This draft meets all editorial requirements.

Suggested Remedy

PROPOSED ACCEPT.

According to the SA Editors, the "IMPORTANT NOTICE" is not needed and can be deleted.

Suggested Remedy

Delete lines 16 through 27.

PROPOSED ACCEPT.

"IEEE Std 802.3cg-201x" is now published as "IEEE Std 802.3cg-2019"

Suggested Remedy

Change "IEEE Std 802.3cg-201x" to "IEEE Std 802.3cg-2019" in multiple locations

PROPOSED ACCEPT.

This comment was WITHDRAWN by the commenter.
In Table 45-3 the Subclause for register 1.2317 should be 45.2.1.200

Suggested Remedy

Change "Subclause" for "Register address" 1.2317 from "45.2.1.199" to "45.2.1.200".

Proposed Response

PROPOSED ACCEPT.

Table 45-155c, bits 1.2311.12:11 description indicates that values L=2 is Reserved for 2.5GBASE-T1, and L=4 is reserved for 2.5GBASE-T1 and 5GBASE-T1, but the specification does not appear to say what happens if the control register is set to those values - what will L be in those cases - will those values be requested, or will something be substituted? The same issue exists in Table 45-155d and 45.2.1.195.1 Further - the term "reserved" is not correct. what we mean is that those values are not defined.

Suggested Remedy

Suggest: (1) changing "Reserved" to "undefined" in the description of bits 1.2311.12:11 in Table 45-155c, and (2) to add a new paragraph to 45.2.1.194.1 stating, "The values of L = 2 and L=4 are not defined for 2.5GBASE-T1 PHYs, and the value of L=4 is not defined for 5GBASE-T1 PHYs. If bits 1.2311.12:11 are set to these values, the PHY will communicate these values to the link partner, but the requested interleave depth is out of scope of this standard and may not be supported by the link partner." Add a new paragraph to 45.2.1.195.1 stating, "The values of L = 2 and L=4 are not defined for 2.5GBASE-T1 PHYs, and the value of L=4 is not defined for 5GBASE-T1 PHYs. Bits 1.2312.12:11 will indicate whatever value is received from the link partner, but if the undefined values are received, the requested interleave depth is out of scope of this standard and may not be supported by the local PHY."

Proposed Response

PROPOSED ACCEPT IN PRINCIPLE.

Not all instances of "Reserved" should be changed to "undefined" in the identified cell, also the spacing around the "=" is not consistent in the suggestion.

Change "Reserved" to "undefined" for the values 01 and 10 in the description of bits 1.2311.12:11 in Table 45-155c, and (2) to add a new paragraph to 45.2.1.194.1 stating, "The values of L = 2 and L=4 are not defined for 2.5GBASE-T1 PHYs, and the value of L = 4 is not defined for 5GBASE-T1 PHYs. If bits 1.2311.12:11 are set to these undefined values, the PHY will communicate these values to the link partner, but the requested interleave depth is out of scope of this standard and may not be supported by the link partner." Add a new paragraph to 45.2.1.195.1 stating, "The values of L = 2 and L=4 are not defined for 2.5GBASE-T1 PHYs, and the value of L = 4 is not defined for 5GBASE-T1 PHYs. Bits 1.2312.12:11 will indicate whatever value is received from the link partner, but if the undefined values are received, the requested interleave depth is out of scope of this standard and may not be supported by the local PHY."
D3.0 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auto

149.3.2.18 doesn't describe Reed Solomon interleaving, it describes the PCS Scrambler. The correct reference is 149.3.2.2.15. The same issue exists in 45.2.1.195.1 page 39 line 38.

Comment Type: E  Comment Status: D  Suggested Remedy: Change cross reference from 149.3.2.2.18 to 149.3.2.2.15 (or appropriate link if renumbered) in both 45.2.1.194.1 and 45.2.1.195.1

PROPOSED ACCEPT.

Comment Type: GR  Comment Status: D  Suggested Remedy: Remove the term "both" appears verbose in nearly 20 instances.

PROPOSED REJECT.

The word "both" is found 24 times in the document. The proposed change in the comment does not contain sufficient detail so that the CRG can understand the specific changes that satisfy the commenter. The commenter does not specify which "nearly 20" instances should be deleted. A search of 802.3-2018 shows that the word "both" is found 938 times. This is a word commonly used in this specification to indicate that there are two conditions or two actions.

Regarding the specific instance cited in the comment at page 40 line 36, the CRG disagrees with the commenter. The use of 'both' in this instance is not extraneous and clarifies that MultiGBASE-T1 OAM capability requires support by both the local PHY and its link partner.

PROPOSED REJECT.

Fix subject/verb agreement in proposal: Add the sentence "When the transmitter is not in test mode 2, the setting of bits 1.2313.1:0 has no effect."

PROPOSED ACCEPT IN PRINCIPLE.

The word "both" is found 24 times in the document. The proposed change in the comment does not contain sufficient detail so that the CRG can understand the specific changes that satisfy the commenter. The commenter does not specify which "nearly 20" instances should be deleted. A search of 802.3-2018 shows that the word "both" is found 938 times. This is a word commonly used in this specification to indicate that there are two conditions or two actions.

Regarding the specific instance cited in the comment at page 40 line 36, the CRG disagrees with the commenter. The use of 'both' in this instance is not extraneous and clarifies that MultiGBASE-T1 OAM capability requires support by both the local PHY and its link partner.

PROPOSED REJECT.
Table 78-4, in the 2.5GBASE-T1 Case-4 row and $T_{phy\_shrink\_tx}$ column the value 120 should be changed to 128. See comment 22 on the initial working group ballot said to implement the values in graba_3ch_01a_0719.pdf in Table 78-4. The error was made in the initial edit.

**SuggestedRemedy**
- For the 2.5GBASE-T1 Case-4 row and $T_{phy\_shrink\_tx}$ column change the value "120" to "128"

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

PROPOSED ACCEPT.

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Clause 97 is in the draft, but is shown as an external cross reference. It should be an active cross reference.

**SuggestedRemedy**
- Change external "Clause 97" reference to an active cross reference

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

PROPOSED ACCEPT.

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Status filed for PD20 should be: "PDTB:M" "PDTF:M". The item (PD20) is referred to PD device, not PSE. (the .3bu spec has it correct)

**SuggestedRemedy**
- For the PD20 row and Status column, change "PSETB:M" to "PDTB:M" and change "PSETF:M" to "PDTF:M".

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

PROPOSED ACCEPT IN PRINCIPLE.

Accommodated by response to comment #71 with the relevant portion copied here.

Change PD20 row to read: "PD20a | Type F PD ripple and transients | 104.5.6.4 | In accordance with specifications shown in Table 104-7 for all operating voltages in the range of VPD sourced through a dc bias coupling network with MDI return loss as specified by Clause 149, and over the range of PPD. | "PDTF:M | Yes ["]

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**Comment Status**: D

**Response Status**: W

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**Comment Status**: D

**Response Status**: W
Type B and Type F have separate 'shall's and Type F should not be added to PICS PD20 and PD22. Additionally this creates confusion as to which return loss needs to be used for which type... Also, the option code should be PDTF in both cases, not PSETF on the first row...

**Suggested Remedy**

Change editing instruction from "Change item PD20 and item PD22 in the table in 104.9.4.3 as follows (unchanged rows not shown);" to "Insert new PICS item PD20a after item PD20, and new PICS item PD22a after item PD22 in the table in 104.9.4.3 as follows (unchanged rows not shown);" - change PICS items in rows to read: "PD20a | Type F PD ripple and transients | 104.5.6.4 | In accordance with specifications shown in Table 104-7 for all operating voltages in the range of VPD sourced through a dc bias coupling network with MDI return loss as specified by Clause 149, and over the range of PPD. | *PDTF:M [Yes [*]] and *PD22a | Type F PD measured ripple voltage post-processing | 104.5.6.4 | With transfer function H2(f) specified in Equation (104-3) where f2 = 10 MHz +/- 1% | *PDTF:M [Yes [*]]"

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

An additional change is needed.

Before 104.9.4.3 add "104.9.4 PICS proforma tables for Clause 104, Power over Data Lines (PoDL) of Single Balanced Twisted-Pair Ethernet" title for the subclause above this Clause.

Also, make the change requested by the commenter: Change editing instruction from "Change item PD20 and item PD22 in the table in 104.9.4.3 as follows (unchanged rows not shown);" to "Insert new PICS item PD20a after item PD20, and new PICS item PD22a after item PD22 in the table in 104.9.4.3 as follows (unchanged rows not shown);" - change PICS items in rows to read: "PD20a | Type F PD ripple and transients | 104.5.6.4 | In accordance with specifications shown in Table 104-7 for all operating voltages in the range of VPD sourced through a dc bias coupling network with MDI return loss as specified by Clause 149, and over the range of PPD. | *PDTF:M [Yes [*]] and *PD22a | Type F PD measured ripple voltage post-processing | 104.5.6.4 | With transfer function H2(f) specified in Equation (104-3) where f2 = 10 MHz +/- 1% | *PDTF:M [Yes [*]]"

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.
"The MultiGBASE-T1 OAM information is exchanged between two 2.5GBASE-T1, 5GBASE-T1, or 10GBASE-T1 PHY's out-of-band." - the concept of whether this is out-of-band in the frequency domain or does not consume the bit rate for the ethernet payload has caused repeated confusion - some improved wording here might help.

**Suggested Remedy**

Suggest change "out-of-band." to "out-of-band, that is, outside of the specified 2.5, 5, or 10 Gb/s Ethernet data stream."

**PROPOSED ACCEPT.**

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**Comment Type**: E  **Comment Status**: D  **Nomenclature**

tx_group50x65B is used in several places but it loosely defined and never formally defined. There can be misinterpretation of the bit ordering.

**Suggested Remedy**

(Editorial Note. I cannot show subscripts in the spreadsheet so I will enclose anything that needs to be subscripted with *_. For example A^n* is An with n subscripted. I'm not sure if the carriage return will make this clear but please be aware.)

In line 47 insert the following: \(<cr>\) tx_group50x65B<=65* i+j > = tx_coded*i<64:0> * where i = 0 to 49 and j = 0 to 64 and tx_coded*i<64:0> is the ith 64B/65B block where tx_coded*0<64:0> is the first one transmitted.

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

PROPOSED ACCEPT IN PRINCIPLE.

The text description of what to do is hard to understand and the usage of "\(^n\)" to indicate both subscripts and multiplication is confusing.

Implement the changes show in wienckowski_3ch_D3p0_comment51.pdf.

---

**Comment Type**: E  **Comment Status**: D  **Parameter**

(L) Parameter L is introduced, without reference to the definition of L.

**Suggested Remedy**

Change "L" to "A number, L."

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

PROPOSED ACCEPT IN PRINCIPLE.

The duration of the superframe is L x 320 / S ns.) has no need to be a parenthetical phrase - this seems to have been left over from previous wording where the sentence structure was more complex. It is now its own stand-alone sentence.

**Suggested Remedy**

Remove the parentheses around "The duration of the superframe is L x 320 / S ns."

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

PROPOSED ACCEPT.
Comment Type | Comment Status | Proposed Response | Response Status
---|---|---|---
E | D | PROPOSED ACCEPT. | W

Suggested Remedy

"The minimum link segment characteristics, EM requirements, and test modes are specified in 149.5." - the link segment characteristics are specified in 149.7, not 149.5, and there are no EMC requirements in this document. Further, this subclause is supposed to be describing the PMA, not the other things.

**Suggested Remedy**

Suggest replacing "The minimum link segment characteristics, EM requirements, and test modes are specified in 149.5." with "The electrical parameters of the PMA, i.e., test modes, and electrical specifications for the transmitter and receiver, are specified in 149.5."

**Proposed Response**

PROPOSED ACCEPT.

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Comment Type | Comment Status | Proposed Response | Response Status
---|---|---|---
E | D | PROPOSED ACCEPT. | W

Suggested Remedy


**Suggested Remedy**

My preference is to delete "For both x and c (see 149.3.2.2.17) the encoder shall follow the notation described in 149.3.2.2.3 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 infers a position and there is no concept of MSB or LSB. c is a vector with MSB and LSB, but which bit of c is considered the MSB/LSB? For example page 102 line 6 m is the bit vector <m9, m8, m7, m6, ... m0> is m0 the LSB, or the leftmost element m9 the LSB? This text is not really necessary since 149.3.2.2.17 describes things in adequate detail.

**Suggested Remedy**

My preference is to delete "For both x and c (see 149.3.2.2.17) the encoder shall follow the notation described in 149.3.2.2.3 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." since 149.3.2.2.17 adequately describes this. But if we want to leave the text alone I'm ok.

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.

Delete "For both x and c (see 149.3.2.2.17) the encoder shall follow the notation described in 149.3.2.2.3 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."

**Proposed Response**

PROPOSED ACCEPT IN PRINCIPLE.
The transmitted order of the codeword symbol can be made more explicit. Page 102 line 30 states bit 0 is transmitted first. From Page 102 line 6, m*i,0* can be inferred as bit 0 but this is not explicitly stated. Page 100 line 29 adds to the confusion that states the leftmost element is the LSB and we have m*i,9* being the leftmost element.

**Suggested Remedy**

Add the following for more clarity. Page 102 line 7 after the end of "finite field," add: "m*i,0* is the first bit transmitted." Add the following to make things complete. Copy first sentence in page 102 line 6 to page 102 line 22 except replace "message" with "parity" and "m," with "p," add: "p*i,0* is the first bit transmitted."

**Proposed Response**  
Propositionally Accepted.

"The optional 2.5GBASE-T1, 5GBASE-T1, or 10GBASE-T1 EEE capability allows compliant PHYs to transition to an LPI mode of operation when link utilization is low." isn’t quite correct - EEE is independent on each direction, link utilization is not. therefore, the statement needs to be expanded - particularly because the expected applications are often asymmetric in utilization.

**Suggested Remedy**

change "when link utilization is low." to "when link utilization is low in either direction of transmission."

**Proposed Response**  
Propositionally Accepted.
Wienckowski, Natalie  General Motors Company

Comment Type  E  Comment Status  D  EZ
Consider replacing "maximize" per IEEE Mandatory Editorial Coordination comment. Note: This is part of the "common" wording used throughout 802.3. See 97.3.5.1, 113.3.5.1, 126.3.5.1, etc. The reasons for synchronizing refresh intervals is not required for the spec.

Suggested Remedy
Delete: To maximize power savings, maintain link integrity, and ensure interoperability.

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Wienckowski, Natalie  General Motors Company

Comment Type  E  Comment Status  D  EZ
Consider rewording to remove "ensures".

Suggested Remedy
Change: This offset ensures that the MASTER and SLAVE ALERT windows are offset from each other and that the refresh periods are close to half cycle offset. To: The MASTER and SLAVE ALERT windows are offset from each other and the refresh periods are close to half cycle offset.

Proposed Response  Response Status  W
PROPOSED ACCEPT.

Wienckowski, Natalie  General Motors Company

Comment Type  E  Comment Status  D  EZ
Consider replacing "maximize" per IEEE Mandatory Editorial Coordination comment. Note: This is part of the "common" wording used throughout 802.3. See 97.3.5.3, 113.3.5.3, 126.3.5.3, etc. The reasons for staggering refresh signals is not required for the spec.

Suggested Remedy
Change: refresh signaling to maximize power savings. To: refresh signaling.

Proposed Response  Response Status  W
PROPOSED ACCEPT.
D3.0 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auto

Comment Type: E  Comment Status: D

Inconsistency in document. Sometimes "false" and sometimes "FALSE".

Suggested Remedy:

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

Comment Type: T  Comment Status: D

DECODE (rx_symb<64:0>) - the text says that the argument is rx_coded<64:0>. rx_symb is what is passed by the PMA_UNITDATA indication, before the descrambler, blocking and RS-FEC decoder (see 149.3.2.3). rx_coded is what seems to be needed by this function according to the description.

Suggested Remedy:
Change DECODE (rx_symb<64:0>) to DECODE(rx_coded<64:0>)

Proposed Response: PROPOSED ACCEPT.

Comment Type: T  Comment Status: D  State Diagrams

It appears that TX_WN may need a recirculating function if it is supposed to wait until tx_lpi_active is false before exiting, and continuously re-evaluate the condition tx_alert_start_next. State diagrams only evaluate the condition on entry to a state. Otherwise, if tx_alert_start_next were false on entry, TX_WN would enter, set tx_coded to IBLOCK_T and exit with tx_lpi_req possibly still in the true state (for example, if LPI is being exited due to a low SNR message). According to Figure 149-20, tx_lpi_active is set FALSE in TX_NORMAL and TRUE in SEND_SLEEP, which can only be exited by tx_lpi_req going to false.

Suggested Remedy:
Suggest: change the exit condition to exit "C" to add an " * (tx_lpi_req = FALSE)" to the existing condition, and add an additional exit to TX_WN, re-entering TX_WN with the condition tx_lpi_req = FALSE

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

Need to use standard state diagram conventions of !tx_lpi_req in the added conditions.

Comment Type: T  Comment Status: D

"super frame" - in most places, the term is "superframe" without a space.

Suggested Remedy:
replace "super frame" with "superframe" at P128 L37, L46, L51, L53; P129 L7, and PICS OAM2 description (P185 L11, L13, L15)

Proposed Response: PROPOSED ACCEPT.
Wienckowski, Natalie
General Motors Company

Comment Type E Comment Status D EZ
The use of "0s" is not consistent with other 802.3 Clauses.

SuggestedRemedy
Change "0s" to "0's". Also make the same change on P129 L 27 and P185 L20.

Proposed Response Response Status W
PROPOSED ACCEPT.

Wienckowski, Natalie
General Motors Company

Comment Type E Comment Status D EZ
Consider replacing "ensure" per IEEE Mandatory Editorial Coordination comment. Note: This is the same wording as 97.3.8.2.7.

SuggestedRemedy
Change: The toggle bit is used to ensure proper OAM message synchronization between the PHY and the link partner. To: The toggle bit lets the management entity determine which OAM message is being referred to.

Proposed Response Response Status W
PROPOSED ACCEPT.

Zimmerman, George
ADI, APL Group, Aquantia, BMW, Cisco, CommScop

Comment Type E Comment Status D EZ
"These 32 bits are set by the PHY to convey its status in the mr_tx_message[95:64] to the receiver (link partner)." - why is (link partner) in parentheses? I think what is meant is "to the link partner." Of course it's conveyed to a receiver. When you're transmitting a message, where else would it go?

SuggestedRemedy
change "to the receiver (link partner)" to "to the link partner."

Proposed Response Response Status W
PROPOSED ACCEPT.
The register bit mappings for OAM status messages are inconsistent with the definition given in Figure 149-25 (line 30 and line 34 on page 142).

**SuggestedRemedy**

In Table 149-9, the last column:
1. On line 27, change from "mr_txd_message[95:88]" to "mr_txd_message[87:80]".  
2. On line 29, change from "mr_txd_message[87:80]" to "mr_txd_message[95:88]".  
3. On line 36, change from "mr_rxd_message[95:88]" to "mr_rxd_message[87:80]".  
4. On line 39, change from "mr_rxd_message[87:80]" to "mr_rxd_lp_message[95:88]".

**Proposed Response**

- **Comment Status**: D  
- **Response Status**: W  
- **PROPOSED ACCEPT.**

The variable "mr_rxd_message" does not exist. Its name should be "mr_rxd_lp_message".

**SuggestedRemedy**

Within Table 149-9, on line 32, 34, 37, and 39, replace "mr_rxd_message" by "mr_rxd_lp_message".

**Proposed Response**

- **Comment Status**: D  
- **Response Status**: W  
- **PROPOSED ACCEPT.**

The Figure is the state diagram, not a description of a state diagram.

**SuggestedRemedy**

Change "PHY Control shall comply with the state diagram description given in Figure 149-32." To "PHY Control shall comply with the state diagram in Figure 149-32."

**Proposed Response**

- **Comment Status**: D  
- **Response Status**: W  
- **PROPOSED ACCEPT.**

Delete the reference to state diagram notation as this is done in 149.1.6 for the Clause.

**SuggestedRemedy**

Delete "The notation used in the state diagrams follows the conventions of state diagrams as described in 21.5."

**Proposed Response**

- **Comment Status**: D  
- **Response Status**: W  
- **PROPOSED ACCEPT.**
Consider replacing "ensure" per IEEE recommendation. It is not required to explain why this requirement exists.

**Suggested Remedy**

Change: Infofield shall be transmitted at least 256 times with each change to octets 7-10 to ensure detection at link partner. To: Infofield shall be transmitted at least 256 times with each change to octets 7-10.

**Proposed Response**

PROPOSED ACCEPT.

Consider replacing "guarantees" per IEEE Mandatory Editorial Coordination comment. Note: This wording is the same as 97.4.2.4.6

**Suggested Remedy**

Change: This value of DataSwPFC24 guarantees that the switch from PAM2 to PAM4 occurs on a PHY frame boundary. To: When the value of DataSwPFC24 is a multiple of 16 the switch from PAM2 to PAM4 occurs on a PHY frame boundary.

**Proposed Response**

PROPOSED ACCEPT.
This state diagram section including subclauses 149.4.4.1, 149.4.4.2, and 149.4.5 lacks description of the state diagram conventions. State diagram conventions are stated in 149.3.7.1 and 149.3.9.4.1, however the text states those conventions apply only to those subclauses.

**Suggested Remedy**

Insert new subclauses and renumber remaining subclauses as needed.

**Proposed Response**

PROPOSED REJECT.

This text is not needed as this is done in 149.1.6 for the Clause. The conventions are being removed from 149.3.7.1 (Comment 32) and 149.3.9.4.1 (Comment 33).

**Comment Type** E  **Comment Status** D  **State Diagrams**

This state diagram section including subclauses 149.4.4.1, 149.4.4.2, and 149.4.5 lacks description of the state diagram conventions. State diagram conventions are stated in 149.3.7.1 and 149.3.9.4.1, however the text states those conventions apply only to those subclauses.

**Suggested Remedy**

Insert new subclauses and renumber remaining subclauses as needed.

**Proposed Response**

PROPOSED REJECT.

This text is not needed as this is done in 149.1.6 for the Clause. The conventions are being removed from 149.3.7.1 (Comment 32) and 149.3.9.4.1 (Comment 33).

**Comment Type** E  **Comment Status** D  **State Diagrams**

This state diagram section including subclauses 149.4.4.1, 149.4.4.2, and 149.4.5 lacks description of the state diagram conventions. State diagram conventions are stated in 149.3.7.1 and 149.3.9.4.1, however the text states those conventions apply only to those subclauses.

**Suggested Remedy**

Insert new subclauses and renumber remaining subclauses as needed.

**Proposed Response**

PROPOSED REJECT.

This text is not needed as this is done in 149.1.6 for the Clause. The conventions are being removed from 149.3.7.1 (Comment 32) and 149.3.9.4.1 (Comment 33).

**Comment Type** E  **Comment Status** D  **State Diagrams**

This state diagram section including subclauses 149.4.4.1, 149.4.4.2, and 149.4.5 lacks description of the state diagram conventions. State diagram conventions are stated in 149.3.7.1 and 149.3.9.4.1, however the text states those conventions apply only to those subclauses.

**Suggested Remedy**

Insert new subclauses and renumber remaining subclauses as needed.

**Proposed Response**

PROPOSED REJECT.

This text is not needed as this is done in 149.1.6 for the Clause. The conventions are being removed from 149.3.7.1 (Comment 32) and 149.3.9.4.1 (Comment 33).

**Comment Type** E  **Comment Status** D  **State Diagrams**

This state diagram section including subclauses 149.4.4.1, 149.4.4.2, and 149.4.5 lacks description of the state diagram conventions. State diagram conventions are stated in 149.3.7.1 and 149.3.9.4.1, however the text states those conventions apply only to those subclauses.

**Suggested Remedy**

Insert new subclauses and renumber remaining subclauses as needed.

**Proposed Response**

PROPOSED REJECT.

This text is not needed as this is done in 149.1.6 for the Clause. The conventions are being removed from 149.3.7.1 (Comment 32) and 149.3.9.4.1 (Comment 33).
P802.3ch D3.0

D3.0 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auto

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

Wienckowski, Natalie  General Motors Company

**Comment**: miss Oxford comma

**Suggested Remedy**: Change "10GBASE-T1, 36 dB in 5GBASE-T1 and 35 dB in 2.5G mode" To "10GBASE-T1, 36 dB in 5GBASE-T1, and 35 dB in 2.5G mode"

**Proposed Response**: PROPOSED ACCEPT.

2. **Comment Type**: E  Comment Status: E

Wienckowski, Natalie  General Motors Company

**Comment**: Consider replacing "ensure" per IEEE Mandatory Editorial Coordination comment. Note: This wording is the same as 97.6.3, 113.7.3, 126.7.3, etc.

**Suggested Remedy**: Change: In order to limit the alien crosstalk at the near end of a link segment, the differential pair-to-pair near-end crosstalk (NEXT) loss between the disturbed link segment and the disturbing link segment is specified to meet the bit error ratio objective. To: The differential pair-to-pair near-end crosstalk (NEXT) loss between the disturbed link segment and the disturbing link segment is specified to meet the bit error ratio objective by limiting the alien crosstalk at the near end of a link segment.

**Proposed Response**: PROPOSED ACCEPT.

3. **Comment Type**: E  Comment Status: E

Wienckowski, Natalie  General Motors Company

**Comment**: Consider replacing "ensure" per IEEE recommendation.

**Suggested Remedy**: Change: To ensure the total alien NEXT loss and alien FEXT loss coupled between link segments is limited, power sum alien near-end crosstalk (PSANEXT) loss and power sum alien attenuation to crosstalk ratio far-end (PSAACR-F) is specified. To: Power sum alien near-end crosstalk (PSANEXT) loss and power sum alien attenuation to crosstalk ratio far-end (PSAACR-F) are specified to limit the total alien NEXT and alien FEXT coupled between link segments.

**Proposed Response**: PROPOSED ACCEPT.

4. **Comment Type**: T  Comment Status: D  Link Segment

Kumada, Takeko

**Comment**: Equation 149-25 draws this required line based on the measurement results when all the cables configured around are composed of STP cables in the 4 around 1 measurement. Therefore, I think it is necessary to include a comment that clearly states that all the cables that are configured around are STP cables. This is because it is assumed that it is difficult to satisfy this requirement when the surrounding cables are composed of cables such as J-UTP cable and UTP cable.

**Suggested Remedy**: After Equation 149-25, please add as follows. However, this equation is for the case where the surrounding cables are composed of STP cables.

**Proposed Response**: PROPOSED REJECT.

The CRG disagrees with the commenter. This equation defines what is required for the PHYs to operate properly. This applies to all link segments. While it is likely that only shielded cables can meet this requirement, specifying that this requirement only applies to shielded cables would have the unintended side effect of allowing a violation of this equation’s limits if unshielded cables were used.

**Proposed Response**: PROPOSED ACCEPT.

5. **Comment Type**: E  Comment Status: D

Wienckowski, Natalie  General Motors Company

**Comment**: Consider replacing "ensure" per IEEE recommendation.

**Suggested Remedy**: Change: To ensure the total alien FEXT coupled into a link segment, multiple disturber attenuation to crosstalk ratio far-end ACRF is specified as the power sum of the individual alien ACRF disturbers. To: The differential pair-to-pair near-end crosstalk (NEXT) loss between the disturbed link segment and the disturbing link segment is specified to meet the bit error ratio objective by limiting the alien crosstalk at the near end of a link segment.

**Proposed Response**: PROPOSED ACCEPT.
Comment Type: T/technical  E/editorial  G/general  
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
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Sort Order: Page, Line  Li 7  1/6/2020  2:58:12 PM

Equation 149-26 draws this required line based on the measurement results when all the cables configured around are composed of STP cables in the 4 around 1 measurement. Therefore, I think it is necessary to include a comment that clearly states that all the cables that are configured around are STP cables. This is because it is assumed that it is difficult to satisfy this requirement when the surrounding cables are composed of cables such as J-UTP cable and UTP cable.

**Suggested Remedy**

After Equation 149-26, please add as follows. However, this equation is for the case where the surrounding cables are composed of STP cables.

- The CRG disagrees with the commenter. This equation defines what is required for the PHYs to operate properly. This applies to all link segments. While it is likely that only shielded cables can meet this requirement, specifying that this requirement only applies to shielded cables would have the unintended side effect of allowing a violation of this equation’s limits if unshielded cables were used.

**PROPOSED ACCEPT.**

Comment Type: T/technical  E/editorial  G/general  
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
Page 16 of 20  Pa 176  Page 16 of 20  Pa 176
Sort Order: Page, Line  Li 7  1/6/2020  2:58:12 PM

There is an untestable shall.

**Suggested Remedy**

Delete: All equipment subject to this clause shall conform to IEC 62368-1 (or IEC 60950-1) (for IT and motor vehicle applications) and to ISO 26262 (for motor vehicle applications only, if required by the given application). Also delete PICS ES1.

**PROPOSED ACCEPT.**

Comment Type: T/technical  E/editorial  G/general  
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
Page 16 of 20  Pa 176  Page 16 of 20  Pa 176
Sort Order: Page, Line  Li 7  1/6/2020  2:58:12 PM

There is an untestable shall.

**Suggested Remedy**

Change "All equipment subject to this clause shall conform to all applicable local, state, national, and application-specific standards." To "All equipment subject to this clause is expected to conform to all applicable local, state, national, and application-specific standards." Also delete PICS ES2.

**PROPOSED ACCEPT.**
There is an untestable shall which applies to the final installation, not the PHY defined by this draft.

Suggested Remedy
Delete: In automotive applications, all cabling shall be routed in such a way as to provide maximum protection by the motor vehicle sheet metal and structural components, following SAE J1292, ISO 14229, and ISO 15764. Also delete PICS ES3.

Proposed Response
PROPOSED ACCEPT.

ISO 167540-5 is a typo copied from Clause 96, ISO 16750-5 is the correct reference

Suggested Remedy
Change "ISO 167540-5" to "ISO 16750-5"

Proposed Response
PROPOSED ACCEPT.

Section title should be "PCS Receive" not "PCS Transmit"

Suggested Remedy
Change "PCS Transmit" to "PCS Receive"

Proposed Response
PROPOSED ACCEPT.

As per attached PDF; Propose to change Figure 149A-2 as follows; From the VNA Diff. Port 1 both these lines are to be coax. Therefore; The lines are made to be thicker to match the width of coax line from as from Port 2; Add that the text to each line from Diff. Port 1 of "Coax"; Add lines that show that each of the Coax shields from Diff. Port 1 connects to the shield of connector on the test fixture; Show an exploded view that inner tube is connected to cable shield inside triaxial tube; Include the text next to this exploded view.

Proposed Response
PROPOSED ACCEPT.
P802.3c D3.0  D3.0 Physical Layer Specifications and Management Parameters for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s Auto

Boyer, Rich  
Aptiv - Signal and Power Solutions

Comment Type  T  Comment Status  D  149A
Propose to add verbiage to the shield connection of the cable on both ends to assist user with proper understanding of implementing into vehicle.

Suggested Remedy
Add the following to sentences at the end of paragraph that starts on line 6. In addition, both ends of the cable shield should be directly connected to the signal ground using techniques suitable for RF applications in the frequency range of interest when implementing cable assemblies into vehicles. This is necessary so that the vehicle implementation matches the coupling and screening attenuation test methodology in this Annex.

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

It is not necessary to explain why the requirement exists.

ADD the following sentence at the end of paragraph that starts on page 198 line 6. "In addition, both ends of the cable shield should be directly connected to the signal ground using techniques suitable for RF applications in the frequency range of interest when implementing cable assemblies into vehicles."

Thompson, Geoffrey  
Independent Consultant

Comment Type  TR  Comment Status  D  149A
Text does not adequately deal with specifying a uniform test condition for qualifying the test conditions for link segments in an automotive environment. Text should be added to reflect the shield grounding practice used in that environment.

Suggested Remedy
Insert the following text before the existing text on Page 198, Line 24: The shield of the cable shall have a hard ground connection to the connected equipment at each end of the reference cable assembly.

Proposed Response  Response Status  W
PROPOSED ACCEPT IN PRINCIPLE.

It is not clear what a "hard ground" connection means.

ADD the following sentence at the end of the paragraph that starts on page 198 line 6. "In addition, both ends of the cable shield should be directly connected to the signal ground using techniques suitable for RF applications in the frequency range of interest when implementing cable assemblies into vehicles."

Mcclellan, Brett  
Marvell Semiconductor, Inc.

Comment Type  TR  Comment Status  D  149B
OAM Symbol 11 bits 7:0 are 'Reserved' which means they cannot be used for any purpose and a compliant device must set these bits to zero. The proposal for this definition(http://www.ieee802.org/3/ch/public/nov18/wienckowski_3ch_01b_1118.pdf) indicated that this symbol is reserved for future use, however it cannot be used by a device compliant to this informative annex.

Making these vendor defined bits allows them to be defined by OEMs or other organizations. Leaving these bits as zero for later use isn't necessary as any later project is free to define a new status structure.

Suggested Remedy
page202 line 32 change Symbol 11 bits D7 to D0 from individual reserved bits to "Vendor-specific field <7:0>"  page 203 line 49 insert new subclause 149B.3.7 and renumber remaining subclauses: "149B.3.7 Vendor-specific field Vendor-specific field <7:0> is indicated in OAM<11><7:0> and may be used to convey a vendor defined data field.

Proposed Response  Response Status  W
PROPOSED ACCEPT.
The conditions and duration for which these defined warning bits are left to the implementor to decide, but how long should the indicator bits be set =1 to ensure the management entity at the link partner has an opportunity to detect these status bits? These bits are not placed into latched indicators at the link partner, but are continuously updated in registers 1.2318 and 1.2319 as they arrive.

For these bits: PowerSupplyWarning, PHY TempWarning, No MACMessagesWarning, DegradedLinkSegment we should recommend a minimum indication time.

PolarityInversion is a static condition throughout the link, and therefore not an issue.

Suggested Remedy:
page 203 on lines 9, 18, 26, and 35 add the following sentence: "It is recommended that this status is set for a minimum of 100 milliseconds to ensure reception by the link partner management entity."

Proposed Response: PROPOSED ACCEPT.

Suggested Remedy:
Need to add reference to state diagram notation extensions as done in 149.1.6.

Proposed Response: PROPOSED ACCEPT.

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

Proposed Response: PROPOSED ACCEPT.

Should be "FALSE" only when this represents a variable value.


Also, change "false" to "FALSE" on P136 L20.

rf_valid and RX_FRAME are used without definition in Figure 149B-2.

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

The subclause 149B.4.2.2 already exists. RX_FRAME is not a Counter but a message.

P205 L16 insert new variable definition, "rf_valid -> Defined in 149.3.7.2.2"

P205 L23 insert new subclause, "149B.4.2.2 Counters RX_FRAME -> Defined in 149.3.7.2.6 "

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

The subclause 149B.4.2.2 already exists. RX_FRAME is not a Counter but a message.

P205 L16 insert new variable definition, "rf_valid -> Defined in 149.3.7.2.2"

P205 L23 insert new subclause, "149B.4.2.2 Counters RX_FRAME -> Defined in 149.3.7.2.6 "

Proposed Response: PROPOSED ACCEPT IN PRINCIPLE.

The subclause 149B.4.2.2 already exists. RX_FRAME is not a Counter but a message.

P205 L16 insert new variable definition, "rf_valid -> Defined in 149.3.7.2.2"

P205 L23 insert new subclause, "149B.4.2.2 Counters RX_FRAME -> Defined in 149.3.7.2.6 "
The equation references b, c, and d, in footnotes to Table 149C-1 are incorrect.

Suggested Remedy
- Remove footnotes a, b, c, and d.

Proposed Response
- PROPOSED ACCEPT IN PRINCIPLE.

In multiport designs, there is confusion as to whether port-to-port crosstalk in the MDI or on the board are governed by the "coupling between link segments" (alien crosstalk) specified in the main clause. They are not. MDI to MDI coupling or trace to trace coupling are in addition. In general, they should be less than or equal to the alien crosstalk specification.

Suggested Remedy
- Insert 149.C.5 after 149C.4.3, entitled: Coupling between ports on multiport designs, with text: "When multiple MultiGBASE-T1 PHYs are implemented on the same board, care should be taken to avoid coupling between ports. The coupling between adjacent ports on a multiport MDI connector or between adjacent traces is recommended to be approximately the same level, but no greater, than that specified for power sum alien near end crosstalk specified in Equation 149-25." Additionally, add a second paragraph to 149.7.2, page 172 line 42, to read "For implementations with multiple MultiGBASE-T1 ports on the same MDI connector assembly, coupling between ports on the MDI connector is not considered to be part of the PSANEXT and PSAFEXT specification. For further information, see 149.C.5."

Proposed Response
- PROPOSED ACCEPT IN PRINCIPLE.

At the end of the proposal "specification" should be "specifications" and remove specific types of crosstalk and replace with alien crosstalk.

Insert 149.C.5 after 149C.4.3, entitled: Coupling between ports on multiport designs, with text: "When multiple MultiGBASE-T1 PHYs are implemented on the same board, care should be taken to avoid coupling between ports. The coupling between adjacent ports on a multiport MDI connector or between adjacent traces is recommended to be approximately the same level, but no greater, than that specified for power sum alien near end crosstalk specified in Equation 149-25." Additionally, add a second paragraph to 149.7.2, page 172 line 42, to read "For implementations with multiple MultiGBASE-T1 ports on the same MDI connector assembly, coupling between ports on the MDI connector is not considered to be part of the alien crosstalk specifications. For further information, see 149.C.5."