Cl **149A** *SC* **149A.4** *P* **197** *L* **27** # i-47

Boyer, Rich Aptiv - Signal and Power Solutions

Comment Type **T** *Comment Status* **D** *149A*

*** Comment submitted with the file 103045400003-Figure149A-2_Comment_RevA.pdf attached ***

To make Figure 149A-2 more descriptive.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149A** *SC* **149A.4** *P* **198** *L* **10** # i-48

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.

SuggestedRemedy

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. "

Cl **149A** *SC* **149A.4** *P* **198** *L* **24** # i-91

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.

SuggestedRemedy

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 text as defined in comment #48.

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. "

Cl **45** *SC* **45.2.1.195.4** *P* **40** *L* **36** # i-46

Rannow, R K IEEE/SELF

Comment Type **GR** *Comment Status* **D** *Editorial*

using the term "both" appears verbose in nearly 20 instances.

SuggestedRemedy

Remove the work "both"

Proposed Response *Response Status* **W**

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. This is used in the front matter 3 times and 21 times in the "new text". 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.

Cl **78** *SC* **78.5** *P* **61** *L* **44** # i-84

Jonsson, Ragnar Aquantia

Comment Type **TR** *Comment Status* **D** *EEE*

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.

Cl **149** *SC* **149.9.1** *P* **176** *L* **5** # i-27

Wienckowski, Natalie General Motors Company

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

There is an untestable shall.

SuggestedRemedy

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 Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.9.1** *P* **176** *L* **7** # i-28

Wienckowski, Natalie General Motors Company

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

There is an untestable shall.

SuggestedRemedy

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 Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.9.2** *P* **176** *L* **18** # i-29

Wienckowski, Natalie General Motors Company

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

There is an untestable shall which applies to the final instalation, not the PHY defined by this draft.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* **0** *P* *L* # i-1

Berger, Catherine

Comment Type **G** *Comment Status* **D** *EZ*

This draft meets all editorial requirements.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* **0** *P* **1** *L* **28** # i-17

Wienckowski, Natalie General Motors Company

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

Update publication date for 802.3cg

SuggestedRemedy

Change 20xx (or 201x) to 2019, also on P11 L1, P23 L45, P26 L22, P26 L29, P33 L27, P34 L30, P35 L3, P53 L12, P53 L35, P53 L44, P53 L50, P55 L8, P58 L1, P66 L9, P66 L17, P67 L3, P67 L41, P67 L47, P68 L5, P68 L38, P69 L23, P69 L35, P70 L7, P195 L11

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* **0** *P* **1** *L* **28** # i-18

Wienckowski, Natalie General Motors Company

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

Update publication date for 802.3cn

SuggestedRemedy

Change 20xx (or 201x) to 2019, also on P10 L49

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **22** *L* **16** # i-3

Wienckowski, Natalie General Motors Company

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

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

SuggestedRemedy

Delete lines 16 through 27.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4** *P* **23** *L* **45** # i-72

Mcclellan, Brett Marvell Semiconductor, Inc.

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

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.494b** *P* **23** *L* **46** # i-54

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

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

IEEE Std 802.3cg-201x has been approved as IEEE Std 802.3cg-2019

SuggestedRemedy

change 802.3cg-201x to 802.3cg-2019 on P23 L45, and globally (several instances - pages 26, 33, 34, 35, 53,55,58, 66, 67,68, 69, 195 - some more than 1 per page)

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **45** *SC* **45.2.1** *P* **32** *L* **32** # i-83

Jonsson, Ragnar Aquantia

Comment Type **ER** *Comment Status* **D** *EZ*

In Table 45-3 the Subclause for register 1.2317 should be 45.2.1.200

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.194.1** *P* **38** *L* **51** # i-55

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

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

149.3.2.2.18 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.

SuggestedRemedy

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 Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.196.4** *P* **41** *L* **49** # i-57

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

Comment Type **TR** *Comment Status* **D** *EZ*

"When the transmitter is in test mode 2, bits 1.2313.1:0 control the pattern of the jitter test signal." - what these bits do when the transmitter is not in test mode 2 is not specified...

SuggestedRemedy

Suggest to add a new second sentence immediately following the quoted one, to read as follows: "When the transmitter is not in test mode 2, the setting of bits 1.2313.1:0 have no effect."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

fix subject/verb agreeement 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."

Cl **45** *SC* **45.2.3.75** *P* **48** *L* **1** # i-73

Mcclellan, Brett Marvell Semiconductor, Inc.

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

Table 45-244 should appear on page 47 following this text: "Change Table 45-244 as follows:"

SuggestedRemedy

move table as indicated

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.3** *P* **53** *L* **44** # i-58

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

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

Editing instruction has been separated from the table that it is editing.

SuggestedRemedy

Make editing instruction stay with Table 45-341

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **104** *SC* **104.5.6.4** *P* **68** *L* **48** # i-59

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

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

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.

Cl **149** *SC* **149.1.3** *P* **79** *L* **18** # i-61

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

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

"The MultiGBASE-T1 OAM information is exchanged between two 2.5GBASE-T1, 5GBASE-T1, or 10GBASE-T1 PHYs 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.

SuggestedRemedy

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 Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.1.3.1** *P* **79** *L* **42** # i-87

Jonsson, Ragnar Aquantia

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

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **0** *SC* **0** *P* **79** *L* **44** # i-4

Wienckowski, Natalie General Motors Company

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

Replace lower case 'x' with a multiplication symbol.

SuggestedRemedy

Make this change on P79 L44 & P79 L 45.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.1.3.1** *P* **79** *L* **44** # i-62

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

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

"(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.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.1.3.2** *P* **80** *L* **17** # i-63

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

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

"The minimum link segment characteristics, EMC 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.

SuggestedRemedy

Suggest replacing "The minimum link segment characteristics, EMC 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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.2.2.7.1** *P* **88** *L* **39** # i-36

Wienckowski, Natalie General Motors Company

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

Inconsistency in document. Sometimes "true" and sometimes "TRUE".

SuggestedRemedy

Change "true" to "TRUE", also on P112 L33, P112 L35, P112 L37, P112 L44, P112 L46, P112 L48, P114 L18, P114 L24, P114 L30, P114 L37, P114 L52, P115 L33, P115 L37, P115 L43, P115 L48, P115 L52, P116 L2, P116 L7, P116 L10, P116 L25, P116 L30, P116 L35, P116 L41, P119 L24, P119 L25, P119 L39, P119 L45, P123 L9, P123 L27, P123 L36, P138 L20, P138 L41, P138 L47, P139 L48, P139 L54, P144 L12, P144 L43, P156 L29, P157 L13, P157 L50, P186 L40, P204 L49, P205 L2, P205 L8, P205 L14

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

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

Change "true" to "TRUE" on P112 L33, P112 L35, P112 L37, P112 L44, P112 L46, P112 L48, P114 L18, P114 L24, P114 L27, P114 L30, P114 L37, P114 L52, P115 L33, P115 L37, P115 L43, P115 L48, P115 L52, P116 L2, P116 L7, P116 L10, P116 L25, P116 L30, P116 L35, P116 L41, P119 L24 (2x), P119 L25, P119 L39, P119 L45, P121 L39, P123 L9, P125 L 8, P125 L16, P126 L17, P126 L27, P126 L36, P138 L20, P138 L41, P138 L47, P139 L48, P139 L54, P144 L43, P156 L29, P157 L13, P157 L50, P158 L49, P186 L40, P204 L49, P205 L2, P205 L8, P205 L14, P206 L18.

Also, change "True" to "TRUE" on P136 L19.

Cl **149** *SC* **149.3.2.2.11** *P* **99** *L* **39** # i-66

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

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

ordered set in the subclause header should be capitalized

SuggestedRemedy

Change "149.3.2.2.11 ordered set" to "149.3.2.2.11 Ordered set"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.2.2.17** *P* **101** *L* **47** # i-23

Wienckowski, Natalie General Motors Company

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

superscript of 4 in x^4 is higher than the other supercripts

SuggestedRemedy

Adjust height of "4" in "x^4" to match height of other x superscripts.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.2.2.17** *P* **101** *L* **47** # i-22

Wienckowski, Natalie General Motors Company

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

number on top of "pi" symbol is cut off

SuggestedRemedy

Resize equation to ensure complete equation is visible.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.2.2.22** *P* **105** *L* **16** # i-69

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

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

"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.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.2.3** *P* **107** *L* **9** # i-70

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

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

"PHYs with the EEE capability support transition to the LPI mode when the PHY has successfully completed training and pcs_data_mode is TRUE and subject to the timing requirements of 46.3.1.5." There are no timing requirements for the PHY transitioning in 46.3.1.5. It appears this is meant to reference 46.1.7 which requires the link be operational for at least one second before transitioning to LPI.

SuggestedRemedy

Change cross reference to 46.3.1.5 to 46.1.7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.6** *P* **110** *L* **30** # i-20

Wienckowski, Natalie General Motors Company

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

Consider rewording to remove "ensure". Remove unnecessary explanatory language.

SuggestedRemedy

Delete: that is used to ensure refresh signals and alert start times are appropriately offset between the link partners

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.6.1** *P* **112** *L* **3** # i-6

Wienckowski, Natalie General Motors Company

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

Consider replacing "ensure" per IEEE Mandatory Editorial Coordination comment.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.6.1** *P* **112** *L* **3** # i-5

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.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.6.1** *P* **112** *L* **12** # i-19

Wienckowski, Natalie General Motors Company

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

Consider rewording to remove "ensures".

SuggestedRemedy

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.

Cl **149** *SC* **149.3.6.3** *P* **113** *L* **8** # i-7

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.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.7.2.1** *P* **113** *L* **42** # i-24

Wienckowski, Natalie General Motors Company

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

LP_BLOCK_R is not consistent with other comment names.

SuggestedRemedy

Change "LP_BLOCK_R" to "LPBLOCK_R" to be consistent with other comment names. Also make the same change on P125 L7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.7.2.1** *P* **113** *L* **48** # i-25

Wienckowski, Natalie General Motors Company

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

I_BLOCK_R is not consistent with other comment names.

SuggestedRemedy

Change "I_BLOCK_R" to "IBLOCK_R" to be consistent with other comment names. Also make the same change on P125 L14.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.7.2.2** *P* **114** *L* **18** # i-35

Wienckowski, Natalie General Motors Company

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

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

SuggestedRemedy

Change "false" to "FALSE", also on P114 L31, P115 L19, P115 L34, P115 L38, P115 L40, P115 L44, P115 L45, P115 L49, P115 L54, P116 L4, P116 L11, P119 L25, P123 L20, P126 L6, P126 L7, P126 L8, P126 L35, P126 L44, P138 L19, P138 L44, P138 L46, P139 L51, P139 L53, P149 L12, P152 L22, P156 L28, P157 L12, P190 L3, P204 L48, P205 L1, P205 L7, P205 L13

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Should be "FALSE" only when this represents a variable value.

Change "false" to "FALSE" on P114 L18, P114 L31, P115 L19, P115 L34, P115 L38, P115 L40, P115 L44, P115 L45, P115 L49, P115 L54, P116 L4, P116 L11, P119 L25, P121 L7, P121 L39, P123 L19, P124 L17, P125 L 15, P125 L23, P126 L6, P126 L7, P126 L8, P126 L35, P126 L43, P138 L19, P138 L44, P138 L46, P139 L51, P139 L53, P149 L12, P152 L22, P156 L28, P157 L12, P158 L9, P190 L3, P204 L48, P205 L1, P205 L7, P205 L13, P206 L6, P206 L30, P206 L41.

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

Cl **149** *SC* **149.3.7.2.4** *P* **116** *L* **46** # i-65

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

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

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.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.9.2.1** *P* **128** *L* **37** # i-67

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

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

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.9.2.1** *P* **129** *L* **4** # i-26

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.

Cl **149** *SC* **149.3.9.2.7** *P* **130** *L* **19** # i-8

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.

Cl **149** *SC* **149.3.9.2.12** *P* **131** *L* **14** # i-68

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.

Cl **149** *SC* **149.3.9.2.13** *P* **132** *L* **38** # i-30

Wienckowski, Natalie General Motors Company

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

typo, unnecessary "the"

SuggestedRemedy

Change "when the EEE is implemented" To "when EEE is implemented".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.9.2.16** *P* **133** *L* **13** # i-88

Jonsson, Ragnar Aquantia

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

Simple typo "toggling" not "togging"

SuggestedRemedy

Change "togging" to "toggling"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.9.2.17** *P* **133** *L* **31** # i-31

Wienckowski, Natalie General Motors Company

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

type, missing space after period

SuggestedRemedy

Add space after "is occurring concurrently and bi-directionally."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.3** *P* **144** *L* **49** # i-37

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change "over receive pair" To "over the receive pair".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.4** *P* **145** *L* **21** # i-38

Wienckowski, Natalie General Motors Company

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

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.4** *P* **145** *L* **26** # i-39

Wienckowski, Natalie General Motors Company

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

Redundant text

SuggestedRemedy

Change "16th partial PHY frame (bits 6750 to 6845) of the PHY frame." To "16th partial PHY frame (bits 6750 to 6845)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.4** *P* **145** *L* **32** # i-13

Wienckowski, Natalie General Motors Company

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

Consider replacing "ensure" per IEEE recommendation. It is not required to explain why this requirement exists.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.4.6** *P* **148** *L* **3** # i-9

Wienckowski, Natalie General Motors Company

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

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

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.6.2** *P* **152** *L* **45** # i-40

Wienckowski, Natalie General Motors Company

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

Missing spaces

SuggestedRemedy

Add non-breaking spaces around +/- symbol, also on P152 L49.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.5.1** *P* **160** *L* **8** # i-41

Wienckowski, Natalie General Motors Company

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

Redundant word

SuggestedRemedy

Change "BER testing" to "BER".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.5.1** *P* **161** *L* **12** # i-43

Wienckowski, Natalie General Motors Company

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

poor wording

SuggestedRemedy

Change "In the receive side" To "On the receive side".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.5.1** *P* **161** *L* **12** # i-42

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change "Instead of encoding received data from MAC," To "Instead of encoding received data from the MAC,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Instead of encoding received data from MAC," To "Instead of encoding data received from the MAC,"

Cl **149** *SC* **149.5.1** *P* **161** *L* **14** # i-44

Wienckowski, Natalie General Motors Company

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

missing article

SuggestedRemedy

Change "calculated in RS-FEC block error rate." To "calculated in the RS-FEC block error rate."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.5.2.2** *P* **162** *L* **50** # i-45

Wienckowski, Natalie General Motors Company

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

missing Oxford comma

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.7.2** *P* **172** *L* **40** # i-10

Wienckowski, Natalie General Motors Company

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

Consider replacing "ensure" per IEEE recommendation. Note: This wording is the same as 97.6.3, 113.7.3, 126.7.3, etc.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.7.2.1** *P* **172** *L* **48** # i-11

Wienckowski, Natalie General Motors Company

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

Consider replacing "ensure" per IEEE Mandatory Editorial Coordination comment.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.7.2.2** *P* **173** *L* **42** # i-12

Wienckowski, Natalie General Motors Company

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

Consider replacing "ensure" per IEEE recommendation.

SuggestedRemedy

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: Multiple disturber attenuation to crosstalk ratio far-end ACRF is specified as the power sum of the individual alien ACRF disturbers to limit the total alien FEXT coupled into a link segment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.8.2.2** *P* **175** *L* **45** # i-2

Mueller, Thomas

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

The intention of subclause 149.8.2.2 was to provide a measurement setup and electrical requirements for a proper shield termination of the linksegment to the MDI. As for today, there is not enough experience / data for a solid description of this test. Suggestion would be to leave this question to the implementer for now.

SuggestedRemedy

Suggest to remove subclause 149.8.2.2 from the standard due to a lack of information.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.8.2.2** *P* **175** *L* **45** # i-79

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *EZ*

The subclause '149.8.2.2 MDI coupling attenuation' has no content and there has been no proposal for content. It should be removed.

SuggestedRemedy

delete subclause 149.8.2.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.8.2.2** *P* **175** *L* **45** # i-21

Wienckowski, Natalie General Motors Company

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

Empty Subclause

SuggestedRemedy

Delete subclause

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.9.2.1** *P* **176** *L* **33** # i-80

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **ER** *Comment Status* **D** *EZ*

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

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.11.4.2.2** *P* **182** *L* **1** # i-89

Jonsson, Ragnar Aquantia

Comment Type **ER** *Comment Status* **D** *EZ*

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

SuggestedRemedy

Change "PCS Transmit" to "PCS Receive"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.11.4.3.4** *P* **187** *L* **26** # i-14

Wienckowski, Natalie General Motors Company

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

Update PICS to match requirement text.

SuggestedRemedy

Delete: to ensure detection at link partner

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149A** *SC* **149A.3** *P* **196** *L* **32** # i-15

Wienckowski, Natalie General Motors Company

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

Consider replacing "ensures" per IEEE Mandatory Editorial Coordination comment.

SuggestedRemedy

Change: 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. To: In order to reach sufficient accuracy to measure coupling and screening attenuation, the connectors and cable should be matched in terms of balance and shielding.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149A** *SC* **149A.4** *P* **198** *L* **27** # i-16

Wienckowski, Natalie General Motors Company

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

missing period

SuggestedRemedy

Add "." at end of paragraph.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149B** *SC* **149B.2** *P* **202** *L* **29** # i-77

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **ER** *Comment Status* **D** *EZ*

"PHY TempWarning" for D5 doesn't match the bit name in 149B.3.3, "Internal temperature warning"

SuggestedRemedy

change "PHY TempWarning" to "Internal temperature warning"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149B** *SC* **149B.4.1** *P* **204** *L* **33** # i-74

Mcclellan, Brett Marvell Semiconductor, Inc.

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

missing definition for ++ operator

SuggestedRemedy

page204 line 33 add text: "The notation ++ after a counter or integer variable indicates that its value is to be incremented."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.194** *P* **38** *L* **19** # i-56

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

Comment Type **TR** *Comment Status* **D** *Interleave*

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.

SuggestedRemedy

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 interleaver 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 interleaver depth is out of scope of this standard and may not be supported by the local PHY."

Proposed Response *Response Status* **W**

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 interleaver 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 interleaver depth is out of scope of this standard and may not be supported by the local PHY."

Cl **149** *SC* **149.1** *P* **77** *L* **17** # i-94

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

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

The overview and the draft indicate that clause 149 operates over a single balanced pair of conductors. As in other standards, this may include either cabling or a backplane link segment. However, in several portions of the link segment specification, the requirements are written so that ONLY a separate cabling link segment can be used. this is in conflict with the overview and purpose. A slight adjustment to the wording, and a conditional on the PICS will make it clear that requirements such as coupling attenuation and shielding attenuation are only intended to apply to cabling link segments.

SuggestedRemedy

page 167 line 10 : At 149.7, change the last sentence of the first paragraph from "The term link segment used in this clause refers to a single shielded balanced pair of conductors operating in full duplex. " to "The term link segment used in this clause refers to a single balanced pair of conductors (cable or backplane) operating in full duplex. "; Page 171 line 31: at 149.7.1.4, change the first sentence from "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 " to "when tested using the IEC 62153-4-7 triaxial tube in tube method as specified in Annex 149A, where shielded balanced pair cabling is used, the MultiGBASE-T1 link segment shall meet the coupling attenuation values" ; Page 172 line 27: Change the first sentence of 149.7.1.5 for "The minimum screening attenuation..." to read "Where shielded balanced pair cabling is used, the minimum screening attenuation..."; Page 174 line 36: Change the first sentence of 149.8.1 from "The mechanical interface to the shielded balanced cabling " to "Where shielded balanced pair cabling is used, the mechanical interface to the shielded balanced cabling"; Page 179 line 10, 149.11.3, insert row for *INS after row for *EEE, reading "*INS | Installation / cabling | 149.7 | Items marked with INS include installation practices and cabling specifications applicable when the link segment is balanced pair cabling, and not applicable to backplane link segments | O | Yes []<cr> No []" ; on page 193 line 12, Change status of row for LSC5 to "M:INS"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.9.3** *P* **135** *L* **27** # i-93

Tu, Mike

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

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_tx_message[95:88]" to "mr_tx_message[87:80]". 2. On line 29, change from "mr_tx_message[87:80]" to "mr_tx_message[95:88]". 3. On line 36, change from "mr_rx_message[95:88]" to "mr_rx_lp_message[87:80]". 4. On line 39, change from "mr_rx_message[87:80]" to "mr_rx_lp_message[95:88]".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.9.3** *P* **135** *L* **32** # i-92

Tu, Mike

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

The variable "mr_rx_message" does not exist. Its name should be "mr_rx_lp_message".

SuggestedRemedy

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

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.7.2.1** *P* **172** *L* **52** # i-49

Kumada, Taketo

Comment Type **T** *Comment Status* **D** *Link Segment*

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.

SuggestedRemedy

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 *Response Status* **W**

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.

Cl **149** *SC* **149.7.2.2** *P* **173** *L* **47** # i-50

Kumada, Taketo

Comment Type **T** *Comment Status* **D** *Link Segment*

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.

SuggestedRemedy

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

Proposed Response *Response Status* **W**

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.

Cl **149C** *SC* **149C.3** *P* **208** *L* **46** # i-90

Jonsson, Ragnar Aquantia

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

The equation references b, c, and d, in footnotes to Table 149C-1 are incorrect

SuggestedRemedy

Remove footnotes a, b, c, and d,

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Remove the references to the footnotes in the heading row of Table 149C-1 and remove the footnotes below the table.

Cl **149C** *SC* **149C.5** *P* **212** *L* **6** # i-60

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

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

In multiport designs, there is confusion as to whether port-to-port crosstalk in the MDI or on the board are goverend 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.

SuggestedRemedy

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 *Response Status* **W**

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."

Cl **149** *SC* **149.1.3.1** *P* **79** *L* **41** # i-51

Lo, William

Comment Type **T** *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.

SuggestedRemedy

(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 show up in the file so a <cr> means carriage return.) <Begin proposed Change> In line 47 insert the following: <cr> tx_group50x65B<3249:0> is defined as: <cr> tx_group50x65B<65 * i + j> = tx_coded*i*<j> <cr> 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 "*" to indicate both subscripts and multiplication is confusing.

Implement the changes show in wienckowski_3ch_D3p0_comment51.pdf.

Cl **149B** *SC* **149B.2** *P* **202** *L* **32** # i-75

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *OAM*

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.

SuggestedRemedy

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.

Cl **149B** *SC* **149B.3** *P* **203** *L* **5** # i-76

Mcclellan, Brett Marvell Semiconductor, Inc.

Comment Type **TR** *Comment Status* **D** *OAM*

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

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149B** *SC* **149B.4.2.1** *P* **206** *L* **12** # i-78

Mcclellan, Brett Marvell Semiconductor, Inc.

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

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

SuggestedRemedy

page 205 line 16 insert new variable definition
" rf_valid
Defined in 149.3.7.2.2"
page 205 line 23 insert new subclause
"149B.4.2.2 Counters
RX_FRAME
Defined in 149.3.7.2.6 "

Proposed Response *Response Status* **W**

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, with appropriate formatting, " rf_valid -> Defined in 149.3.7.2.2"

P205 L 23 insert new subclause, with appropriate formatting,
"149B.4.2.3 Messages -> RX_FRAME -> Defined in 149.3.7.2.6 "

Cl **104** *SC* **104.9.4.3** *P* **70** *L* **35** # i-71

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

Comment Type **TR** *Comment Status* **D** *PoDL*

Type B and Type F have separate 'shalls' 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...

SuggestedRemedy

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 *Response Status* **W**

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 requestesd 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 [ ]"

Cl **104** *SC* **104.9.4.3** *P* **70** *L* **35** # i-85

Jonsson, Ragnar Aquantia

Comment Type **TR** *Comment Status* **D** *PoDL*

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.

Accomodated 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 [ ]"

Cl **104** *SC* **104.9.4.3** *P* **70** *L* **35** # i-86

Jonsson, Ragnar Aquantia

Comment Type **TR** *Comment Status* **D** *PoDL*

In Value/Comment "Clause 97" should be: "Clause 97 or Clause 149" in order to support Type F. The feature covers both Type B and Type F, so Clause 149 dedicated to Multi-Gig should be mentioned in addition to Clause 97.

SuggestedRemedy

For the PD20 row and Value/Comment colum change "Caluse 97" to "Clause 97 or Clause 149"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated 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 [ ]"

Cl **149** *SC* **149.3.2.2.14** *P* **100** *L* **29** # i-52

Lo, William

Comment Type **T** *Comment Status* **D** *RS-FEC*

The following text is confusing as it is not clear what constitute the leftmost/LSB element: "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.

SuggestedRemedy

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 *Response Status* **W**

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."

Cl **149** *SC* **149.3.2.2.17** *P* **102** *L* **7** # i-53

Lo, William

Comment Type **T** *Comment Status* **D** *RS-FEC*

The transmitted order of the codeword symbol can be made more explicit. Page 102 line 30 state bit 0 is transmitted first. From Page 102 line 6 m*i,0* can be inferred as bit 0 but this is not explictly 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.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.7.1** *P* **113** *L* **21** # i-32

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *State Diagrams*

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.3.7** *P* **123** *L* **18** # i-64

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

Comment Type **TR** *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.

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

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

Change the exit condition to exit "C" to add an " * !tx_lpi_req" to the existing condition, and add an additional exit to TX_WN, re-entering TX_WN with the condition !tx_lpi_req

Cl **149** *SC* **149.3.9.4.1** *P* **136** *L* **9** # i-33

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *State Diagrams*

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 *Response Status* **W**

PROPOSED ACCEPT.

Cl **149** *SC* **149.4.2.6.1** *P* **151** *L* **43** # i-81

Mcclellan, Brett Marvell Semiconductor, Inc.

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

This state diagram section including subclauses 149.4.2.6.1, 149.4.2.6.2, 149.4.2.6.3 and 149.4.2.6.4 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.

SuggestedRemedy

Insert new subclauses and renumber remaining subclauses as needed.
"149.4.2.6.1 Detailed functions and state diagrams
149.4.2.6.1.1 State diagram conventions
The body of this subclause is comprised of state diagrams, including the associated definitions of constants, variables, functions, counters, and messages. Should there be a discrepancy between a state diagram and
descriptive text, the state diagram prevails.
The notation used in the state diagrams follows the conventions of 21.5. "

Proposed Response *Response Status* **W**

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).

Cl **149** *SC* **149.4.4** *P* **155** *L* **43** # i-82

Mcclellan, Brett Marvell Semiconductor, Inc.

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.

SuggestedRemedy

Insert new subclauses and renumber remaining subclauses as needed.
"149.4.4 Detailed functions and state diagrams
149.4.4.1 State diagram conventions
The body of this subclause is comprised of state diagrams, including the associated definitions of constants, variables, functions, counters, and messages. Should there be a discrepancy between a state diagram and
descriptive text, the state diagram prevails.
The notation used in the state diagrams follows the conventions of 21.5. "

Proposed Response *Response Status* **W**

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).

Cl **149B** *SC* **149B.4.1** *P* **204** *L* **33** # i-34

Wienckowski, Natalie General Motors Company

Comment Type **T** *Comment Status* **D** *State Diagrams*

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

SuggestedRemedy

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 *Response Status* **W**

PROPOSED ACCEPT.

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

Change "false" to "FALSE" on P114 L18, P114 L31, P115 L19, P115 L34, P115 L38, P115 L40, P115 L44, P115 L45, P115 L49, P115 L54, P116 L4, P116 L11, P119 L25, P121 L7, P121 L39, P123 L19, P124 L17, P125 L 15, P125 L23, P126 L6, P126 L7, P126 L8, P126 L35, P126 L43, P138 L19, P138 L44, P138 L46, P139 L51, P139 L53, P149 L12, P152 L22, P156 L28, P157 L12, P158 L9, P190 L3, P204 L48, P205 L1, P205 L7, P205 L13, P206 L6, P206 L30, P206 L41.

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