1.2315 is to represent -12.7 dB to +12.7dB as an 8 bit number. However the description is a little confusing for the uninitiated in that these registers are described as 16 bits registers.

**Suggested Remedy**

2 ways to fix this. Pick one. My preference is method 1.
1) Define the registers to be 8 bits only. Hence these 2 registers are 1.2314.15:8 and 1.2315.15:8 respectively.
   Set 1.2314.7:0 and 1.2315.7:0 to reserved.
2) There is an example stating 0.0dB is 0x8000. Add 2 more examples where
   12.7dB is 0xFF00 and -12.7dB is 0x0100. Note that this solution is not as
   clean as in theory bits 7:0 can show more resolution and we are now
   mixing decimal and binary representations with fractional 0.1dB.

   Editor has editorial license to word and format either of the options above.

**Proposed Response**

**Response Status**: W

PROPOSED ACCEPT IN PRINCIPLE.

Implement method 1 provided in the Suggested Remedy.
Table 45-244a is split across two pages with only one body row on the first page.

**Suggested Remedy**
Increase the Orphan rows setting in Table Designer to 4

**Proposed Response**
PROPOSED ACCEPT.

"The Link partner MultiGBASE-T1" should be "The link partner MultiGBASE-T1" (lower case l in link).

**Suggested Remedy**
Change "Link" to "link"

**Proposed Response**
PROPOSED ACCEPT.

Missing reference to 149.3.9.2.12 like in sub-clause 45.2.3.76

**Suggested Remedy**
Add the same reference to 45.2.3.77

**Proposed Response**
PROPOSED ACCEPT IN PRINCIPLE.

Add "See 149.3.9.2.12 for details on the OAM status message definition." before "See Table 45–244b."
Is this really intended to be an optional requirement? “The default value for each bit of the MultiGBASE-T1 PCS control register should be chosen so that the initial state of the device upon power up or reset is a normal operational state without management intervention.”

SuggestedRemedy

Suggest to rewrite as an informative text, which I believe it is. There are at least 28 instances of the keyword "should" in the draft (excludign front page), none of which strikes me as intended optional requirement. Each and every instance of the keyword "should" ought to be reviewed and if the given statement is not intended as an optional requirement, text ought to be rewritten as informative instead.

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

hange: The default value for each bit of the MultiGBASE-T1 PCS control register should be chosen so that the initial state of the device upon power up or reset is a normal operational state without management intervention.

To: The default value for each bit of the MultiGBASE-T1 PCS control register is chosen so that the initial state of the device upon power up or reset is a normal operational state without management intervention.*

In addition:
P40 L25 and P46 L 39 change "should be" to "is"
P105 L48 change "should be" to "are"

There are 2 we have to discuss in the TF, because it isn’t clear if these are requirements. They look like they may need to become ‘shall’, or ‘is’.

>> on page 99, lines 17-19, there are two “should’s” regarding initialization of the precoder, that may be needed to be made shalls. The task force needs to discuss this.

>> page 134 L12 (rx_lp_ping “should be” looped back – but this appears automatic in the state diagram Figure 149-25 p137 L25) (would need to become ‘is’)

The other “shoulds” are in the template, e.g. at the bottom of the PICS tables.

Proposed Response

PROPOSED ACCEPT.
When tables split across pages, the bottom ruling of the table on the first page should be "very thin"

SuggestedRemedy
Make the bottom ruling "very thin" for:
- the table in 45.5.3.3 at the foot of page 52
- the table in 45.5.3.7 at the foot of page 54
- Table 78-4 on page 57
- the table in 149.11.4.2.1 at the foot of page 173
- the table in 149.11.4.3.4 at the foot of page 179
- the table in 149.11.4.4.3 at the foot of page 184

PROPOSED ACCEPT.
IEEE P802.3ch D2.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial Working Group ballot comments

**Comment:** Incorrect reference

**Suggested Remedy:** Change Subclause from 45.2.1.194.5 to 45.2.1.195.5.

**Proposed Response:** PROPOSED ACCEPT.

**Response Status:** W

**Wienckowski, Natalie General Motors**

**Comment:** Incorrect reference. This is not what is in P802.3:2018.

**Suggested Remedy:** Change Subclause from 45.2.3.172.1 to 45.2.3.172.2.

**Proposed Response:** PROPOSED ACCEPT.

**Response Status:** W

**Wienckowski, Natalie General Motors**

**Comment:** In the editing instruction "after Item RM184" should be "after Item RM190"

**Suggested Remedy:** In the editing instruction change "after Item RM184" to "after Item RM190"

**Proposed Response:** PROPOSED ACCEPT.

**Response Status:** W

**Anslow, Pete Ciena**

**Comment:** "the the"

**Suggested Remedy:** Change to single "the"

**Proposed Response:** PROPOSED ACCEPT.

**Response Status:** W

**Laubach, Mark Broadcom**

**Comment:** "the the"

**Suggested Remedy:** Change to single "the"

**Proposed Response:** PROPOSED ACCEPT.

**Response Status:** W

**Laubach, Mark Broadcom**

**Comment:** "the the"

**Suggested Remedy:** Change to single "the"

**Proposed Response:** PROPOSED ACCEPT.
Anslow, Pete, Ciena

**Comment Type:** E

**Comment Status:** D

**Comment #:** 65 against P802.3cj D2.0 defined the order of items in Table 78-1. See http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14

1. Sort the result in "speed/reach" order using the following set of rules.
   1. Increasing speed.
   2. Increasing reach (maximum supported distance over the medium).
   3. Decreasing number of lanes

The following supplemental rules address are included to address special cases.
   4. PHY "family designations, by convention, are assigned a reach of 0.
   5. "Copper" PHYs precede "Fiber" PHYs (all else being equal).
   6. Alphanumeric sort (all else being equal).

Applying these rules puts 2.5GBASE-T1 before 2.5GBASE-T, 5GBASE-T1 before 5GBASE-T, and 10GBASE-T1 before 10GBASE-T.

**SuggestedRemedy:**

Change the editing instruction to:

"Insert a row for 2.5GBASE-T1 after 2.5GBASE-KX (as inserted by IEEE Std 802.3cb-2018), insert a row for 5GBASE-T1 after 5GBASE-KR (as inserted by IEEE Std 802.3cb-2018), and insert a row for 10GBASE-T1 after 10GBASE-KR in Table 78-1 as follows (unchanged rows not shown):"

**Proposed Response:** PROPOSED ACCEPT.

Anslow, Pete, Ciena

**Comment Type:** E

**Comment Status:** D

**Comment #:** 66 against P802.3cj D2.0 defined the order of items in Table 78-2.

1. Sort the result in "speed/reach" order using the following set of rules.
   1. Increasing speed.
   2. Increasing reach (maximum supported distance over the medium).
   3. Decreasing number of lanes

Applying these rules puts 2.5GBASE-T1 before 2.5GBASE-T, 5GBASE-T1 before 5GBASE-T, and 10GBASE-T1 before 10GBASE-T.

**SuggestedRemedy:**

Add row to bottom of table with single column and "..." in the cell.

**Proposed Response:** PROPOSED ACCEPT.

Hajduczenia, Marek, Charter Communications

**Comment Type:** ER

**Comment Status:** D

**Comment #:** 67 against P802.3cj D2.0 defined the order of items in Table 78-3.

1. Insert a row for 2.5GBASE-T1 after 2.5GBASE-KX (as inserted by IEEE Std 802.3cb-2018), insert a row for 5GBASE-T1 after 5GBASE-KR (as inserted by IEEE Std 802.3cb-2018), and insert a row for 10GBASE-T1 after 10GBASE-KR in Table 78-2 as follows (unchanged rows not shown):"

**Proposed Response:** PROPOSED ACCEPT.
<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Anslow, Pete</th>
<th>Ciena</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
<td>78.5</td>
<td>57</td>
<td>18</td>
<td>20</td>
<td>Comment Type: E, Comment Status: D</td>
<td>EZ</td>
</tr>
</tbody>
</table>

There are nine paragraphs in 78.5 of the base standard, so the additional paragraph is number 10.

Case-1 and Case 2 start with "Case-x of the PHY in the MultiGBASE-T set applies when ..." but cases 3 and 4 start with "Case-x in MultiGBASE-T1 is the same as ..."

**SuggestedRemedy**

Change the editing instruction to:

"Insert a 10th paragraph in 78.5 as follows:" For Case-3 and Case-4, change:

"Case-x in MultiGBASE-T1 is the same as ..." to:

"Case-x of the PHY in the MultiGBASE-T set is the same as ..."

**Proposed Response**

**Response Status**: W

**PROPOSED ACCEPT.**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Anslow, Pete</th>
<th>Ciena</th>
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<tbody>
<tr>
<td>78</td>
<td>78.5</td>
<td>57</td>
<td>26</td>
<td>38</td>
<td>Comment Type: E, Comment Status: D</td>
<td>EZ</td>
</tr>
</tbody>
</table>

Comment #66 against P802.3cj D2.0 defined the order of items in Table 78-4. See http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14 This defined the sort order to be the same as for Table 78-1 Applying these rules puts 2.5GBASE-T1 before 2.5GBASE-T, 5GBASE-T1 before 5GBASE-T, and 10GBASE-T1 before 10GBASE-T.

**SuggestedRemedy**

Change the editing instruction to:

"Insert a 10th paragraph in 78.5 as follows:" For Case-3 and Case-4, change:

"Case-x in MultiGBASE-T1 is the same as ..." to:

"Case-x of the PHY in the MultiGBASE-T set is the same as ..."

**Proposed Response**

**Response Status**: W

**PROPOSED ACCEPT.**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Anslow, Pete</th>
<th>Ciena</th>
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<tbody>
<tr>
<td>98</td>
<td>98.5.1</td>
<td>61</td>
<td>11</td>
<td>224</td>
<td>Comment Type: T, Comment Status: D</td>
<td>EEE</td>
</tr>
</tbody>
</table>

The cells for Tphy_shrink_tx (max) and Tphy_shrink_rx (max) in Table 78-4 should not be blank. If the values for these parameters are 0, then these cells should all contain 0

**SuggestedRemedy**

Populate the cells for Tphy_shrink_tx (max) and Tphy_shrink_rx (max) in Table 78-4 for the new rows with "0"

**Proposed Response**

**Response Status**: W

**PROPOSED ACCEPT IN PRINCIPLE.**

Implement changes requested by Graba_3ch_01a_0719.pdf.

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>McClellan, Brett</th>
<th>Marvell</th>
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<tbody>
<tr>
<td>104</td>
<td>104.1.3</td>
<td>62</td>
<td>10</td>
<td>240</td>
<td>Comment Type: T, Comment Status: D</td>
<td>EZ</td>
</tr>
</tbody>
</table>

Figure 149-34 references 'mGigT1'. 10GigT1 , 5GigT1 , and 2.5GigT1 are never referenced. Change:

"— 2.5GigT1; represents that the 2.5GBASE-T1 PMA is the signal source.
— 5GigT1; represents that the 5GBASE-T1 PMA is the signal source.
— 10GigT1; represents that the 10GBASE-T1 PMA is the signal source."

to

"— mGigT1; represents that the 10/5/2.5GBASE-T1 PMA is the signal source."

**Proposed Response**

**Response Status**: W

**PROPOSED ACCEPT.**

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>#</th>
<th>Zimmerman, George</th>
<th>ADI, APL Gp, Aquantia, BMW, Cisco, Commscope, S</th>
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<tr>
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<td>104.1.3</td>
<td>62</td>
<td>10</td>
<td>240</td>
<td>Comment Type: E, Comment Status: D</td>
<td>EZ</td>
</tr>
</tbody>
</table>

Capitalization of "type F PSE" is missing

**SuggestedRemedy**

Change "type F PSE" to "Type F PSE"
Type F systems include a NGAUTO PHY. The PSE power supply ripple currently in the standard was reused from 1000BASE-T1 (Type B) systems. This needs to be changed for the higher data transmission speed.

Suggested Remedy
See "stewart_3ch_01_0719" Slides 5, 6, and 7

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

TFTD after reviewing the presentation.

All the "VPD", "PPD" references should have the "PD" in subscript.

Suggested Remedy
Editor to check and make "PD" and "PSE" subscript where appropriate. (I think it's just PD)

Proposed Response
PROPOSED ACCEPT.

Type F systems include a NGAUTO PHY. The PD ripple currently in the standard was reused from 1000BASE-T1 (Type B) systems. This needs to be changed for the higher data transmission speed.

Suggested Remedy
See "stewart_3ch_01_0719" Slides 8 and 9

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

TFTD after reviewing the presentation.

The right hand ruling for the second heading row in Table 125-2 should be set to the default.

Suggested Remedy
Change the right hand ruling for the second heading row in Table 125-2 to the default.

Proposed Response
PROPOSED ACCEPT.

Incorrect table border on cell "149"

Suggested Remedy
Change right side boarder on last cell in 2nd ro to be the wider outside border.

Proposed Response
PROPOSED ACCEPT.
IEEE P802.3ch D2.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial Working Group ballot comments

Cl 125 SC 125.2.4.3 P68 L28 # 7
Hajduczenia, Marek Charter Communications

Comment Type ER Comment Status D PICS
New shall statements were added, PICS were not updated

Suggested Remedy
Per comment

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

P68 L27 Delete: If Auto- Negotiation is implemented, it shall meet the requirements of Clause 98. This text is not needed here as it is in Clause 149.

Cl 125 SC 125.3 P68 L30 # 133
Grau, Olaf Robert Bosch GmbH

Comment Type E Comment Status D Formatting
Titel on pg 68, Tabel on pg. 69

Suggested Remedy
Headline and Table shouldn't be separated by a page break

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.

The editor will try to move the Heading for 125-3 to the next page with Table 125-3.

Cl 125 SC 125.3 P68 L33 # 77
Wienckowski, Natalie General Motors

Comment Type E Comment Status D EZ
Table 125-3 does not match IEEE802.3's 2018 guideline for "Presentation of numbers".

Suggested Remedy
Change Editorial instruction to be "Replace Table 125-3 (as modified by IEEE Std 802.3cb-2018) with the updated table, which adds 2.5GBASE-T1 and 5GBASE-T1 and corrects the number format and alignment to match IEEE 802.3 WG editorial guidelines, as follows:"
Correct Table 125-3 to match latest IEEE 802.3 WG editorial guidelines.

Cl 149 SC 149 P70 L1 # 37
Remein, Duane Futurewei Technologies, Inc.

Comment Type E Comment Status D EZ
It is customary to include an editing Instruction prior to new clauses as noted in the WG Template v3.9.

Suggested Remedy
Insert before Clause 149 "Insert new clauses and corresponding annexes as follows:"

Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 149 SC 149.1 P70 L12 # 251
den Besten, Gerrit NXP Semiconductors

Comment Type E Comment Status D EZ
The word 'type' seems strange and unnecessary in this sentence.

Suggested Remedy
Remove the word 'type'

Proposed Response Response Status W
PROPOSED ACCEPT.
"PHY's" should be possessive as "PHY's"

Suggested Remedy
Change "...PHYs data rate..." to "...PHY's data rate..."

Proposed Response Response Status W PROPOSED ACCEPT.

The use of "S" to represent scaling parameter is not advisable. Trying to see where this comes into play throughout the document on a search of "S" reveals so many instances that it is useless.

Suggested Remedy
Change "S" to "Scale"

Proposed Response Response Status W PROPOSED REJECT.

The use of S to represent the scaling parameter is consistent with the use in 802.3bq-2016 and 802.3bz-2016. This is where we got it. It's used in all Multi-Gig BASE-T PHYS.

PCS layer label is inconsistent with Figure 44-1 and Figure 125-1.

Suggested Remedy
Change: "RS-FEC PCS"
To: "64B/65B RS-FEC PCS"

Proposed Response Response Status W PROPOSED ACCEPT.

"The MASTER and SLAVE are synchronized by the PHY Link Synchronization function in the PHY (see 149.4.2.6)." - this sentence stands alone from the previous sentence, and needs to be qualified or linked - else it is incorrect (149.4.2.6 only applies in FORCE mode). It is only true when Auto-Negotiation is not used.

Suggested Remedy
Change "PHYS. The MASTER and SLAVE are..." to "PHYS, and the MASTER and SLAVE are..."

Proposed Response Response Status W PROPOSED ACCEPT.

The 25GBASE-T and 40GBASE-T PHYSs described in Clause 113 represent two distinct PHY types that share the same PCS, PMA, and MDI specifications subject to frequency scaling, and differences between the 25GMII and the XLGMMII specifications. In order to efficiently describe the two PHYs, the nomenclature 25G/40BASE-T is used to describe specifications that apply to both the 25GBASE-T and 40BASE-T PHYs. Additionally, for parameters that scale with the PHYs data rate, the parameter S is used for scaling.

For 25GBASE-T, S = 0.625 and for 40BASE-T, S = 1.

The 2.5GBASE-T and 5GBASE-T PHYSs described in this clause represent two distinct PHY types that share the same PCS, PMA, and MDI specifications subject to frequency scaling. In order to efficiently describe the two PHYs, the nomenclature 2.5G/5BASE-T is used to describe specifications that apply to both the 2.5GBASE-T and 5BASE-T PHYs. Additionally, for parameters that scale with the PHYs data rate, the parameter S is used for scaling.

For 2.5BASE-T, S = 0.5 and for 5BASE-T, S = 1.
Comment Type  TR  Comment Status  D  OAM
Contradicting statement whether OAM in-band or out-of-band:
page 72 line 14 says "out-of-band", page 120 line 12 says "in-band"

SuggestedRemedy
Change page 72 line 14 from out-of-band to in-band.

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.
OAM is "out-of-band"
P120 L120 change "in-band" to "out-of-band".

A Maintenance request needs to be entered for Clause 97 as 97.3.8 states "The 1000BASE-T1 OAM information is exchanged in-band between two PHYs", this should be "out-of-band".

Comment Type  E  Comment Status  D
Text in this section appears to be a different font size than other text.

SuggestedRemedy
Adjust font

Proposed Response  Response Status  W
PROPOSED REJECT.
I checked the text in FrameMaker and it is the same as the rest of the text. This must be due to the pdf creation or your viewer.

Comment Type  E  Comment Status  D
Missing dashes.

SuggestedRemedy
Change: "3260 bit block"
To: "3260-bit block", in 2 locations

Proposed Response  Response Status  W
PROPOSED ACCEPT.
den Besten, Gerrit  
NXP Semiconductors  

Comment Type  T  Comment Status  D  EEE  
It is stated here that the the LPI transmit mode starts when there is an LPI character in the last 64B/65B block of the RS-frame. In contrast to how to exist LPI, it interestingly doesn't say how this is initiated by XGMII.

SuggestedRemedy  
Propose to add a sentence before the referred one: 
A request for LPI mode starts with LPI characters on the XGMII.

Proposed Response  Response Status  W  
PROPOSED REJECT.

The text that is questioned by this comment is removed by comment #227. This may need to be revisited if the resolution to comment #227 changes.

McClellan, Brett  
Marvell  

Comment Type  ER  Comment Status  D  EEE  
This section has too much detail for a non-normative summary sections and is prone to have conflicts with the normative sections. The section sounds normative but has no 'shall' statements. It should provide a brief summary and refer to section 149.3.2.2.21 for normative details.

SuggestedRemedy  
delete the two paragraphs starting with:  
"In the transmit direction the transition to the LPI transmit mode begins..."  
and  
"In the receive direction the transition to the LPI mode is triggered when .."  

Proposed Response  Response Status  W  
PROPOSED ACCEPT.
Comment Type: ER
This section has too much detail for a non-normative summary section and is prone to have conflicts with the normative sections. The section sounds normative but has no 'shall' statements. It should provide only a summary and refer to section 149.4.2.6 for normative details.

Suggested Remedy
change text to:

"The Link Synchronization function is used when Auto-Negotiation is disabled or not implemented to detect the presence of the link partner, time and control link failure, and act as the data source for the PHY control state diagram. Link Synchronization operates in a half-duplex fashion. The MASTER PHY sends a synchronization sequence. If there is no response from the SLAVE, the MASTER repeats sending a synchronization sequence. If the slave detects the sequence, it responds with a synchronization sequence. If no other detection happens after the SLAVE response then Link Synchronization is successfully complete, link monitor timers are started, and the PHY Control state machine starts Training. Link synchronization is defined in 149.4.2.6."

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

Comment Type: E
Use preferred terminology for state diagrams.

Suggested Remedy

Proposed Response: PROPOSED ACCEPT.

Comment Type: T
"Ability to signal the status of the local receiver to the remote PHY to indicate that the local receiver is not operating reliably and requires retraining."
I don't think the signaling can convey the need for a retraining.

Suggested Remedy
delete item g

Proposed Response: PROPOSED ACCEPT.
This is not a test specification.

Implementers (or testers) take responsibility for the accuracy of their test equipment. If someone wants to use 2%-accurate equipment and apply appropriate guard bands, that's OK.

In "The values of all components in test circuits shall be accurate to within ± 1% unless otherwise stated", the "shall" is inappropriate.

Remarks about % tolerance muddy the water: Does 1 V mean 1 V any more? If asked for e.g. <1 V, and measured with 0.1%-accurate equipment, is 1.008 V acceptable?

Anyway, this topic does not fit with "conventions in this clause", and does not relate to the PCS.

Suggested Remedy
Delete this sentence from here. If any substitute is needed, put it within 149.5 PMA electrical specifications, and use the language of a parameter definition, not a test requirement.

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

Delete "The values of all components in test circuits shall be accurate to within ± 1% unless otherwise stated"

A Maintenance request is required to remove this through 802.3. It is in Clause 97 and may be in others.

The following statement is incorrect:
MultiGBASE-T1 transfers data and control information across the following four service interfaces:
  a) 10 Gigabit Media Independent Interface (XGMII)
  b) Technology Dependent Interface
  c) PMA service interface
  d) Medium dependent interface (MDI)

MDI is not a service interface See definition 1.4.324.

Suggested Remedy
Reword
MultiGBASE-T1 transfers data and control information across the following three service interfaces:
  a) 10 Gigabit Media Independent Interface (XGMII)
  b) Technology Dependent Interface
  c) PMA service interface

Proposed Response  Response Status  W
PROPOSED REJECT.

This is not consistent throughout 802.3.
MDI is included in Service Primitives and Interfaces in Clauses 55, 97, 113, 126, etc. Commenter may want to consider creating a Maintenance request to remove this throughout 802.3.
According to Table 125-2, Nomenclature and clause correlation, Clause 98 Auto-Negotiation is optional. The Technology Dependent Interface is used to communicate with Auto-Negotiation - I don't think it has any other purpose.

**Suggested Remedy**
Say that the Technology Dependent Interface is required if Auto-Negotiation is implemented (so, not if it's not)

**Proposed Response**

<table>
<thead>
<tr>
<th>Comment Type</th>
<th>TR</th>
<th>Comment Status</th>
<th>D</th>
<th>Terminology</th>
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</thead>
<tbody>
<tr>
<td>Comment Status</td>
<td>D</td>
<td>Response Status</td>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

Change: MultiGBASE-T1 uses the following service primitives to exchange status indications and control signals across the Technology Dependent Interface as specified in 98.4:

To: MultiGBASE-T1 uses the following service primitives to exchange status indications and control signals across the Technology Dependent Interface, required in PHYs that implement Auto-Negotiation, as specified in 98.4:

"send_s.sigdet" appears in Figure 149-2 as a service interface (apparently for EEE alert detection), but does not appear in 149.2.2.

PMA_ALERTDETECT.indication(alert_detect) is a defined service interface for EEE alert detection, but does not appear in 149.2.2.

**Suggested Remedy**

delete "send_s.sigdet" from Figure 149-2.

add "alert_detect" as a dotted line service interface from the PMA receiver in Figure 149-2 and Figure 149-3

add "PMA_ALERTDETECT.indication(alert_detect)" to the list in 149.2.2.

change "   " to "alert_detect" in 149.3.2.3 on page 101 line 45.

**Proposed Response**

<table>
<thead>
<tr>
<th>Comment Type</th>
<th>TR</th>
<th>Comment Status</th>
<th>D</th>
<th>State Diagrams</th>
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<tbody>
<tr>
<td>Comment Status</td>
<td>D</td>
<td>Response Status</td>
<td>W</td>
<td></td>
</tr>
</tbody>
</table>

Make the following set of changes (same as comment 101)

1. Figure 149-2 (P75 L30) remove "send_s.sigdet" and associated line
2. Figure 149-2 (P75 L33) add dotted arrow line from PMA RECEIVE to PCS RECEIVE labeled "alert_detect"
3. Figure 149-3 (P79 L28) add dotted arrow line from PMA to PCS labeled "PMA_ALERTDETECT.indication"
4. P78 L32 add "PMA_ALERTDETECT.indication(alert_detect)" to the list in 149.2.2.
5. Figure 149-4 (P86) add dotted up arrow from PMA SERVICE INTERFACE dotted line to PCA RECEIVE box labeled "alert_detect"
6. P101 L 45 change: "send_s_sigdet" to "alert_detect"
Comment Type TR  Comment Status D  State Diagrams
Clause 149.2.2.12 talks about PMA_ALERTDETECT.indication but it is not mentioned in 4 places.

Suggested Remedy
1) Page 78 line 32 add PMA_ALERTDETECT.indication(alert_detect)
2) Page 79 line 28 Draw left dotted arrow labeled PMA_ALERTDETECT.indication
3) Page 75 figure 149-2. Need a left dotted line from PMA RECEIVE to PCS RECEIVE, line is labeled alert_detect. (I'm not sure about this change. Ask for feedback from the group)
4) Page 86 line 12 Need a up dotted line to PCS RECEIVE labeled alert_detect

Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
Make the following set of changes (same as comment 232)
1. Figure 149-2 (P75 L30) remove "send_s_sigdet" and associated line
2. Figure 149-2 (P75 L33) add dotted arrow line from PMA RECEIVE to PCS RECEIVE labeled "alert_detect"
3. Figure 149-3 (P79 L28) add dotted arrow line from PMA to PCS labeled "PMA_ALERTDETECT.indication"
4. P78 L32 add "PMA_ALERTDETECT.indication(alert_detect) to the list in 149.2.2.
5. Figure 149-4 (P86) add dotted up arrow from PMA SERVICE INTERFACE dotted line to PCA RECEIVE box labeled "alert_detect"
6. P101 L 45 change: "send_s_sigdet" to "alert_detect"

Comment Type E  Comment Status D  EZ
"RS_FEC" is inconsistent with other text using "RS-FEC"

Suggested Remedy
change "RS_FEC" to "RS-FEC"

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment Type E  Comment Status D  EZ
Mispeeling "fame"

Suggested Remedy
Change "FEC fame" to "FEC frame"

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment Type E  Comment Status D  EZ
I think it would be useful to indicate that the block of 3600 bits are encoded into a block of 1800 PAM4 symbols.

Suggested Remedy
Change:
"The 3600 bits in this frame are then encoded into PAM4 symbols and transferred to the PMA."
to:
"The 3600 bits in this frame are then encoded into 1800 PAM4 symbols and transferred sequentially to the PMA."

Proposed Response Response Status W
PROPOSED ACCEPT.
How the number of interleave frames is decided upon is not defined anywhere. So for 10G if one side requests 2-way, other 4-way which do you do? The shall in this line implies there is some definition on how to resolve that but I don’t see any text for that (which is where the shall should be).

Suggested Remedy
Change the text from "which shall be determined" to "which is determined". Add a sub-clause in the appropriate place which defines the priority resolution of the interleave request fields for 5G and 10G operations. Change PCT6 to refer to new sub-clause

Proposed Response
Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

TFTD

Note there are a few issues addressed in the resolution below, but the Task force needs to discuss that the commenter assumes that the interleave ratio needs to be symmetric on the link. As configured, it doesn’t have to be. Interleave depth is requested by the link partner.

P87 L48, Change “L is called the interleaving depth, and the possible choices of L are 1, 2, and 4, which shall be determined during the PAM2 training mode InfoField exchange.” To “L is called the interleaving depth, and the possible choices of L are 1, 2, and 4. The interleaver settings requested in each direction of transmission may be different, and the value of L used by the transmitter is determined by the link partner and signaled during the PAM2 training mode InfoField exchange.”

P 95 L45 in 149.3.2.2.16 RS-FEC superframe and round robin interleaving, add new first paragraph: “The interleaver depth L of the transmitter shall be set to the InterleaverDepth requested by the link partner during infofield exchange, as specified in 149.4.2.4.5.”

Add new PICS item PCT16 and renumber subsequent PICS:
Feature: Interleaver set to depth setting
Subclause: 149.3.2.2.16
Value: Interleaver depth set to value requested by link partner during infofield exchange
Status: M
Some arrows in the diagram are too long

Suggested Remedy
Need to be aligned

Proposed Response

Response Status: W
PROPOSED ACCEPT.

Figure 149–7 does not show how the receive path works with de-interleaving.

Suggested Remedy
Either change the figure to include de-interleaving or add a note indicating that this figure only applies to $L=1$.

Proposed Response

Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

change the text in 149.3.2.2 as shown in zimmerman_3ch_02_0719.pdf.

Change fig 149-6:
change the block name “RS-FEC (360,326) encoder” to “Interleaver and RS-FEC (360,326) encoder”
change the encoded block after the encoder to show the L interleaved encoded blocks
change the RS-FEC frame at the end to an RS-FEC superframe showing L x 1800 symbols
and change fig 149-7:
change the output of frame sync from an RS-FEC frame to an RS-FEC superframe showing L x 1800 symbols
change the block name “RS-FEC decoder to “De-interleaver and RS-FEC decoder”
change the RS-FEC Decoded frame to show the L interleaved encoded blocks

"For both x and c the encoder shall follow the notation described in 149.3.2.2.2 where the LSB (leftmost element of the vectors x and c) is the first bit into the RS-FEC encoder and the first transmitted bit."

x and c are not yet defined and need a reference. Notation is defined in 149.3.2.2.3, not 149.3.2.2.2.

Suggested Remedy
change "transcoder/scrambler" to "transcoder and scrambler"

Proposed Response

Response Status: W
PROPOSED ACCEPT.

change "149.3.2.2.2" to "149.3.2.2.3"
change "For both x and c" to "For both x and c (in 149.3.2.2.15)"
P802.3ch D2.0  
Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial W

Cl 149  SC 149.3.2.2.15  P94  L41  # 53
Wienckowski, Natalie  General Motors
Comment Type  T  Comment Status  D  EZ
Incorrect reference
SuggestedRemedy
Change: In Equation (149-3)
To: In Equation (149-1)
Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 149  SC 149.3.2.2.15  P94  L41  # 179
Baggett, Tim  Microchip
Comment Type  E  Comment Status  D  EZ
Reference to equation 149-3 is incorrect. The referenced equation does not have an alpha term.
SuggestedRemedy
reference "Equation (149-1)"
Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 149  SC 149.3.2.2.15  P94  L41  # 214
McClellan, Brett  Marvell
Comment Type  E  Comment Status  D  EZ
page 94 line 41
alpha does not appear in equation 149-3.
SuggestedRemedy
change "In Equation (149–3)," to "In Equation (149–1),"
Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 149  SC 149.3.2.2.15  P94  L51  # 137
Wu, Peter  Marvell
Comment Type  T  Comment Status  D  EZ
The equation is wrong
\[ m_{i,j} = tx_{\text{RSmessage}} <(359 - i) 10 + j>, i = 0 \text{ to } 325, j = 0 \text{ to } 9. \]
index out of range
SuggestedRemedy
It should be changed to:
\[ m_{i,j} = tx_{\text{RSmessage}} <(325 - i) 10 + j>, i = 0 \text{ to } 325, j = 0 \text{ to } 9. \]
Proposed Response  Response Status  W
PROPOSED ACCEPT.

Cl 149  SC 149.3.2.2.15  P94  L52  # 180
Baggett, Tim  Microchip
Comment Type  E  Comment Status  D  EZ
Equation \( m_{i,j} \) could be written a bit more clear.
SuggestedRemedy
change: 
\[ tx_{\text{RSmessage}} <(359-i) x 10 +j>, \text{ for } i = 0 \text{ to } 325, \text{ and } j = 0 \text{ to } 9. \]
(Add multiply operator "\( \times \), "for", and "and")
Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.
Make the suggested editorial changes, but don't overwrite the technical change made by Comment #137 changing the first "359" to "325".

Cl 149  SC 149.3.2.2.15  P95  L6  # 125
Nicholl, Shawn  Xilinx
Comment Type  E  Comment Status  D  EZ
There is an orphan statement containing that mentions \( tx_{\text{scrambled}} \), but makes no other mention to \( tx_{\text{scrambled}} \) in the sub-clause. Also, the cross-reference is wrong since 149.3.2.2.14 says nothing about \( tx_{\text{scrambled}} \).
SuggestedRemedy
Remove the statement "\( tx_{\text{scrambled}}<3599:0> \) is defined in 149.3.2.2.14."
Proposed Response  Response Status  W
PROPOSED ACCEPT.
Comment Type: T/technical  E/editorial  G/general

Comment Status: D/dispatched  A/accepted  R/rejected  O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn

SORT ORDER: Page, Line

Page 28 of 61
7/12/2019 4:00:46 PM

Comment Type: T/technical  E/editorial  G/general

Comment Status: D/dispatched  A/accepted  R/rejected  O/open  W/written  C/closed  U/unsatisfied  Z/withdrawn

SORT ORDER: Page, Line

Page 28 of 61
7/12/2019 4:00:46 PM
The sentence "The L encoded RS-FEC frames are recombined into an interleaved RS-FEC superframe" and onward talk about functions that happen after RS encoder. I think this text should be in its own section located after RS encoder.

**Suggested Remedy**
Propose to add a new sub-clause "RS-FEC Recombine" before "149.3.2.2.17 PCS Scrambler". In the new sub-clause put the text "The L encoded RS-FEC frames are recombined ... " and all that follows it, currently found in 149.3.2.2.16

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

---

In Figure 149-10 the message symbols in and out for RS Encoder #L begins and ends with m325 instead of m326 for both in and out.

**Suggested Remedy**
Change the m325 and m324 for both the input and output side of RS ENCODER #L to be m326 and m325

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

---

"The PHY also transitions back to the normal operation mode if an error condition occurs. This error condition is defined as the detection of any characters other than LPI or IDLE at the XGMII." this statement is redundant if wake is triggered by 'other than LP_IDLE'

**Suggested Remedy**
delete "The PHY also transitions back to the normal operation mode if an error condition occurs. This error condition is defined as the detection of any characters other than LPI or IDLE at the XGMII."

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

---

The sub-clause talks about the payload of the PCS PHY frame without having yet defined a PCS PHY frame or what constitutes its payload. The sub-clause also mentions tx_encoded<3599:0> but it is not found anywhere else in the document.

**Suggested Remedy**
Propose to add tx_encoded<3599:0> to the output of RS-FEC(360,326) encoder in sub-clause 149.3.2.2.16. Propose to define the term tx_encoded<3599:0> somewhere after the text "The L encoded RS-FEC frames are recombined into an interleaved RS-FEC superframe". However, it's really "L x tx_encoded<3599:0>" at that point!

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

**P98 L3** Change "The payload of the PCS PHY frame tx_encoded<3599:0> is scrambled to tx_scrambled<3599:0> with an additive scrambler. Two scrambler bits per symbol are generated from the side-stream scrambler"

To "The bits of the interleaved RS-FEC superframe are grouped into pairs, and each pair of interleaved bits, two scrambler bits are generated from the side-stream scrambler."

---

"The PHY also transitions back to the normal operation mode if an error condition occurs. This error condition is defined as the detection of any characters other than LPI or IDLE at the XGMII." this statement is redundant if wake is triggered by 'other than LP_IDLE'

**Suggested Remedy**
delete "The PHY also transitions back to the normal operation mode if an error condition occurs. This error condition is defined as the detection of any characters other than LPI or IDLE at the XGMII."

**Proposed Response**
**Response Status** W
PROPOSED ACCEPT.
"After the alert signal," is unclear

SuggestedRemedy
change "After the alert signal," to "After transmitting the alert signal,"

PROPOSED ACCEPT.

"Lpi_wake_time" is a variable and should not be capitalized

SuggestedRemedy
change "Lpi_wake_time" to "lpi_wake_time"

PROPOSED ACCEPT.

"lpi_wake_timer" is not a defined variable. Is this supposed to be lpi_tx_wake_timer?

SuggestedRemedy
change lpi_wake_timer to lpi_tx_wake_timer

PROPOSED ACCEPT.
"When the last 64B/65B block of LPI characters is generated by the PCS transmit function," this statement is unclear and likely incorrect about when the sleep signal is triggered.

**Suggested Remedy**

change this paragraph to:

"In the transmit direction, the transition to the LPI transmit mode begins when the PCS transmit function detects an LPI control character in the last 64B/65B block of a Reed-Solomon frame. Following this event the PMA transmits the sleep signal starting at the beginning of the next superframe to indicate to the link partner that it is transitioning to the LPI transmit mode. The sleep signal is composed of eight Reed-Solomon frames that contain only LP_IDLE 64B/65B blocks. Once initiated, the complete sleep signal consisting of 8 RS-FEC frames of LP_IDLE shall be transmitted."

**Proposed Response**  
PROPOSED ACCEPT IN PRINCIPLE.

"The block_lock flag de-assertion is described for data mode, but re-assertion is not described."

**Suggested Remedy**

insert "The block_lock flag is re-asserted upon detection of a valid RS-FEC frame."

**Proposed Response**  
PROPOSED ACCEPT.
Comment Type: E  Comment Status: D  Interleaver

Sub-clause 149.3.2.3 PCS Receive function is missing section that describe the following:
- de-construction of the unscrambled Rx stream into pieces for each RS-FEC decoder
- RS-FEC decoder
- round robin de-interleaving

Suggested Remedy
Propose to add sub-clauses before "149.3.2.3.3 Invalid blocks" that are akin to sub-clauses in the Tx direction, but in the opposite order.
- Rx De-construction (akin to Tx Recombine)
- Rx RS-FEC decoder (akin to Tx FEC encoder)
- Rx De-interleaving (akin to Tx Superframe and round robin interleaving)

Proposed Response

Response Status: W

PROPOSED ACCEPT IN PRINCIPLE.

Change the text in 149.3.2.3 as shown in zimmerman_3ch_02_0719.pdf.

Change fig 149-6:
- change the block name “RS-FEC (360,326) encoder” to “Interleaver and RS-FEC (360,326) encoder”
- change the encoded block after the encoder to show the L interleaved encoded blocks
- change the RS-FEC frame at the end to an RS-FEC superframe showing L x 1800 symbols
- and change fig 149-7:
- change the output of frame sync from an RS-FEC frame to an RS-FEC superframe showing L x 1800 symbols
- change the block name “RS-FEC decoder to “De-interleaver and RS-FEC decoder”
- change the RS-FEC Decoded frame to show the L interleaved encoded blocks

Suggested Remedy
- typo: among raining frame
- Change: among raining frame
- To: among training frame

Proposed Response
Response Status: W

PROPOSED ACCEPT.

Comment Type: E  Comment Status: D  EZ

typo

Suggested Remedy
- change "raining" into training"

Proposed Response
Response Status: W

PROPOSED ACCEPT.

Comment Type: E  Comment Status: D  EZ
typo

Suggested Remedy
- Replace by: training

Proposed Response
Response Status: W

PROPOSED ACCEPT.

Comment Type: E  Comment Status: D  EZ
typo

Suggested Remedy
- change "raining" to "training"

Proposed Response
Response Status: W

PROPOSED ACCEPT.
Cl 149 SC 149.3.5 P103 L32 # 25
Anslow, Pete Ciena
Comment Type E Comment Status D EZ
"are shown in 149–12" should be "are shown in Figure 149–12"
Suggested Remedy
Change the cross-reference format to "FigureNumber"
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 149 SC 149.3.5 P103 L48 # 255
den Besten, Gerrit NXP Semiconductors
Comment Type E Comment Status D EZ
typo: (bits of) PHY frame is
Suggested Remedy
Replace by: (bits of) PHY frame are
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 149 SC 149.3.5 P103 L48 # 55
Wienckowski, Natalie General Motors
Comment Type E Comment Status D EZ
Subject verb agreement
Suggested Remedy
Change: The first 96 bits of the 16th partial PHY frame is
To: The first 96 bits of the 16th partial PHY frame are
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 149 SC 149.3.6 P106 L26 # 256
den Besten, Gerrit NXP Semiconductors
Comment Type T Comment Status D EZ
"do not overlap" is not really correct, because the alignment of the link partners is allowed
to be non-perfect.
Suggested Remedy
Replace by "can only have a small overlap"
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 149 SC 149.3.7.2.1 P108 L4 # 282
Souvignier, Tom Broadcom
Comment Type TR Comment Status D RS-FEC
RFER_CNT_LIMIT and RFRX_CNT_LIMIT are not defined
Suggested Remedy
See page 2 of "tu_3ch_03_0719.pdf".
Proposed Response Response Status W PROPOSED ACCEPT IN PRINCIPLE.
Grant editorial license to format the definitions correctly.

Cl 149 SC 149.3.7.2.2 P109 L22 # 174
Regev, Alon Keysight Technologies
Comment Type TR Comment Status D EZ
"rs-fec_frame_done" should be "rs_fec_frame_done"
Suggested Remedy
change "rs-fec_frame_done" to "rs_fec_frame_done"
Proposed Response Response Status W PROPOSED ACCEPT.

Cl 149 SC 149.3.6.1 P105 L45 # 64
Maguire, Valérie The Siemon Company
Comment Type E Comment Status D EZ
Use preferred terminology for mandatory criteria.
Suggested Remedy
Replace, "EEE-capable PHYs must synchronize" with, "EEE-capable PHYs shall
synchronize" and adjust PICS, if necessary.
Proposed Response Response Status W PROPOSED ACCEPT.

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 U/unsatisfied Z/withdrawn
SORT ORDER: Page, Line
Pa 109 Page 33 of 61
Li 22 7/12/2019 4:00:47 PM
Comment on page 162:
Law, David  
Hewlett Packard Enterprise
Comment Type E  
Comment Status EZ
Suggested Remedy
Change the text ‘... time RFER_BAD_RF of the ...’ to read ‘... time the RFER_BAD_RF state of the ...’.

Proposed Response
PROPOSED ACCEPT.

Comment on page 163:
Law, David  
Hewlett Packard Enterprise
Comment Type T  
Comment Status RS-FEC
Suggested Remedy
I'm struggling to find the definition of the RFER_CNT_LIMIT and RFRX_CNT_LIMIT.

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

Comment on page 164:
Law, David  
Hewlett Packard Enterprise
Comment Type T  
Comment Status EZ
Suggested Remedy
Please vertically and horizontally centre align all state names.

Proposed Response
PROPOSED ACCEPT.
IEEE P802.3ch D2.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial Working Group ballot comments

Lo, William Axonne Inc.

Comment Type TR Comment Status D EEE
Technically this is really clause 149.3.7.3 but for some reason the state diagrams appears after clause 149.3.8.2.

Figure 149-16 (page 115) has 3 L transitions into Figure 149-17 (Page 116).
There is a corner case that makes things behave a little ugly that people may implement slight differently depending on interpretation. This change avoids the corner case.
Scenario:
T_TYPE(tx_raw) initially = LI at exactly a time lp_low_snr = true.
When this happens the state machine transitions into TX_L but does absolutely nothing and then immediately transitions into TX_WM state.
The intent here is to exit LPI when SNR is low.
But why enter LPI in the first place when the PHY already knows SNR is low.
Suggest remedy is to prevent entering Figure 149-17 when the PHY already knows that SNR is low.

Suggested Remedy
Page 115 Figure 149-16.
Change the 3 T_TYPE(tx_raw) = LI to
(T_TYPE(tx_raw) = LI) * lp_low_snr

Proposed Response Response Status W
PROPOSED ACCEPT.

Comment Type TR Comment Status D PCS
Technically this is really clause 149.3.7.3 but for some reason the state diagrams appears after clause 149.3.8.2.
The tx_lpi_req variable gets stuck true if LPI is presented on XGMII for less than a full RS frame time and then goes to something that is not LPI. This will cause Figures 149-16 and 149-20 to get out of sync.

Scenario:
XGMII indicates LPI which causes
T_TYPE(tx_raw) = LI, enter TX_L state (page 116)
XGMII stops sending LPI before end of RS frame which causes
T_TYPE(tx_raw) = (C+D+E+S+T), enter TX_WN state but tx_lpi_req never gets set to false because tx_alert_start_next is never set true.
Since RS frame is not complete (rs_fec_frame_done is not asserted page 119)
tx_lpi_active remains false hence state machine moves from TX_WN to TX_C state.
Meanwhile with tx_lpi_req stuck at true, rs_fec_frame_done will trigger eventually and we move to SEND_SLEEP state and then onto SEND_QR state (page 119).
We are stuck there forever since tx_lpi_req is stuck at true.
Hence the EEE transmit state diagram (page 119) is out of sync with the PCS 64/65B transmit state diagram (page 115).
Remedy is to delay transition into TX_WN until tx_lpi_active is true to keep the 2 state diagrams in sync.

Suggested Remedy
Page 116 Figure 149-17.
Change
lp_low_snr +T_TYPE(tx_raw) = (C + D + E + S + T )
to
(lp_low_snr + T_TYPE(tx_raw) = (C + D + E + S + T )) * tx_lpi_active

Proposed Response Response Status W
PROPOSED ACCEPT.
Suggested Remedy

1. Suggest that a font be used for each symbol in the state diagram to ease any future maintenance on the state diagram.

Suggested Remedy

2. Suggest that the two instances of the symbol '=' in symbol font be changed to Arial font. They are used in 'R_TYPE_NEXT = ...' in the transition from RX_D to RX_E and the transition from RX_E to RX_E.

Proposed Response

PROPOSED ACCEPT.

Suggested Remedy

3. Suggest that 'R_TYPE(rx_coded)= S' be changed to read 'R_TYPE(rx_coded) = S' (add a space between ')' and '=') on the transition from the RX_T to RX_D states.

Proposed Response

PROPOSED ACCEPT.

Suggested Remedy

4. The LP_BLOCK_R constant assigned to rx_raw in the RX_L state isn't defined in subclause 149.3.7.2.1 'Constants', there is however a LPBLOCK_R constant defined in subclause 149.3.7.2 that isn't used.

Suggested Remedy

5. Either change LP_BLOCK_R in the RX_L state to LPBLOCK_R, or change LPBLOCK_R in subclause 149.3.7.2.1 to LP_BLOCK_R.

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

Suggested Remedy

6. Suggest that 'R_TYPE(rx_coded)=I' be changed to read 'R_TYPE(rx_coded) = I' (add a space before and after the '=') on both exit conditions from the RX_W state.

Proposed Response

PROPOSED ACCEPT.

Suggested Remedy

7. In figure 149-19, the counter lpi_rxw_err_cnt is used which was not previously defined.

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

Suggested Remedy

8. In section 149.3.7.2.5 (Counters) add the following definition for lpi_rxw_err_cnt:

"lpi_rxw_err_cnt
An integer value that counts the number of receive wake on error conditions. The counter is reflected in register 3.22 (see 45.2.3.12)."

Proposed Response

PROPOSED ACCEPT.
The lpi_rxw_err_cnt counter incremented in the RX_WE state of Figure 149–19 ’PCS 64B/65B Receive state diagram, part b’ is not defined or used anywhere.

Suggested Remedy
Define the lpi_rxw_err_cnt counter and its use, or delete from the RX_WE state.

Proposed Response
Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

In section 149.3.7.2.5 (Counters) add the following definition for lpi_rxw_err_cnt:

"lpi_rxw_err_cnt
An integer value that counts the number of receive wake on error conditions.

lpi_rxw_err_cnt is reset to zero during PCS_TEST. The counter is reflected in register 3.22 (see 45.2.3.12)."

Delete the spurious AND symbol from the end of the equation for the transition from SEND_SLEEP to SEND_QR.

Suggested Remedy
Change the text ‘... * tx_lpi_req*’ to read ‘* tx_lpi_req’.

Proposed Response
Response Status: W
PROPOSED ACCEPT.

Adjust lines/boxes in figure 149-21 so they are properly aligned and there don’t appear to be different line widths.

Proposed Response
Response Status: W
PROPOSED ACCEPT.

Change "can packed into" to "can be packed into"

Proposed Response
Response Status: W
PROPOSED ACCEPT.
P802.3ch D2.0 Physical Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial Working Group ballot comments

**Comment Type**: typo

**Suggested Remedy**:
- Change: full OAM frame can packed into 8 super frames
- To: full OAM frame can be packed into 8 super frames

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment Type**: typo

**Suggested Remedy**: replace by: symbols

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment Type**: Bold OAM Bitfield delimiter

**Suggested Remedy**: Only Bold delimiter for a OAM Superframe field

**Proposed Response**: PROPOSED ACCEPT.
Headline: BASE-T1 OAM Frame Acceptance Criteria: Which Speedgrade is mentioned here?

Suggested Remedy

MultiGBASE-T1 OAM Frame Acceptance Criteria

Proposed Response

PROPOSED REJECT.

The TF is using the same registers and definitions for the OAM bytes that are common with 1000BASE-T1 and MultiGBASE-T1. For this reason, Clause 97 is being changed to refer to BASE-T1 OAM and BASE-T1 OAM is used here.

Should this refer to the "State Variables to OAM Register Mapping" that were edited in Clause 97 to be BASE-T1? Why do they need to appear twice?

Suggested Remedy

Refer to the modified Clause 97 Table 97-6 for the BASE-T1 mappings and then define the additional mappings for MultiGBASE-T1.

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

Change: Table 149–9 describes the MDIO register to the state diagrams variable mapping.

To: Table 97-6 and Table 149–9 describe the MDIO register to the state diagrams variable mapping.

Delete rows from "BASE-T1 OAM Message Valid" through "Link Partner BASE-T1 OAM Message 7".

Delete rows for 3.2318.7 through 3.2318.0 and 3.2319.15 through 3.23.19.0.

Add 3 rows (each cell in row is on a separate line due to width restriction of database row 1, before MultiGBASE-T1 OAM status Message 9:

MultiGBASE-T1 OAM status Message 10
MultiGBASE-T1 OAM status register
3.2318.7:0
mr_tx_message[71:64]

row 2, after MultiGBASE-T1 OAM status Message 9:

MultiGBASE-T1 OAM status Message 12
MultiGBASE-T1 OAM status register
3.2319.7:0
mr_tx_message[95:88]

row 3, after row 2 above:

MultiGBASE-T1 OAM status Message 11
MultiGBASE-T1 OAM status register
3.2318.15:8
mr_tx_message[87:80]
In Figure 149-24, the OAM receive state diagram, the entry condition into state "LOAD_RECEIVE_PAYLOAD" may cause an erroneous corner case.

**Suggested Remedy**

See page 4 of "tu_3ch_05_0719.pdf".

**Proposed Response**

PROPOSED ACCEPT.

---

**Comment Type**: E

**Comment Status**: D

**Tomo Besten**, NXP Semiconductors

**Comment**: typo: sall

**Suggested Remedy**: Replace by: shall

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment Type**: TR

**Comment Status**: D

"shall" is misspelled as "sall"

**Suggested Remedy**: change "sall" to "shall"

**Proposed Response**: PROPOSED ACCEPT.

---

**Comment Type**: ER

**Comment Status**: D

Typo

**Suggested Remedy**: Change "sall" to "shall"

**Proposed Response**: PROPOSED ACCEPT.

---

In "less than 2x10-10" the "x" should be a multiply sign (Ctrl-q 0) and the minus sign should be an en-dash (Ctrl-q Shft-p).

**Suggested Remedy**: In "less than 2x10-10" change the "x" to a multiply sign (Ctrl-q 0) and change the minus sign to an en-dash (Ctrl-q Shft-p).

**Proposed Response**: PROPOSED ACCEPT.
Comment Type: T  Comment Status: D  Vendor Info: Farjadrad, Ramin Aquantia

Comment Type: T  Comment Status: D  Vendor Info: Farjadrad, Ramin Aquantia

Comment Type: TR  Comment Status: D  Precoder

Comment Type: T  Comment Status: D  Vendor Info: Souvignier, Tom Broadcom

Comment Type: T  Comment Status: D  Vendor Info: Farjadrad, Ramin Aquantia

Suggested Remedy:
Replace paragraph on page 141, line 50 with the following:
The format of PHY capability bits is Oct10<0> = OAMen, Oct10<2:1> = InterleaverDepth, Oct10<4:3> = PrecodeSel, Oct10<5:4> = SlowWakeRequest, Oct10<6> = EEEen and Oct10<7> = VendorSpecificMessage. EEEen and OAMen indicate EEE and MultiGBASE-T1 OAM capability enable, respectively. The PHY shall indicate the support of these two optional capabilities by setting the corresponding capability bits. When the VendorSpecificMessage bit is set to 1 then the remaining 23 bits of the MSG24 field is vendor specific data. Otherwise when VendorSpecificMessage=0, the remaining bits shall be reserved and set to 0.

Proposed Response  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

TFTD

The group needs to decide if all additional bits should be made available for this purpose or if only some of the remaining bits should be used for this purpose.

Suggested Remedy:
In Table 149-12a (when VendorSpecificMessage=0)
Change Octer9<6> from SlowWakeRequest to Reserved
Change Octer10<5> from Reserved to SlowWakeRequest
Change Octer10<6> from Reserved to EEEen
Change Octer10<7> from Reserved to VendorSpecificMessage=0

In Table 149-12b (when VendorSpecificMessage=1)
Change Octer8<7:0>, Octer9<7:0>, Octer10<6:0> to Vendor Specific Data
Change Octer10<7> VendorSpecificMessage=1

Proposed Response  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

The specific implementation depends on the decision on comment #285.

Suggested Remedy:
See page 5 of "tu_3ch_01_0719.pdf".

Proposed Response  Response Status: W
PROPOSED ACCEPT IN PRINCIPLE.

TFTD after reviewing the presentation.
Typo in bit index

Change "Oct8<1:0>, Oct9<1:0>, Oct10<7:0>" to "Oct8<7:0>, Oct9<7:0>, Oct10<7:0>"

PROPOSED ACCEPT.

missing comma

Add comma after "Afterwards" in: Afterwards Oct4 through Oct10

PROPOSED ACCEPT IN PRINCIPLE.

Afterwards Oct4 through Oct10 are used to compute the CRC16 with the switch connected, which is setting CRCgen in Figure 149-30."

to: "After initialization, the switch is set to CRCgen, as shown in Figure 149-30, and Oct4 through Oct10 are used to compute the CRC16 output."

PROPOSED ACCEPT.

missing article

After all the 7 octets

To: After all 7 octets

PROPOSED ACCEPT.

Inconsistent Sn subscript style.

Lines 19, 20 does not subscript the n in Sn where everywhere else the n is in subscript.

PROPOSED ACCEPT.
Lo, William  
Axonne Inc.  

Comment Type TR  
Comment Status D  

Missing subscript  

Suggested Remedy  
Change $S[7:0]$ to $S_n[7:0]$  
Note that the $n$ in $S_n$ should be subscripted.  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.  

---  

den Besten, Gerrit  
NXP Semiconductors  

Comment Type E  
Comment Status D  

RS FER is called RFER at other places in the spec  

Suggested Remedy  
Replace RS FER by RFER  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.  

---  

D'Ambrosia, John  
Futurewei, U.S. Subsidiary of Huawei  

Comment Type E  
Comment Status D  

The naming of the PCS block in Fig 149-1 is inconsistent with the naming of the PCS block in Fig 44-1 (PDF Page 28, Line 37), which includes "64B/65B", and PCS Blocks in Fig 125-1 (PDF Page 66, Line 14) which also includes the "64B/65B" text  

Suggested Remedy  
Change the naming of the PCS block in Fig 149-1 to read "64B/65B RS-FEC PCS"  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.  

---  

Wienckowski, Natalie  
General Motors  

Comment Type E  
Comment Status D  

It appears that in $hT(t)$, "h" and "(t)" are superscripts and "T" is a subscript.  

Suggested Remedy  
Change "h" and "(t)" to normal with "T" as a subscript.  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.  

---  

Wienckowski, Natalie  
General Motors  

Comment Type E  
Comment Status D  

Missing return  

Suggested Remedy  
Move "OK:..." to be on the line after "Values:"  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.  

---  

Wienckowski, Natalie  
General Motors  

Comment Type E  
Comment Status D  

Missing return  

Suggested Remedy  
Move "OK:..." to be on the line after "Values:"  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.  

---  

Anslow, Pete  
Ciena  

Comment Type E  
Comment Status D  

"pcs_data_mode" should not be split across two lines  

Suggested Remedy  
Prevent "pcs_data_mode" from being split across lines. (Click somewhere within "pcs_data_mode" and type Esc n s)  

Proposed Response  
Response Status W  
PROPOSED ACCEPT.
Law, David  
Hewlett Packard Enterprise

Comment Type: E  
Comment Status: D

Typo, 'PCSDATAMODE.indicate' should read 'PCSDATAMODE.indication', see IEEE Std 802.3 subclause 1.2.2.1 'Classification of service primitives'.

Suggested Remedy
See comment.

Proposed Response:  
Response Status: W

PROPOSED ACCEPT.

Lo, William  
Axonne Inc.

Comment Type: TR  
Comment Status: D

The watchdog function is removed from the state diagrams. 
There is no longer a need for the watchdog variable.

Suggested Remedy
Remove the entire paragraph on PMA_watchdog_status.

Proposed Response:  
Response Status: W

PROPOSED ACCEPT.

Wienckowski, Natalie  
General Motors

Comment Type: E  
Comment Status: D

Missing return

Suggested Remedy
Move "OK...." to be on the line after "Values:

Proposed Response:  
Response Status: W

PROPOSED ACCEPT.
Add non-breaking space in the number per the IEEE-SA Style Manual.

**Suggested Remedy**

Change: 175.78125 MHz.
To: 175.78125 MHz.

**Proposed Response**

The current format is correct per 802.3 style for numbers.

---

[JITTER TEST MODE] The description of test mode 2 needs to be expanded to allow the multiple test patterns.

**Suggested Remedy**

Change the fourth paragraph of 149.5.1. to read:

Test mode 2 is for transmitter jitter testing on MDI when transmitter is in MASTER timing mode. When test mode 2 is enabled, the PHY shall transmit the pattern controlled by bits 1.2313.1:0, as shown in Table 149-15a, with the transmitted symbols timed from its local clock source.

Insert Table 149-15a Jitter test modes after (new) fourth paragraph of 149.5.1 as follows:

<table>
<thead>
<tr>
<th>Bit 1.2313.1</th>
<th>Bit 1.2313.0</th>
<th>Test Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>Square wave: a continuous pattern of 16<em>S {+1} symbols followed by 16</em>S {-1} symbols</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>JP03A: a continuous pattern of JP03A (as specified in 94.2.9.1)</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>JP03B: a continuous pattern of JP03B (as specified in 94.2.9.2)</td>
</tr>
</tbody>
</table>

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Comments 39, 40, 41, 116, 117, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes.

Modify the text as defined in wienckowski_3ch_02b_0719.pdf.
Further work on PAM4 systems after Clause 94 was completed decided that the JP03A and JP03B signals were too unrepresentative of normal traffic. Instead the PRBS13Q pattern is used for jitter testing. The dual dirac jitter specification methodology has also been replaced by a more direct measure of jitter at the probability relevant to the clause. (Called J7U where ? is the probability of interest) and the Jrms value. The test methodology is defined in Clause 120D.3.1.8.1

**Suggested Remedy**
Replace the reference to JP03A and JP03B with a reference to PRBS13Q described in sub-clause 120.5.11.2.1 and change the references in 149.5.2.3.2 as well.

**Proposed Response**
Propose ACCEPT IN PRINCIPLE.

Comments 39, 40, 41, 116, 117, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes.

Modify the text as defined in wienckowski_3ch_02b_0719.pdf.

It's disappointing to see these very artificial test patterns from Clause 94 being brought back when we have moved on to better methods for PAM4 testing in Annex 120D and subsequent clauses such as 136.

**Suggested Remedy**
Define jitter and linearity with PRBS13Q, following 120D.3.1.8 Output jitter and 120D.3.1.2 Transmitter linearity. Make JP03A and JP03B optional.

**Proposed Response**
Propose ACCEPT IN PRINCIPLE.

Comments 39, 40, 41, 116, 117, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes.

Modify the text as defined in wienckowski_3ch_02b_0719.pdf.
The transmit linearity test, as defined in 149.5.2.2, requires 2 test patterns: a low frequency short pattern to measure the accuracy of the PAM4 levels, and a high-frequency and long PRBS pattern to measure the transmit SNDR. Test mode 4 does not provide a provision to transmit 2 test patterns. Since the nonlinearity of the transmitter can be measured with respect to the ideal PAM4 levels, the short test pattern may not offer additional value. Also, the long high-frequency pattern of QPRBS13, as defined in 94.2.12.7, is constructed in a peculiar way which may be more fitting for a 100G-KP4 transmitter. A simple PRBS13 as the test pattern is as effective, more efficient to implement and less prone to misinterpretation of the specifications in another standard.

Suggested Remedy
Replace "... transmit linearity test pattern defined in 94.29.4" with "... PRBS13 test pattern as defined in equation 94-3 and figure 94-6. And in subclause 149.5.2.2, add the following to the end of first sentence: "using ideal PAM4 level of 1/3 for effective symbol levels of ES1 and ES2."

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

Comments 39, 40, 41, 116, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes.

Modify the text as defined in wienckowski_3ch_02b_0719.pdf.

Further work on PAM4 systems after Clause 94 was completed decided that the transmitter linearity test pattern is too un-representative of normal traffic. Instead the PRBS13Q pattern is used for linearity testing. The test methodology is defined in Clause 120D.3.1.2

Suggested Remedy
Replace the reference to the transmitter linearity test pattern with a reference to PRBS13Q described in sub-clause 120D.5.11.2.1

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

Comments 39, 40, 41, 116, 117, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes.

Modify the text as defined in wienckowski_3ch_02b_0719.pdf.

Not a test spec

Suggested Remedy
Change "shall be used" to "are defined for"

Proposed Response
PROPOSED REJECT.

This text is used by many other 802.3 Clauses
1pF is only 50 Ohm at 3GHz. This probe will significantly degrade the performance of the signal.

Suggested Remedy
Delete Figure 149-36 and use Figure 149-38 for these tests.

Proposed Response
PROPOSED ACCEPT.

Dudek, Mike Marvell

I don't know what you mean by "The PMA shall operate with AC-coupling to the MDI". Are you saying the transmitter is AC coupled? The receiver? Both? Or that AC coupling is provided to the PMA by something else?

Suggested Remedy
This text (as modified for this situation) might be useful:
86A.4.1 nPPI host to module electrical specifications
The module electrical input shall be AC-coupled, i.e., it shall present a high DC common-mode impedance
at TP1. There may be various methods for AC-coupling in actual implementations.

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

Dawe, Piers Mellanox

A transmitter with an SNDR of 31 dB, as defined in 94.3.12.7, is a significant contributor to the input noise of the far-end receiver with considerable impact on operating margin and major reduction of the noise budget left for the receiver.

Suggested Remedy
Replace the sentence "The transmitter shall meet the SNDR distortion as specified in 94.3.12.7" with "The transmit SNDR, as defined in 94.3.12.7 shall be greater than 38 dB"

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

Sedarat, Hossein Ethernovia

Further work on PAM4 systems after Clause 94 was completed improved the methodology for measuring SNDR. The test methodology is defined in Clause 120D.3.1.6. Note also that the existing reference to Clause 94 required a test pattern QPRBS13 which was not listed as a test pattern.

Suggested Remedy
Replace the test methodology with that from 120D.3.1.6.

Proposed Response
PROPOSED ACCEPT IN PRINCIPLE.

Dudek, Mike Marvell

Comments 39, 40, 41, 116, 117, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes.

Modify the text as defined in wienckowski_3ch_02b_0719.pdf.
### Test Modes

<table>
<thead>
<tr>
<th>Cl</th>
<th>SC</th>
<th>P</th>
<th>L</th>
<th>Comment Type</th>
<th>Comment Status</th>
<th>Test Modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>149</td>
<td>149.5.2.3.1</td>
<td>158</td>
<td>16</td>
<td>T</td>
<td>D</td>
<td>[JITTER TEST MODE] Random jitter test description needs to be modified to reflect that there are multiple test patterns available. Comments tagged JITTER TEST MODE should be treated as a group. <strong>Suggested Remedy</strong> Change first sentence of 149.5.2.3.1 From: In addition to jitter measurement for transmit clock, MDI jitter is measured when in test mode 2 and using test fixture 3 as shown in Figure 149-38. To: In addition to jitter measurement for transmit clock, MDI jitter is measured when in test mode 2 with the square wave pattern (see Table 149-15a) and using test fixture 3 as shown in Figure 149–38. <strong>PROPOSED ACCEPT IN PRINCIPLE.</strong> Comments 39, 40, 41, 116, 117, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes. Modify the text as defined in wienckowski_3ch_02b_0719.pdf.</td>
</tr>
<tr>
<td>Cl</td>
<td>SC</td>
<td>P</td>
<td>L</td>
<td>Comment Type</td>
<td>Comment Status</td>
<td>Test Modes</td>
</tr>
<tr>
<td>149</td>
<td>149.5.2.3.2</td>
<td>158</td>
<td>26</td>
<td>T</td>
<td>D</td>
<td>[JITTER TEST MODE] Deterministic jitter test description needs to be modified to reflect that there are multiple test patterns available. Comments tagged JITTER TEST MODE should be treated as a group. <strong>Suggested Remedy</strong> Change first sentence of 149.5.2.3.2 from: “Jitter measurements in this subclause are performed with the transmitter enabled in Master timing mode with a local clock.” To: “Jitter measurements in this subclause are performed with the transmitter enabled in Master timing mode in test mode 2, with either the JP03A or JP03B pattern, and timed with a local clock.” <strong>PROPOSED ACCEPT IN PRINCIPLE.</strong> Comments 39, 40, 41, 116, 117, 119, 120, 121, and 200 all change the text related to the transmitter linearity and jitter test modes. Modify the text as defined in wienckowski_3ch_02b_0719.pdf.</td>
</tr>
<tr>
<td>Cl</td>
<td>SC</td>
<td>P</td>
<td>L</td>
<td>Comment Type</td>
<td>Comment Status</td>
<td>Test Modes</td>
</tr>
<tr>
<td>149</td>
<td>149.5.2.3.2</td>
<td>158</td>
<td>29</td>
<td>E</td>
<td>D</td>
<td>&quot;as specified in Clause 94.3.12.6.1&quot; should be &quot;as specified in 94.3.12.6.1&quot; and the final &quot;1&quot; should be in forest green font. On line 35 &quot;as specified in Clause 94.3.12.6.2&quot; should be &quot;as specified in 94.3.12.6.2&quot; <strong>Suggested Remedy</strong> Change &quot;as specified in Clause 94.3.12.6.1&quot; to &quot;as specified in 94.3.12.6.1&quot; and apply the character tag External to the final &quot;1&quot;. On line 35 change &quot;as specified in Clause 94.3.12.6.2&quot; to &quot;as specified in 94.3.12.6.2&quot;. <strong>PROPOSED ACCEPT.</strong></td>
</tr>
</tbody>
</table>

**Anslow, Pete Ciena**  
**Proposed Response**  
**Response Status** W  
**PROPOSED ACCEPT.**

**Farjadrad, Ramin Aquantia**  
**Proposed Response**  
**Response Status** W  
**PROPOSED ACCEPT IN PRINCIPLE.**

**Sort Order:** Page, Line
The word "Clause" doesn't belong before a subclause reference.

Suggested Remedy
Change: Clause 94.3.12.6.1 to 94.3.12.6.1. Also, "1" should be made part of the "External reference".

Proposed Response
PROPOSED ACCEPT.

The transmit power range was shifted from -1dB/+2dB to -1.5dB/+1.5dB based on concerns on the lower limit for 10Gbps operation. However this shift makes the upper limit unnecessarily more critical for lower speed operation.

Suggested Remedy
Change: Clause 94.3.12.6.2 to 94.3.12.6.2.

Proposed Response
PROPOSED ACCEPT.

This was discussed at the April meeting. Based on the Tx power calculations shown on slide 8 of Tu_3ch_03_0419.pdf, -1.5 dB to +1.5 dB was selected by the task force.

See P802.3 D1p2 comment #59 resolution.
Comment Type  T  Comment Status  D  Test Modes
149.5.3.1 seem inconsistent. 149.5.3.1 has "frame error ratio", but wouldn't these frames crossing XGMII also be counted as 149.5.3.2 "frame loss ratio" when they get to the MAC? There should be no further correction after RS-FEC. Both use the same link segment specified in 149.7.

SuggestedRemedy
Consider whether the same terminology, packet sizes and measurement points can be used.

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

TFTD
I believe the two error ratios are almost the same, the difference is whether you count frames, with RS-FEC added; or packets, data with RS-FEC bytes removed.

Comment Type  TR  Comment Status  D  MDI
The MDI return loss at high frequency is tighter than necessary IMO. The MDI is far-end return loss which gets twice attenuated by insertion loss. This return loss component therefore doesn't worsen the RL/IL ratio. I think the currently specified link segment return loss and MDI return loss are not well balanced for a low relative cost. I would like to propose to relax the MDI return loss.

SuggestedRemedy
Formula 12-10log(f/3000) change into 10-10*log(f/3000S) for 300S<f<3000S
Formula 12-20*log(f/3000) change into 10-20*log(f/3000S) for 3000S<f<Fmax

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

This requirement at the upper frequency is relaxed by the new formulas proposed by comment 269.

Comment Type  TR  Comment Status  D  MDI
"The coupling attenuation is tested... Additional coupling attenuation test methodologies..." seems contradictory - it implies that the annex contains other ways to test the coupling attenuation. I believe we are requiring that the cable pass testing according to the IEC spec, with the parameters specified in Annex 149A. (or else Annex 149A can't be normative)

SuggestedRemedy
Change "In order to limit the noise at the receiver as well as emissions, the MultiGBASE-T1 link segment shall meet the coupling attenuation values determined by using Equation (149–24). The coupling attenuation is tested as specified in IEC 62153-4-7 using triaxial tube in tube method. Additional coupling attenuation test methodologies are defined in Annex 149A."

to: "In order to limit the noise at the receiver as well as emissions, when tested using the IEC 62153-4-7 triaxial tube in tube method as specified in Annex 149A, the MultiGBASE-T1 link segment shall meet the coupling attenuation values determined by using Equation (149–24)."

Proposed Response  Response Status  W
PROPOSED ACCEPT.
Transmitter droop was specified considering a 2uH inductance per transmitter output (4uH total). Need to revise the low frequency MDI return loss mask to be in agreement with this value. Otherwise either specification undermines the relevance of the other.

**Suggested Remedy**
See "stewart_3ch_01_0719" Slide 13 and 16

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

TFTD after reviewing the presentation.

---

High frequency Return Loss was presented considering the best performance of power coupling inductors and MDI connectors. However, to provide additional protection to the PHY, allowance needs to be made for ESD clamping devices. Need to revise the high frequency mask to accommodate for additional capacitive loading due to these devices.

**Suggested Remedy**
See "stewart_3ch_01_0719" Slide 15 and 16

**Proposed Response**

**Response Status** W

PROPOSED ACCEPT IN PRINCIPLE.

TFTD after reviewing the presentation.

---

Tu, Mike

**Comment Type** T

**Comment Status** D

The MDI return loss specification as shown in Equation 149-27 is unnecessarily restrictive.

**Suggested Remedy**
See the proposal on the last page of "vakilian_3ch_01_0719.pdf".

**Proposed Response**

**Response Status** W

PROPOSED REJECT.

The referenced presentation has not been provided.
Comment Type: T  Comment Status: D  EMC
This paragraph has 2 shalls that apply to entire products. The seems out of our scope.

SuggestedRemedy
Suggest the "shall"s be replaced with text in the spirit of the last sentence of the paragraph.
Change 1st: "shall", To: "is expected to be able to"
Change 2nd: "shall be tested", To: "is expected to allow products to be tested"
Delete: ES4 and ES5.

Proposed Response  Response Status: W  PROPOSED REJECT.
The devices are required to meet applicable laws. This is a shall in other Clauses.
The CISPR 25 test methods are required. It is the specific setup and limit lines that are user specific, not the test methods.

Comment Type: E  Comment Status: D  EZ
"AN" and "EEE" appear in the Status column in 149.11.4.1, so they should be "**AN" and "**EEE" (preceded by "**")

SuggestedRemedy
Change "AN" and "EEE" to "**AN" and "**EEE"

Proposed Response  Response Status: W  PROPOSED ACCEPT.
Comment Type: E Comment Status: D
SuggestedRemedy
Insert new PICS entry after PCR2 of Draft 2.0, with the following content:
Feature: Frame and block synchronization
Subclause: 149.3.2.3.1
Value/Comment: Described in 149.3.2.3.1
Status: M
Support: Yes] [N/A]

Comment Type: E Comment Status: D
SuggestedRemedy
Insert new PICS entry before OAM2 of Draft 2.0, with the following content:
Feature: Partially transmitted OAM frame
Subclause: 149.3.9.2.1
Value/Comment: Described in 149.3.9.2.1
Status: M
Support: Yes] [N/A]

Comment Type: E Comment Status: D
SuggestedRemedy
Remove PMAT1.

Comment Type: E Comment Status: D
SuggestedRemedy
Capitalize the 'i' in 'ignore' in the Value/Comment field of PCSL4.

Comment Type: E Comment Status: D
SuggestedRemedy
Change 'Expire s97.5' to 'Expires 97.5'

Comment Type: E Comment Status: D
SuggestedRemedy
Typo.
### Comment: 149 SC 149.11.4.4.3

**Comment Type**: TR

**Comment Status**: D

**PICS**

<table>
<thead>
<tr>
<th>Item</th>
<th>Feature</th>
<th>Subclause</th>
<th>Value/Comment</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>TES1</td>
<td>AC-coupling to the MDI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TES2</td>
<td>Resistive differential load</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Suggested Remedy**

- **Comment Status**: D
- **Response Status**: W

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

- Change TES1 Feature to "Coupling"
- Change TES1 Value/Comment to "Operate with AC coupling to the MDI"
- Change TES2 Feature to "Resistive differential load"
- Change TES2 Value/Comment to "Meet electrical requirements of this clause with a 100 (ohm) resistive differential load connected to transmitter output if load is not specified"

---

**Comment: 149 SC 149.11.4.4.3**

**Comment Type**: E

**Comment Status**: D

- **Suggested Remedy**
  - **Comment Type**: E
  - **Comment Status**: D

**Proposed Response**: PROPOSED ACCEPT.

- Insert new PICS entry after TSE15 of Draft 2.0, with the following content:
  - Feature: EOJpk-pk Jitter
  - Subclause: 149.5.2.3.2
  - Value/Comment: Less than 4/S ps
  - Status: M
  - Support: Yes[N/A]

---

**Comment: 149 SC 149.11.4.4.3**

**Comment Type**: E

**Comment Status**: D

- **Suggested Remedy**
  - **Comment Type**: E
  - **Comment Status**: D

**Proposed Response**: PROPOSED ACCEPT.

- Insert new PICS entry after TSE15 of Draft 2.0, with the following content:
  - Feature: DJpk-pk Jitter
  - Subclause: 149.5.2.3.2
  - Value/Comment: Less than 9/S ps
  - Status: M
  - Support: Yes[N/A]

---

**Comment: 149 SC 149.11.4.4.3**

**Comment Type**: E

- **Suggested Remedy**
  - **Comment Type**: E
  - **Comment Status**: D

**Proposed Response**: PROPOSED ACCEPT.

- **Proposed Response**: PROPOSED ACCEPT.

- **Proposed Response**: PROPOSED ACCEPT.

- **Proposed Response**: PROPOSED ACCEPT.
Comment: "Typo."

Suggested Remedy:
- Change '2.5G return loss' to '2.5GBASE-T1 return loss'

Proposed Response: PROPOSED ACCEPT.

---

Comment: "Typo.

Suggested Remedy:
- Change '5G return loss' to '5GBASE-T1 return loss'

Proposed Response: PROPOSED ACCEPT.

---

Comment: "Typo.

Suggested Remedy:
- Change '10G return loss' to '10GBASE-T1 return loss'

Proposed Response: PROPOSED ACCEPT.

---

Comment: "Typo.

Suggested Remedy:
- Change "Equation (149-21)" to "Equation (149-22)"

Proposed Response: PROPOSED ACCEPT.

---

Comment: Shall statement missing associated PICS item

Suggested Remedy:
- Insert new PICS entry after LSC6 of Draft 2.0, with the following content:
  - Feature: PSAACR-F
  - Subclause: 149.7.2.2
  - Value/Comment: See Equation (149-26)
  - Status: M
  - Support: Yes N/A

Proposed Response: PROPOSED ACCEPT.

---

Comment: Shall statement missing associated PICS item

Suggested Remedy:
- Insert new PICS entry after LSC6 of Draft 2.0, with the following content:
  - Feature: PSANEXT
  - Subclause: 149.7.2.1
  - Value/Comment: See Equation (149-25)
  - Status: M
  - Support: Yes N/A

Proposed Response: PROPOSED ACCEPT.

---

Comment: "This annex describes the test methodologies that shall be used to measure": not a test spec, no requirement to measure.

Suggested Remedy:
- Change to "may be used".

Proposed Response: PROPOSED REJECT.

This is a normative Annex that defines the specific test method that is required to be used to measure coupling and screening attenuation.
Incorrect statement. Alien Crosstalk defines coupling between disturbed and disturber link segments and cannot be measured using coupling attenuation test fixtures. Figure 149-41 in Clause 149.7.2 shows an illustration for alien crosstalk measurements and also refers to Clause 97B for additional details. There is no reference to Annex 149A

Suggested Remedy

From: Coupling and screening attenuation are the main parameters for a shielded differential link segment to define its alien crosstalk and EMC properties.

Proposed Response

PROPOSED ACCEPT.

“Measurements to be performed... 75%” isn’t a sentence.

Suggested Remedy

Change “Measurements to be performed” to “Measurements are performed”

Proposed Response

PROPOSED ACCEPT.

This isn’t a test spec. Products have to work over a much wider range than this - how that is assured is up the the implementer.

Suggested Remedy

Delete “Measurements to be performed at 23 ± 5°C and relative humidity of 25% to 75%.”

Proposed Response

PROPOSED REJECT.

While it is true that products need to work over a much wider range, testing needs to be done under a defined condition to ensure comparable results in different labs.
Comment Type: ER/Editorial Required
Comment Status: D/Dispatched
Suggested Remedy:
From: This also ensures that connectors and cable are matched in terms of balance and shielding, in order to reach sufficient coupling and screening attenuation.
To: This also ensures that connectors and cable are matched in terms of balance and shielding, in order to reach sufficient accuracy to measure coupling and screening attenuation.

Proposed Response: PROPOSED ACCEPT.
P802.3ch D2.0 Layer Specifications and Management Parameters for Greater Than 1 Gb/s Automotive Ethernet Initial Working Group ballot comments

Comment Type: E  Comment Status: D  Mispelling: "MutliGBase-T1"
Occurs also on line 46

Suggested Remedy
Search document for "MultiGBASE" and replace with "MultiGBASE"

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: ER  Comment Status: D
There is a typo on line 17.

Suggested Remedy
Change from "...is loaded to 3.2318 and 3.23.19 for transmission..." To "...is loaded to 3.2318 and 3.2319 for transmission..."

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: ER  Comment Status: D
There is a typo on line 18.

Suggested Remedy
Change from "...is read from 3.2320 and 3.23.21..." To "...is read from 3.2320 and 3.2321..."

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: E  Comment Status: D
REC hasn't been defined yet before this section, and would benefit from being defined in parenthesis.

Suggested Remedy
Change: "REC in OAM<13:12><7:0>"
To: "REC (Receive Error Counter) in OAM<13:12><7:0>"
Or: add a line referring the reader to section 149B.2.9

Proposed Response  Response Status: W
PROPOSED ACCEPT.

Comment Type: T  Comment Status: D
How is the error count loaded into these two bytes?

Suggested Remedy
Which is most significant byte and bit?

Proposed Response  Response Status: W
PROPOSED REJECT.

The details on the arrangement of the bits in these byes can be found in Table 45-244a. This shows that the 8 MSB are in 3.2319.15:8, the 8 LSB are in 3.2319.7:0, and that the LSB is transmitted first.

Comment Type: T  Comment Status: D
Variable "mr_tx_request_rec_clear" does not match to any register bits in Table 149-9. It also looks like a duplicate of the "tx_clear_rec".

Suggested Remedy
Propose to delete line 1 to 5

Proposed Response  Response Status: W
PROPOSED ACCEPT.
Tu, Mike

<table>
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<tr>
<th>Comment Type</th>
<th>Comment Status</th>
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</tr>
</thead>
<tbody>
<tr>
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<td>D</td>
<td>OAM</td>
</tr>
</tbody>
</table>

Variable name should be consistent with Table 149-9 PCS control/status variable name.

**Suggested Remedy**
- Change variable name from "tx_clear_rec" to "mr_tx_clear_rec".

**Proposed Response**

Response Status: W

PROPOSED ACCEPT.

---

Hajduczenia, Marek

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<th>Comment Type</th>
<th>Comment Status</th>
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</tr>
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<td>D</td>
<td>OAM</td>
</tr>
</tbody>
</table>

I am very confused why an informative annex would have state diagrams that describe the required behavior of the OAM functions needed for the operation of the link.

**Suggested Remedy**
- Seems like this annex ought to be normative.

**Proposed Response**

Response Status: W

PROPOSED REJECT.

See explanation in wienckowski_3ch_01a_0719.pdf.

---

Baggett, Tim

<table>
<thead>
<tr>
<th>Comment Type</th>
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</thead>
<tbody>
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<td>EZ</td>
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</tbody>
</table>

Section heading "149B.3.2.3 State Diagrams" is orphaned from the diagrams it contains. Move to the next page.

**Suggested Remedy**
- Move heading "149B.3.2.3 State Diagrams" to top of page 200 with diagrams 149B-2 and 149B-3.

**Proposed Response**

Response Status: W

PROPOSED ACCEPT.

---

Tu, Mike

<table>
<thead>
<tr>
<th>Comment Type</th>
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<tbody>
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<td>T</td>
<td>D</td>
<td>OAM</td>
</tr>
</tbody>
</table>

In Figure 149B-2, the variable values and variable names should be consistent with definitions.

**Suggested Remedy**
- See page 4 of "tu_3ch_04_0719.pdf".

**Proposed Response**

Response Status: W

PROPOSED ACCEPT.
In Figure 149B-3, the variable values and variable names should be consistent with definitions.

Suggested Remedy

See page 5 of "tu_3ch_04_0719.pdf".

Proposed Response

PROPOSED ACCEPT.