Cl **00** *SC* **FM** *P* **1** *L* **1** # 300
Yseboodt, Lennart Signify

Comment Type **E** *Comment Status* **X**

Draft 2.1 does not contain change bars. Change bars are a good way to indicate where changes have happened and which parts of the draft are in scope.

SuggestedRemedy

Include change bars for D2.2 and drafts going forward.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **0** *L* **0** # 188
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Throughout the document the page numbers use different fonts and font sizes.

SuggestedRemedy

Unify font types and sizes within the draft document.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **1** *L* **31** # 184
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

802.3cb-201x and 802.3bt-201x were changed on page 11, but they also need to be changed on page 1. Also on line 2.

SuggestedRemedy

Change 802.3cb-201x to 802.3cb-2018 and 802.3bt-201x to 802.3bt-2018.

Proposed Response *Response Status* **O**

Cl **00** *SC* **0** *P* **8** *L* **16** # 476
Law, David HPE

Comment Type **E** *Comment Status* **X**

Please add the list of Working Group members for the IEEE P802.3cg ballot supplied by the IEEE 802.3 Working Group Chair.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **8** # 14
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

":." should be ":"

SuggestedRemedy

change ":." to ":" in this line.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **20** # 467
Law, David HPE

Comment Type **E** *Comment Status* **X**

Please move the text 'PHY' to be centre aligned with the squiggly brackets.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **24** # 397
Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**

Is >= 100 Mb/s correct since it also references 10BASE-T1L & 10BASE-T1S?

SuggestedRemedy

Change to >=10 Mb/s

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **24** # 22
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
typo in figure change "10ABSE-T1L, 10BASE-T1S"

SuggestedRemedy
change 10ABSE-T1L to 10BASE-T1L

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **24** # 189
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] 10ABSE-T1L

SuggestedRemedy
10BASE-T1L

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **24** # 466
Law, David HPE

Comment Type **E** *Comment Status* **X**
Please change '10ABSE-T1L' to read '10BASE-T1L'.

SuggestedRemedy
See comment.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **25** # 442
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Typo in Figure 1-1

SuggestedRemedy
Change "10ABSE-T1L" to "10BASE-T1L"

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **24** # 396
Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**
Spelling error "10ABSE-T1L"

SuggestedRemedy
Change to "10BASE-T1L"

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **30** # 443
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Note specifies xMII in diagram is only for 100 Mb/s and above.

SuggestedRemedy
Add 10BASE-T1L and 10BASE-T1S.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **24** # 86
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"10ABSE-T1L" should be "10BASE-T1L"

SuggestedRemedy
Change "10ABSE-T1L" to "10BASE-T1L"

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.1.3** *P* **25** *L* **31** # 85
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

The note at the foot of Figure 1-1 says "the xMII is used as a generic term for the Media Independent Interfaces for implementations of 100 Mb/s and above." but this term is now being used for 10BASE-T1L and 10BASE-T1S

SuggestedRemedy

Change the note to be consistent with the modified figure.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **25** *L* **41** # 87
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

IEC references in the in-force standard have an em dash in front of "Part" with no spaces on either side.

SuggestedRemedy

For all of the IEC references being added replace " - " before "Part" with an em dash with no spaces before and after.
For IEC references containing additional " - " separators, replace " - " with an em dash with no spaces before and after.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **25** *L* **54** # 75
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Add standards reference for the non-MICE1 interface to the normative references.

SuggestedRemedy

Add, "IEC 63171-6:201x, Connectors for Electrical and Electronic Components - Product Requirements - Part 6: Detail specification for 2-way and 4-way (data/power), shielded, free and fixed high density connectors for transmission capability and power supply capability with frequency up to 600 MHz" and, "Editor's note (to be removed prior to publication), IEC 63171-6 (formerly IEC 61076-3-125) is still in development. The publication date will need to be inserted and the document title and number confirmed." before the entry for ISO 4892:1982.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **26** *L* **12** # 15
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

missing space after comma between "2018," and "Electromagnetic"

SuggestedRemedy

Change
"IEC 61000-6-4:2018,Electromagnetic compatibility"
To
"IEC 61000-6-4:2018, Electromagnetic compatibility"

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **26** *L* **27** # 190
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] … use -EMC requirements ...

SuggestedRemedy

… use - EMC requirements … (add space before EMC)

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **26** *L* **36** # 76
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Incorrect punctuation.

SuggestedRemedy

Replace "," with "." at the end of the reference for IEC 63171-1:201x.

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **26** *L* **36** # 191
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] … cabling,

SuggestedRemedy

… cabling. (replace comma by dot).

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.3** *P* **26** *L* **41** # 80
Fritsche, Matthias HARTING Technology

Comment Type **ER** *Comment Status* **X**

The 10BASE-T1L link segment is defined for industrial use cases. IEEE802.3 ask TIA 42 and ISO/IEC SC25 WG3 via Liaison letter regarding a proposal for SPE connectors. At the last TIA 42 meeting in Mesa Oct. 2018 also TIA finish the connector selection and we have a consistent result from both cabling standardisation groups with “LC style” according to IEC 63171-1 and the “Industrial style” according to IEC 61076-3-125. To complete the IEEE 802.3cg this “Industrial style” SPE connector must be added for the industrial M2I2C2E2 and M3I3C3E3 applications.

SuggestedRemedy

Insert new normative references:
"IEC 61076-3-125: 201x Connectors for electrical and electronic components - Product requirements – Part 3-125: Connectors – Detail specification for 2-way and 4-way (data/power), shielded, free and fixed connectors for transmission capability and power supply capability with frequencies up to 600 MHz."

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4** *P* **27** *L* **2** # 192
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] 15m

SuggestedRemedy

15 m (add space)

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4.50a** *P* **26** *L* **53** # 88
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

According to the rules set out in:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#numbers
"In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000)."
The space in "1 000 m" is not in line with this.

SuggestedRemedy

Change "1 000 m" to "1000 m"

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4.389a** *P* **27** *L* **5** # 89
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

In the editing instruction, "IEEE Std 802.3bt-201x" should not split across two lines.

SuggestedRemedy

use a non-breaking hyphen (Esc - h)

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.4.389a** *P* **27** *L* **10** # 331
Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**

Market BS does not belong in the definition

SuggestedRemedy

Remove the words: “and improve performance”

Proposed Response *Response Status* **O**

Cl **01** *SC* **1.9** *P* **26** *L* **12** # 84
Fritsche, Matthias HARTING Technology

Comment Type **E** *Comment Status* **X**
space sign between "IEC 61000-6-4:2018,Electromagnetic" is missing

SuggestedRemedy
Corrected reference: "IEC 61000-6-4:2018, Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard
for industrial environments."

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.4** *P* **29** *L* **18** # 69
Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **X**
References to PLCA are made in this section but no mapping to the register control bits/status to know if it's an active feature or not is supplied.

SuggestedRemedy
Add (see 45.2.3.58f.1 and 45.2.3.58e.3) after "supported and enabled" in 22.2.2.4 and 22.2.2.8

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.4** *P* **29** *L* **20** # 71
Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **X**
Clause 148 defines the behavior of BEACON and COMMIT

SuggestedRemedy
Change "as explained in 148.4.5.1" to "as defined in 148.4.5.1".

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.4** *P* **29** *L* **20** # 193
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] 148.4.5.1 (too small font size)

SuggestedRemedy
148.4.5.1 (adjust font size as for normal text)

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.4** *P* **29** *L* **22** # 23
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
"Other values of TXD<3:0> with this combination of TX_EN and TX_ER shall have no effect upon the PHY." refers to other values spread over 2 paragraphs. Would be clearer to rewrite to specify the values here (related to unsatisfied comments i-292 and i-294

SuggestedRemedy
Replace "Other values of TXD<3:0> with this combination of TX_EN and TX_ER shall have no effect upon the PHY" with "When TX_EN is deasserted and TX_ER is asserted, values of TXD<3:0> other than 0001, 0010, and 0011 shall have no effect upon the PHY."

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.5** *P* **29** *L* **46** # 410
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**
Change "When TX_EN is deasserted, the assertion of "

SuggestedRemedy
Change "When TX_EN is deasserted, assertion of"

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.5** *P* **29** *L* **47** # 24

Zimmerman, George — CME Consulting et al

Comment Type **T** *Comment Status* **X**

"When TX_EN is deasserted, the assertion of the TX_ER signal shall not affect the transmission of data
when a PHY is operating at 10 Mb/s (with the exception of 10BASE-T1S and 10BASE-T1L), or when
TX_EN is deasserted." isn't quite correct, and should not be a parenthetical. It is part of the shall. the exception is actually only in conjunction with the TXD values specified in table 22-1, not in general for 10BASE-T1S and 10BASE-T1L , but for 10BASE-T1S operating with PLCA and 10BASE-T1L operating with EEE. (related to comment i-295 unsatisfied)

SuggestedRemedy

Change "When TX_EN is deasserted, the assertion of the TX_ER signal shall not affect the transmission of data when a PHY is operating at 10 Mb/s (with the exception of 10BASE-T1S and 10BASE-T1L), or when TX_EN is deasserted." to
"The assertion of TX_ER signal shall not affect the transmission of data for PHYs operating at 10 Mb/s except in any of the following cases: when TX_EN is deasserted, when 10BASE-T1S is operating with PLCA and TXD<3:0> equals 0010 or 0011, or when 10BASE-T1L is operating with EEE capability and TXD<3:0> equals 0001 (See Table 22-1)." ALSO - rewrite PICS SF18 to match.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.8** *P* **30** *L* **7** # 194

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] See 148.4.5.1 for … COMMIT. (too small font size)

SuggestedRemedy

See 148.4.5.1 for … COMMIT. (adjust font size as for normal text)

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.2.8** *P* **30** *L* **7** # 25

Zimmerman, George — CME Consulting et al

Comment Type **E** *Comment Status* **X**

"148.4.5.1 for the definition and usage of PLCA BEACON and COMMIT." appears to be in a smaller font than the rest of the paragraph.

SuggestedRemedy

Change the font size to match the paragraph style.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.2.1** *P* **31** *L* **6** # 90

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

The heading number for "Major capabilities/options" should be 22.8.2.3 (as per the editing instruction).

SuggestedRemedy

Change the heading number for "Major capabilities/options" to 22.8.2.3

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.3.2** *P* **31** *L* **20** # 91

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

The heading for 22.8.3.2 should not contain "(continued)"

SuggestedRemedy

Delete "(continued)" from the heading for 22.8.3.2

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.3.2** *P* **31** *L* **23** # 195
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] 22.8.3.2as

SuggestedRemedy
22.8.3.2 as (add space)

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.3.2** *P* **31** *L* **29** # 92
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
PICS item SF15 is being deleted. This has the effect of renumbering all of the PICS items with numbers above 15.

SuggestedRemedy
Show SF18 as changing to SF17 and change the inserted items to be SF38 through SF40

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.3.2** *P* **31** *L* **34** # 196
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] at10 Mb/s

SuggestedRemedy
at 10 Mb/s (add space)

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.3.2** *P* **31** *L* **34** # 26
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
PICS SF18 - missing space between "at10 Mb/s"

SuggestedRemedy
change to "at 10 Mb/s"

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.8.3.2** *P* **31** *L* **39** # 93
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"*PLCA:M" should be "PLCA:M" (no *)

SuggestedRemedy
Change "*PLCA:M" to "PLCA:M" (3 instances)

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **34** *L* **3** # 94
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Since the whole of Table 30-1c is shown in the draft, the editing instruction should be much simpler

SuggestedRemedy
Replace the editing instruction with:
"Change Table 30.2.5 as follows:"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.2.5** *P* **34** *L* **35** # 95
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Make the style of the changes to Table 30-1c follow the style of the in-force table

SuggestedRemedy
For the block of inserted rows, remove the cell borders in the 3 blocks of columns on the right hand side.
For all of the rows below the inserted rows (aRepeaterID onwards) remove the cell borders for the columns for "PHY Error Monitor Capability (optional)" and "PLCA Capability (optional)"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.2.1.2** *P* **35** *L* **38** # 197
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

… in APPROPRIATE SYNTAX section of …

SuggestedRemedy

… in APPROPRIATE SYNTAX in section of … (add "in")

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.2.1.3** *P* **35** *L* **46** # 198
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

… in APPROPRIATE SYNTAX section of …

SuggestedRemedy

… in APPROPRIATE SYNTAX in section of … (add "in")

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.1.1** *P* **36** *L* **18** # 96
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

As pointed out by comment #36 against D2.0:
The 802.3 web page:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#mib
says: "In IEEE Std 802.3 the spelling 'behaviour' is used throughout MIB clauses and their associated Annexes, and in any references to the behaviours defined there."

SuggestedRemedy

Change "behavior" to "behaviour"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.1.2** *P* **36** *L* **26** # 332
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

BEHAVIOUR definition not sufficiently precise. Is this the results of an (undefined) test or is it whether or not the relevant state machine is enabled or clamped? Is the test independent of the contros or just an indicator of how the controls are set.

SuggestedRemedy

Expand the definition so it is prescisely known what drives the attribute.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.2.1** *P* **36** *L* **38** # 333
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

This ACTION alone should not be alone be able to turn on PLCA. All of the other requirements, e.g. half-duplex need to be met as well.

SuggestedRemedy

Expand the definition to accurately reflect how it should work.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.2.3** *P* **37** *L* **11** # 199
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

… to define highest node ID …

SuggestedRemedy

… to define the highest node ID … (add "the")

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.2.5** *P* **37** *L* **31** # 334
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**
BEHAVIOUR definition not completely clear. Add clarifying text

SuggestedRemedy
Change 1st sentence to read: “...PLCA transmit opportunities for a specific LocalNodeID.”

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.2.5** *P* **37** *L* **33** # 97
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
According to the rules set out in:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#numbers
"In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000)."

SuggestedRemedy
Change "65535" to "65 535"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.9.2.5** *P* **37** *L* **33** # 16
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**
"expressed as a the duration" should be "expressed as the duration"

SuggestedRemedy
change "expressed as a the duration"
to "expressed as the duration"

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.2** *P* **37** *L* **44** # 200
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
… in APPROPRIATE SYNTAX section of …

SuggestedRemedy
… in APPROPRIATE SYNTAX in section of … (add "in")

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.2** *P* **37** *L* **46** # 98
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Comment #41 against D2.0 was:
ACCEPT IN PRINCIPLE
Replace, "Insert the following new entries in APPROPRIATE SYNTAX after the entry for "1000BASE-T":"
with, "Insert the following new entries in the APPROPRIATE SYNTAX section of 30.5.1.1.2 after the entry for "10BASE-TS":"

SuggestedRemedy
Change "1000BASE-T" to "10BASE-TS"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2** *P* **39** *L* **20** # 335
Thompson, Geoff GraCaSI S.A.

Comment Type **E** *Comment Status* **X**
“Namely” is not standards style grammar.

SuggestedRemedy
Replace “namely 10BASE-T1S” with “(that is 10BASE-T1S)”

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2** *P* **39** *L* **20** # 70
Slavick, Jeff Broadcom

Comment Type **E** *Comment Status* **X**

There is no reason to include the ", namely 10BASE-T1S," text unless this is going to be the only PHY to ever use PLCA.

SuggestedRemedy

Delete ", namely 10BASE-T1S,"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2** *P* **39** *L* **23** # 99
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The editing instruction does not say where to put the new row and the ")" is missing from the end.

SuggestedRemedy

Change:
"Change the row for 14 through 28 and insert new row in Table 45–1 as follows (unchanged rows not shown:" to:
"Change the row for 14 through 28 and insert a new row below the changed row in Table 45–1 as follows (unchanged rows not shown):"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2** *P* **39** *L* **37** # 100
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The editing instruction does not say where to put the new row.

SuggestedRemedy

Change:
"Change the row for m.6.12:0 and insert new row in Table 45–2 as follows (unchanged rows not shown):" to:
"Change the row for m.6.12:0 and insert new row above the changed row in Table 45–2 as follows (unchanged rows not shown):"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2** *P* **39** *L* **49** # 101
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

This should show "m.6.12:0" changing to "m.6.11:0" but it shows "m.12:0" changing to "m.11:0"

SuggestedRemedy

Replace with "m.6.1<u>1</u><s>2</s>:0"
Where <u> and </u>b are the start and end of underline font
and <s> and </s> are the start and end of strikethrough font

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **40** *L* **3** # 201
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Font size of 45-3 does not fit.

SuggestedRemedy

Adjust font size to normal text font size.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **40** *L* **15** # 106

Anslow, Pete — Ciena

Comment Type **T** *Comment Status* **X**

The last 4 register addresses shown in Table 45-3 are:
1.2296 10BASE-T1L test mode control
1.2297 10BASE-T1S PMA control
1.2298 10BASE-T1S PMA status
1.2303 10BASE-T1S test mode control

but the registers shown in 45.2.1.186e through 45.2.1.186h are:
1.2298 10BASE-T1L test mode control
1.2299 10BASE-T1S PMA control
1.2300 10BASE-T1S PMA status
1.2303 10BASE-T1S test mode control

The first three of these do not match.

SuggestedRemedy

Either change the entries in Table 45-3 or the values in the corresponding subclauses so that the values match.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **40** *L* **19** # 202

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[MDIO REGISTERS] Register address 1.2303 is unaligned with the other management registers in table 45-3.

SuggestedRemedy

Please move register 1.2303 in this table up to address 1.2299, as this has been done for the other 10BASE-T1L and 10BASE-T1S registers from D2.0 to D2.1 and afterwards change the other occurances of register 1.2303 in D2.1 to the new register address 1.2299.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.16** *P* **40** *L* **27** # 203

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Font size of 45-19 does not fit.

SuggestedRemedy

Adjust font size to normal text font size.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185** *P* **41** *L* **3** # 204

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Font size of 45-149 does not fit.

SuggestedRemedy

Adjust font size to normal text font size.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185.2** *P* **41** *L* **22** # 102

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

Inappropriate editing instruction: "Change the paragraph for bits 1.2100.3:0 as follows:"

SuggestedRemedy

Replace with "Change the text of 45.1.185.2 as follows:"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185.2** *P* **41** *L* **25** # 103

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

The new sentences "When these bits are set to 0010, the mode of operation is 10BASE-T1L. When these bits are set to 0011, the mode of operation is 10BASE-T1S." are not in the correct place.

SuggestedRemedy

Move the two new sentences to be after "When these bits are set to 0001, the mode of operation is 1000BASE-T1."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185.2** *P* **41** *L* **25** # 205

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[MDIO REGISTERS] Ordering of 10BASE-T1L, 10BASE-T1S, 100BASE-T1 and 1000BASE-T1 is reversed in the text compared to Table 45-149.

SuggestedRemedy

Move underlined (new) sentences below the sentence describing 1000BASE-T1 to stay in order with Table 45-149.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.185.2** *P* **41** *L* **30** # 206

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[MDIO REGISTERS] Insert 45.2.1.186a through 45.2.1.186h after 45.2.1.186 as follows:

SuggestedRemedy

Insert 45.2.1.186a through 45.2.1.186f after 45.2.1.186 as follows: (it is three 10BASE-T1L and three 10BASE-T1S registers, so six PMA registers in total, numbered from a to f). Rename also chapters 45.2.1.186c to 45.2.1.186h to start with 45.2.1.186a, rename also the references in Table 45-3 and in other positions of the document (Clause 45 PICS, several times, page 125, line 3, page 133, line 21, page 139, line 24, page 141, line 6, page 144, line 32, Clause 146 PICS, several times, page 183, line 11, page 187, line 10, Clause 147 pics, two times).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186a** *P* **41** *L* **22** # 104

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

The editing instruction has the incorrect end heading number.
The new headings start at 45.2.1.186c, but this should be 45.2.1.186a

SuggestedRemedy

In the editing instruction, change "45.2.1.186h" to "45.2.1.186f"
Renumber 45.2.1.186c through 45.2.1.186h to be 45.2.1.186a through 45.2.1.186f

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186a** *P* **41** *L* **30** # 27

Zimmerman, George — CME Consulting et al

Comment Type **E** *Comment Status* **X**

Editing instruction and numbering of subclauses is messed up - says "Insert 45.2.1.186a through 45.2.1.186h after 45.2.1.186 as follows:" but there are only 6 subclauses. They should be 186a through 186f, but are currently labeled 186c through 186h.

SuggestedRemedy

Change editing instruction to read "Insert 45.2.1.186a through 45.2.1.186f after 45.2.1.186 as follows:" and renumber 45.2.1.186c as 45.2.1.186a, (and subsequently change 186d to 186b, 186e to 186c, 186f to 186d, 186g to 186e, and 45.2.1.186h to 45.2.1.186f).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186c** *P* **41** *L* **50** # 207

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

EEE functionality

SuggestedRemedy

EEE config value (match description to description of clause 45.2.1.186c.5).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186c.1** *P* **42** *L* **16** # 336
Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**
The text “shall be ignored” is untestable.

SuggestedRemedy
Replace with: “Reads for all other bits are indeterminate and shall be considered invalid”

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186c.1** *P* **42** *L* **17** # 378
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**
Add "NOTE-" to the warning at line 17 to make it look uniform with 45.2.1.1.186c.4 line 48.

SuggestedRemedy
Replace "This operation may interrupt data communication" with "NOTE -- This operation may interrupt data communication."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186c.3** *P* **42** *L* **34** # 105
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"146.5.4.1" should be a cross-reference

SuggestedRemedy
Make "146.5.4.1" a cross-reference (2 instances)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186c.4** *P* **42** *L* **44** # 337
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**
The behavior coming out of sleep is not implementation specific, it is governed by what happens upon reset.

SuggestedRemedy
Fix text.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186c.6** *P* **43** *L* **14** # 338
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**
What is thw point of having loopback with the MDI connector disconnected? If you are going to unplug the media you can plug in a shorting connector.

SuggestedRemedy
Change to say that loopback will disconnect the receive circuit and loop it to the transmit circuit.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186d.3** *P* **44** *L* **11** # 208
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
low-power feature (2 occurences in this line)

SuggestedRemedy
low-power ability (low power ability is the wording used at other positions, so this should be aligned to the rest of the text).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186d.7** *P* **44** *L* **32** # 339
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**
Doesn't say whether the indication is latching or not. Needs to be specified. I would suggest latching. Latch could be cleared by cycling the 1.2295.9 bit.

SuggestedRemedy
Modify text accordingly

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186e.1** *P* **45** *L* **11** # 209
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[MDIO REGISTERS] Register 1.2298 is not reflecting the 10BASE-T1L test mode control register after renumbering from D2.0 to D2.1.

SuggestedRemedy
Change all instances of 1.2298 to 1.2296 within Clauses 45.2.1.186e, Table 45-150c and 45.2.1.186e.1 (in total 6 instances). Check also other Clauses (1 instance in 146.5.2, page 139, line 23 and 1 instance in 146.11.4.2.2, page 160, line 10)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186e.1** *P* **45** *L* **23** # 210
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] 146.5.4.2 is the wrong reference.

SuggestedRemedy
146.5.2 (this is the chapter about test modes in Clause 146).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186e.1** *P* **45** *L* **23** # 414
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**
incorrect cross reference

SuggestedRemedy
Change "are described in 147.5.1" to "are described in 147.5.2"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f** *P* **46** *L* **1** # 17
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**
"TableTable" should be "Table"

SuggestedRemedy
change "TableTable" to "Table"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f** *P* **46** *L* **11** # 211
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] 1.2299:13:12 and 1.2299:9:1

SuggestedRemedy
1.2297.13:12 and 1.2297.9:1 (replace 2 times a ":" by a "." and change register address to 1.2297).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f** *P* **46** *L* **26** # 212
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[MDIO REGISTERS] Register 1.2299 is not reflecting the 10BASE-T1S PMA control register after renumbering from D2.0 to D2.1.

SuggestedRemedy

Change all instances of 1.2299 to 1.2297 within Clauses 45.2.1.186f, Table 45-150d and sub clauses (in total 30 instances). Check also the other Clauses of 802.3cg for required register address changes (page 48, line 48, page 49, lines 1 and 2, page 63, line 49, page 64, line 5 and following (many instances there), page 187, line 10, page 198, line 32).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f.1** *P* **46** *L* **39** # 18
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

Change "This operation may interrupts communication." to "This operation may interrupt communication."

SuggestedRemedy

Change "This operation may interrupts communication."
to "This operation may interrupt communication."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f.1** *P* **46** *L* **39** # 379
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**

Add "NOTE-" to the warning at line 39 to make it look uniform with 45.2.1.1.186c.4 line 48.

SuggestedRemedy

Replace "This operation may interrupts data communication" with "NOTE -- This operation may interrupt data communication.". Please note that this fixes a typo as well (interruptS).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f.1** *P* **46** *L* **39** # 107
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"This operation may interrupts communication." should be "This operation may interrupt communication."

SuggestedRemedy

Change "interrupts" to interrupt"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f.3** *P* **47** *L* **11** # 108
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"NOTE—. The time" should be "NOTE—The time"

SuggestedRemedy

Change "NOTE—. The time" to "NOTE—The time" (delete "." and a space)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186f.3** *P* **47** *L* **11** # 213
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Note-.

SuggestedRemedy

Note- (remove dot).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186g** *P* **48** *L* # 214
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[MDIO REGISTERS] Register 1.2300 is not reflecting the 10BASE-T1S PMA status register after renumbering from D2.0 to D2.1.

SuggestedRemedy

Change all instances of 1.2300 to 1.2298 within Clauses 45.2.1.186g, Table 45-150e and sub clauses (in total 24 instances). Check also the other Clauses of 802.3cg for required register address changes (page 47, line 20, page 65, line 18).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186g** *P* **48** *L* **29** # 109
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Footnote a to Table 45-150e should be just "RO = Read only"

SuggestedRemedy

delete ", R/W = Read/Write," from footnote a to Table 45-150e

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.186h.1** *P* **49** *L* **36** # 415
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

incorrect cross reference

SuggestedRemedy

Change "are described in 146.5.4.2" to "are described in 147.5.2"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **50** *L* **18** # 110
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

The name of register 3.2292 is 10BASE-T1S PCS status in Table 45-176, but it is 10BASE-T1S PCS status 1 in 45.2.3.68d

SuggestedRemedy

Either change the name in Table 45-176 or in 45.2.3.68d so that they match.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P* **50** *L* **25** # 215
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] 45.2.3.68i is a wrong reference.

SuggestedRemedy

45.2.3.68e (there are only 5 PCS MDIO registers for 10BASE-T1L and 10BASE-T1S)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68.6** *P* **54** *L* **23** # 116
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The heading for Remote Jabber Count (3.2293.15:0) should be 45.2.3.68e.1

SuggestedRemedy

Renumber the heading for Remote Jabber Count (3.2293.15:0) to 45.2.3.68e.1

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68.6** *P* **54** *L* **25** # 117
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Text is not explicit enough

SuggestedRemedy
Change to:
"Bits 3.2293.15:0 report the number of received jabber events occurred since last time register 3.2293 was read."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68.6** *P* **54** *L* **26** # 371
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **X**
The Jabber counter is not supposed to wrap once it reaches its maximum value.

SuggestedRemedy
Add the following text after "Reports ... read":
"The Remote Jabber count shall not wrap. When the maximum allowed value (65535) is reached, the counts stops until this register is cleared by a read operation"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68a** *P* **50** *L* **25** # 111
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
The editing instruction has the incorrect end heading number.

SuggestedRemedy
In the editing instruction, change "45.2.3.68i" to "45.2.3.68e"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68a** *P* **50** *L* **42** # 216
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] self-clearing

SuggestedRemedy
Self-clearing (use capital "S" at the beginning, see other occurences in 802.3 standard).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68c** *P* **52** *L* **36** # 385
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**
Title of Table 45-237c is wrong.

SuggestedRemedy
Change title to "10BASE-T1S control register bit definitions"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68c** *P* **52** *L* **43** # 112
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
The title of Table 45-237c is incorrect

SuggestedRemedy
Change the title to:
"Table 45–237c—10BASE-T1S PCS control register bit definitions"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68c** *P* **52** *L* **43** # 29
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
Title of Table 45-237c is incorrect

SuggestedRemedy
Change "10BASE-T1S diagnostic register" to "10BASE-T1S PCS control register"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68d** *P* **53** *L* **28** # 386
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**

Title of subclause is wrong.

SuggestedRemedy

Remove "1" after PCS status in the sub-clause name. Do the same in the register description (lines 30-32). Do the same for table 45-237d title.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68d** *P* **53** *L* **38** # 382
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **X**

PLCA requires the PCS to be able to encode/decode COMMIT and BEACON requests/indications coming from the RS and the line. For this reason the PHY needs to advertise the management entity whether the PCS supports such feature or not.

SuggestedRemedy

In table 45-237d (PCS status 1 register bit definition) do the following changes:
- Remove bit 15 from the "reserved" bucket
- Add on top the following line: "3.2292.15 | PLCA support | 0 = PCS does not support PLCA coding over the MII
1 = PCS supports PLCA coding over the MII | RO"

Add subclause: 45.2.3.68d.2 PLCA support (3.2292.15)
When read as '1' bit 3.2292.15 indicates the PCS is able to properly encode/decode PLCA COMMIT and BEACON requests to/from the line and over MII as specified in 22.2.2.4 and 22.2.2.8. When read as '0' bit 3.2292.15 indicates the PCS does not support PLCA RS required functions.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68d** *P* **53** *L* **40** # 377
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Fault bit should be a latch high bit

SuggestedRemedy

In table 45–237d set the R/W field for bit 3.2292.7 (Fault) to RO-LH

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68d** *P* **53** *L* **43** # 113
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Footnote a to Table 45-237d should be just "RO = Read only"

SuggestedRemedy

delete ", LH = Latching high, LL = Latching low" from footnote a to Table 45-237d

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68e** *P* **54** *L* **14** # 114
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The title of Table 45-237e is incorrect

SuggestedRemedy

Change the title to:
"Table 45–237e—10BASE-T1S PCS diagnostic register bit definitions"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68e** *P* **54** *L* **14** # 30
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

Title of Table 45-237e is incorrect

SuggestedRemedy

Change to "10BASE-T1S PCS status 1 register" to "10BASE-T1S diagnostic register"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.68e** *P* **54** *L* **17** # 115

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The Name for bits 3.2293.15:0 in Table 45-237e is "RemJabCnt" but the title of 45.2.3.68.6 (should be 45.2.3.68e.1) is "Remote Jabber Count"

SuggestedRemedy

Change the Name entry for bits 3.2293.15:0 in Table 45–237e to "Remote Jabber Count"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7** *P* **54** *L* **31** # 118

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"adjust reserved row" is not a valid editing instruction.

SuggestedRemedy

replace with "change reserved row"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7** *P* **54** *L* **37** # 119

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The subclause fields for the two added registers should not be blank.

SuggestedRemedy

Populate the subclause fields for the two added registers with "45.2.7.25" and "45.2.7.26" (cross-references)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7.25** *P* **54** *L* **49** # 217

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

The default value for each bit of the 10BASE-T1 AN control register has been chosen so that the initial state of the device upon power up or completion of reset is a normal operational state without management intervention.

SuggestedRemedy

The default values are missing for register 7.526. Proposal for 10BASE-T1L bits 7.526.15:12 is "1000" (advertise 10BASE-T1L full duplex ability, do not advertise EEE, do not advertise increased transmit level ability, do not advertise increased transmit level request).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7.25.3** *P* **56** *L* **3** # 218

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

If the device supports transmission and reception with the 2.4 Vpp transmit output voltage mode for 10BASE-T1L, as defined in 146.5.4.1, and 2.4 Vpp transmit output voltage operation is desired, bit 7.526.13 shall be set to one.

SuggestedRemedy

If the device supports the 2.4 Vpp operating mode for 10BASE-T1L, as defined in 146.5.4.1, bit 7.526.13 shall be set to one. (the 2.4 Vpp transmission and reception is called "2.4 Vpp operating mode within Clause 146, bit 7.526.12 is only the increased transmit/receive level ability advertising, thus this bit is independent on the desired operating mode)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7.25.4** *P* **56** *L* **9** # 219
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

If the device supports transmission and reception with the 2.4 Vpp transmitter output voltage for 10BASE-T1L, as defined in 146.5.4.1, and 2.4 Vpp transmit voltage operation is desired, bit 7.526.12 is set to one.

SuggestedRemedy

If the device supports the 2.4 Vpp operating mode for 10BASE-T1L, as defined in 146.5.4.1, and the 2.4 Vpp operating mode is desired, bit 7.526.12 is set to one. (7.526.12 is the bit, which enables the 2.4 Vpp mode, if both PHYs support it and at least one PHY requests it (see Clause 146.5.4.1))

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7.25.5** *P* **46** *L* **17** # 19
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

"PHYshall" should be "PHY shall"

SuggestedRemedy

change both instances of "PHYshall" in the document to "PHY shall"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.7.26** *P* **57** *L* **39** # 120
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Footnote a to Table 45-330b should be just "RO = Read only"

SuggestedRemedy

delete ", R/W = Read/Write" from footnote a to Table 45-330b

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.1** *P* **58** *L* **6** # 220
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

… rows not shown):.)

SuggestedRemedy

… rows not shown): (remove ".)")

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.1** *P* **58** *L* **6** # 20
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

":.)" should be ":"

SuggestedRemedy

change ":.)" to ":"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **25** # 21
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

change ":." to ":"

SuggestedRemedy

change ":." to ":"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **25** # 221
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

… rows not shown):.

SuggestedRemedy

… rows not shown): (remove ".")

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **32** # 121
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"…" missing from first row of Table 45-340

SuggestedRemedy
Add "…" to first row of Table 45-340

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **38** # 31
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
PoDL Status register has Class code 11 twice

SuggestedRemedy
Change entry for 1010 to read Class code 10

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **39** # 122
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
There are two rows for "Class code 11"
"1 0 1 0 = Class code 11" should be "1 0 1 0 = Class code 10"

SuggestedRemedy
Change "1 0 1 0 = Class code 11" to "1 0 1 0 = Class code 10"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **39** # 6
Regev, Alon Keysight Technologies

Comment Type **T** *Comment Status* **X**
The PD class for bits 13.1.6:3 equal to "1 0 1 0" should be "Class code 10", not "Class code 11"

SuggestedRemedy
Change
"1 0 1 0 = Class code 11"
To
"1 0 1 0 = Class code 10"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **49** # 222
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
R/W = Read/Write

SuggestedRemedy
RO = Read Only (replace R/W section by RO, as all bits are read only or Latching High, but not writetable)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2** *P* **58** *L* **49** # 123
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**
Footnote a to Table 45-340 should be "RO = Read Only, LH = Latching High"

SuggestedRemedy
In Footnote a to Table 45-340, change "R/W = Read/Write, LH = Latching High" to "RO = Read Only, LH = Latching High"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.2.8** *P* **59** *L* **1** # 124

Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

The text in 45.2.9.2.8 describes bits 13.1.6:3, so needs to change

SuggestedRemedy

Bring 45.2.9.2.8 in to the draft and show:
"when read as 1000 a Class 8 PD is indicated, and when read as 1001 a Class 9 PD is indicated." as changing to:
"when read as 1000 a Class 8 PD is indicated, when read as 1001 a Class 9 PD is indicated, when read as 1010 a Class 10 PD is indicated, when read as 1011 a Class 11 PD is indicated, when read as 1100 a Class 12 PD is indicated, when read as 1101 a Class 13 PD is indicated, when read as 1110 a Class 14 PD is indicated, and when read as 1111 a Class 15 PD is indicated."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.3** *P* **59** *L* **3** # 125

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Editing instruction needs improvement.

SuggestedRemedy

Change "insert row for new Bits 13.2.8:3 in" to "insert a new row for Bits 13.2.8:3 above the row for Bits 13.2.2:0 in"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.9.3.2** *P* **59** *L* **26** # 126

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The text in 45.2.9.3.2 describes bits 13.2.2:0, so needs to change

SuggestedRemedy

Bring 45.2.9.3.2 in to the draft and show:
"when read as 010, a Type C PD is indicated; and when read as 011, a Type D PD is indicated. Values of 10x and 110 are reserved." as changing to:
"when read as 010, a Type C PD is indicated; when read as 011, a Type D PD is indicated; and when read as 100, a Type E PD is indicated. Values of 101 and 110 are reserved."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.13** *P* **59** *L* **29** # 127

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Editing instruction is unnecessarily complicated.

SuggestedRemedy

Change to:
"Insert 45.2.13 (including is subclauses) after 45.2.12 as follows:"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.13** *P* **59** *L* **31** # 366

Baggett, Tim Microchip

Comment Type **T** *Comment Status* **X**

Add management registers for controlling PLCA PHY precedence.

[PHY_PRECEDENCE]

SuggestedRemedy

A presentation was given in the 24 Oct ad-hoc. An updated presentation and proposed text changes will be made available prior to the meeting in Bangkok.

Summary of changes:
1) Update the PLCA control state machine to support transmission and reception of preemption request (PRQ) in unused TO. Reception of PRQ will cause the PLCA coordinator (localID==0) to restart the cycle by issuing a new BEACON.

2) Add configurable PRQ transmission and reception time control variable to filter against impulse noise.

3) Add precedence preemption enable/disable control variable. When disabled, current PLCA behavior is exhibited.

4) Add control variable for identifying first TO which may be used in transmitting/receiving PRQ.

5) Add control variable for limiting how many cycles may be preempted before the coordinator will force a full cycle to prevent starving low precedence PHYs.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.13** *P* **59** *L* **35** # 128
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
The title of Table 45-351a is not correct.

SuggestedRemedy
Change the title to: "PLCA registers"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.13.2** *P* **60** *L* **31** # 387
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**
Typo: missing space between "2" and "register".

SuggestedRemedy
Fix typo.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.13.2** *P* **60** *L* **31** # 129
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Space missing in "control 2register"

SuggestedRemedy
Change "control 2register" to "control 2 register"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.13.2** *P* **60** *L* **32** # 457
McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**
fix typo

SuggestedRemedy
change "PLCA control 2register"
to "PLCA Control 2 register"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.3.9** *P* **68** *L* **31** # 232
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
7.526.7

SuggestedRemedy
7.526.6 (7.526.6 is the 10BASE-T1S half duplex ability advertising bit).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **62** *L* **13** # 224
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
There are several sentences with and without a dot at the end.

SuggestedRemedy
Please unify the usage of a dot at the end of a sentence within the PICS tables.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **62** *L* **13** # 223
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
Bits 1.2100.3:0 are ignored with Auto-Negotiation enable bit 7.512.12 is set to one.

SuggestedRemedy
Bits 1.2100.3:0 are ignored when Auto-Negotiation enable bit 7.512.12 is set to one.
(replace with by when)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **62** *L* **18** # 225

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

10BASE-T1L PMA/PMD returns a one in bit 1.2294.15 when a reset is in progress; otherwise, return a value of zero

SuggestedRemedy

10BASE-T1L PMA/PMD returns a one in bit 1.2294.15 when a reset is in progress; otherwise, it returns a value of zero. (add it and add an "s" at the end of return)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **63** *L* **5** # 226

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Handling of bit 1.2294.12 is missing, if Auto-Negotiation is enabled.

SuggestedRemedy

Add a new Item below MM166 with the following feature content: Bit 1.2294.12 is ignored when Auto-Negotiation is enabled. Subclause reference needs to be 45.2.1.186a.3 (after renumbering), Status PMA:M, support Yes [ ], N/A [ ].

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **63** *L* **13** # 227

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Low Power Bit 1.2294.11 is already handled in MM167 to MM169. EEE is handled by MM172 to MM174.

SuggestedRemedy

Please delete MM170 and MM171.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **63** *L* **26** # 228

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] When bit 1.2294.0 is set to one, the 10BASE-T1L PMA is placed into near-end loopback mode, and accept data on the transmit path and return it on the receive path.

SuggestedRemedy

[EASY] When bit 1.2294.0 is set to one, the 10BASE-T1L PMA is placed into near-end loopback mode, and accepts data on the transmit path and returns it on the receive path. (add "s" after accept and return).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **64** *L* **29** # 1

Regev, Alon — Keysight Technologies

Comment Type **E** *Comment Status* **X**

The sentence "When bit 1.2299.0 is set to one, the 10BASE-T1S PMA is placed into loopback mode, and accept data on the transmit path and return it on the receive path." has grammar errors

SuggestedRemedy

Change
"When bit 1.2299.0 is set to one, the 10BASE-T1S PMA is placed into loopback mode, and accept data on the transmit path and return it on the receive path."

To
"When bit 1.2299.0 is set to one, the 10BASE-T1S PMA is placed into loopback mode, where the PMA accepts data on the transmit path and returns it on the receive path."

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **64** *L* **30** # 229
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

When bit 1.2299.0 is set to one, the 10BASE-T1S PMA is placed into loopback mode, and accept data on the transmit path and return it on the receive path.

SuggestedRemedy

When bit 1.2297.0 is set to one, the 10BASE-T1S PMA is placed into loopback mode, and accepts data on the transmit path and returns it on the receive path. (add "s" after accept and return and modify register address from 1.2299 to 1.2297 to match Table 45-3)

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.3** *P* **65** *L* **20** # 230
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

The 10BASE-T1S PMA/PMD that is unable to detect a fault condition on the receive path returns a value of zero for bit 1.2295.1

SuggestedRemedy

The 10BASE-T1S PMA/PMD that is unable to detect a fault condition on the receive path returns a value of zero for bit 1.2298.1 (change register from 1.2295 to 1.2298).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.9** *P* **68** *L* **3** # 130
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"after Item 93 in" should be "after Item AM93 in"

SuggestedRemedy

Change "after Item 93 in" to "after Item AM93 in"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.9** *P* **68** *L* **16** # 231
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

If a 10BASE-T1L PHY supports transmission and reception with the 2.4 Vpp transmit output voltage mode and desires to operate in 2.4 Vpp transmit output voltage mode, bit 7.526.13 is set to one

SuggestedRemedy

If a 10BASE-T1L PHY supports the 2.4 Vpp operating mode, bit 7.526.13 is set to one (bit 7.526.13 only negotiates the ability, not the desired operation; the request/desire is negotiated using bit 7.526.12, but as there is no shall, there is no PICS entry for bit 7.526.12).

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.9** *P* **68** *L* **42** # 2
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

The description "When the AN process is complete, the 10BASE-T1 AN status register reflect the contents of the link partners 10BASE-T1 AN control register" has some grammar errors.

SuggestedRemedy

Change
"When the AN process is complete, the 10BASE-T1 AN status register reflect the contents of the link partners 10BASE-T1 AN control register"

To
"When the AN process is complete, the 10BASE-T1 AN status register reflects the contents of the link partner's 10BASE-T1 AN control register"

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.5.3.24** *P* **69** *L* **7** # 131
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The Status entry is "PLCA:M" but "PLCA" is not defined in the Clause 45 PICS.

SuggestedRemedy

Add a row to the Clause 45 PICS to define "*PLCA"

Proposed Response *Response Status* **O**

Cl **78** *SC* **78** *P* **70** *L* **1** # 32
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"Energy-Efficient Ethernet (EEE)to zero" should be "Energy-Efficient Ethernet (EEE)".

SuggestedRemedy

Change "Energy-Efficient Ethernet (EEE)to zero" to be "Energy-Efficient Ethernet (EEE)".

Proposed Response *Response Status* **O**

Cl **78** *SC* **78** *P* **70** *L* **1** # 444
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Title has extra trailing text.

SuggestedRemedy

Delete "to zero" at end of line.

Proposed Response *Response Status* **O**

Cl **78** *SC* **78** *P* **70** *L* **1** # 233
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Energy-Efficient Ethernet (EEE)to zero

SuggestedRemedy

Energy-Efficient Ethernet (EEE) (remove "to zero")

Proposed Response *Response Status* **O**

Cl **78** *SC* **78** *P* **70** *L* **1** # 132
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The title of Clause 78 is not "Energy-Efficient Ethernet (EEE)to zero"

SuggestedRemedy

Delete "to zero" from the end of the title of Clause 78.

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.2** *P* **70** *L* **32** # 234
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Tq Min 2000, Tq Max 2100

SuggestedRemedy

Change Tq Min to 20 000 and Tq Max to 21 000 (during the last meeting it was discussed to decrease the clock tolerance significantly from 5 ppm to 0.5 ppm, therefore the quiet time can be increased by the same value as the clock tolerance goes down).

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **13** # 72
Slavick, Jeff Broadcom

Comment Type **TR** *Comment Status* **X**

You've added a new rate at which AN can operate at. The updated text states that you can support either or both. But this can break backwards compatability since a Cl 97 based PHY based on cg Cl98 would then be able to choose to only support Low Speed AN, while Cl97 PHY based upon 2018 Std Cl98 would mandatorly only support High Speed.

SuggestedRemedy

Bring in 97.4.2.4.10 and add appropriate text to indicate that AN HighSpeed signalling rate during AN is the only supported AN rate.

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **13** # 33
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"There exist two different Auto-Negotiation speeds, from which at least one Auto-Negotiation speed shall be
supported. Two different Auto-Negotiation speeds are defined in this subclause. A PHY shall support at
least one of these Auto-Negotiation speeds." - the first sentence is redundant and a duplicate shall with the (new) 2nd and 3rd).

SuggestedRemedy

Delete "There exist two different Auto-Negotiation speeds, from which at least one Auto-Negotiation speed shall be
supported. "

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **14** # 235
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

Information in the first three sentences of the mentioned paragraph is redundant.

SuggestedRemedy

Remove first sentence ("There exist … shall be supported.")

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **14** # 340
Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**

Text does not make clear whether there are two network speeds or 2 auto-neg speeds.

SuggestedRemedy

Change first phrase to read: “There exists two speeds at which Auto-Negotiation operates,”

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **15** # 479
Bains, Amrik Cisco Systems INC

Comment Type **T** *Comment Status* **X** *Late*

From the text starting on line 16 to line 20 implies 10BASE-T1S can use HSM or LSM for auto-negotiation, but HSM speed is higher than12MBd. This means only option is LSM for speed for 10BASE-T1L and 10BASE-T1S

SuggestedRemedy

HSM serves all speeds above 10 Mb/s and LSM serves 10Mb/s auto-negogiation

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **19** # 463
McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

shall statements are not necessary in this section to describe behavior. The normative requirements are in the next paragraph.

SuggestedRemedy

change "When performing Auto-Negotiation in high-speed mode, DME pages shall be transmitted at a nominal data rate of 16.667 Mb/s. Doing Auto-Negotiation in low-speed mode, DME pages shall be transmitted at a nominal data rate of 625 kb/s. If both Auto-Negotiation speeds are supported, a state diagram shall be implemented to automatically choose between the different Auto-Negotiation speeds, as described in 98.5.6."

to "When performing Auto-Negotiation in high-speed mode, DME pages are transmitted at a nominal rate of 16.667 Mb/s. In low-speed mode, DME pages are transmitted at a nominal rate of 625 kb/s. If both Auto-Negotiation speeds are supported, a state machine selects the Auto-Negotiation speed, as described in 98.5.6."

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **21** # 34
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"If both Auto-Negotiation speeds are supported, a state diagram shall be implemented to automatically choose between the different Auto-Negotiation speeds, as described in 98.5.6." this is a duplicate shall to the first sentence of 98.5.6, which is the appropriate place for the shall.

SuggestedRemedy

Change "If both Auto-Negotiation speeds are supported, a state diagram shall be implemented
to automatically choose between the different Auto-Negotiation speeds, as described in 98.5.6." to "98.5.6 describes the behavior to automatically choose between the different Auto-Negotiation speeds when a PHY supports both."

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.2.1.1.2** *P* **72** *L* **30** # 133
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Comment #57 against D2.0 changed "800.0 ns ± 0.005 %" to "800 ns ± 0.005%" (no space between 0.005 and %)

SuggestedRemedy

Delete the space between 0.005 and %

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.3** *P* **73** *L* **40** # 134
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"Detailed functions and state diagrams" is 98.5 not 98.3

SuggestedRemedy

Renumber the heading "Detailed functions and state diagrams" from 98.3 to 98.5 (and likewise 98.3.1 to 98.5.1 and 98.3.2 to 98.5.2)

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.3** *P* **73** *L* **40** # 40
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

title of 98.3 is incorrect relative to 802.3-2018, subclause being modified appears to be 98.5. 98.3.1 and 98.3.2 share the mis-numbering, but at 98.5.5 it goes back to the correct part.

SuggestedRemedy

Change 98.3, 98.3.1 and 98.3.2 to 98.5, 98.5.1 and 98.5.2

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.3** *P* **73** *L* **41** # 183
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Should be subclause 98.5. 98.3.1 should be 98.5.1 and 98.3.2 should be 98.5.2. 98.5.5 and following subsections are correct.

SuggestedRemedy

Change subclause 98.3 back to 98.5. This should also change 98.3.1 to 98.5.1 and 98.3.2 to 98.5.2.

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.3.1** *P* **73** *L* **42** # 480
Bains, Amrik Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

Wrong heading number

SuggestedRemedy

Change 98.3 to 98.5

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.3.2** *P* **74** *L* **19** # 135
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

As pointed out by comment #59 against D2.0:
According to the rules set out in:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#numbers
"In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000)."
However, numerous four digit numbers in 98.3.2 (should be 98.5.2) have had spaces added, which is not in accordance with the rules set out above.

SuggestedRemedy

Remove the added spaces from all four digit numbers in 98.3.2 (should be 98.5.2). (23 instances)

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **5** # 136
Anslow, Pete Ciena

Comment Type **ER** *Comment Status* **X**

While it may be helpful to the current reviewers to show the places where the state diagrams have changed with red boxes, these cannot remain as this would result in the final state diagrams containing red boxes.

SuggestedRemedy

Remove the red boxes from the state diagrams.

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **6** # 459
McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

the assignment operator in the TRANSMIT_DISABLE state was changed to another symbol

SuggestedRemedy

change back to the assignment operator, <=, in multiple locations in figure 98-7, 98-8, 98-9 and 98-10

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **6** # 236
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] There are 5 occurrences of an "Ü" instead of "<=" in state TRANSMIT DISABLE.

SuggestedRemedy

Change "Ü" to "<=".

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **6** # 458
McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

red boxes in figure 98-7 should be in the compare document but not in the clean draft.

SuggestedRemedy

remove the red boxes in Clause 98 figures

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **6** # 182
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

In "TRANSMIT DISABLE" box all arrows are changed to capital "U" with an umlaut over it. This was correct in D2p0.

SuggestedRemedy

Replace "Ü " with "=>" in "TRANSMIT DISABLE" box.

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **6** # 481
Bains, Amrik Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

"U"

SuggestedRemedy

Change U with <=

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **21** # 460
McClellan, Brett Marvell

Comment Type **E** *Comment Status* **X**

"multispeed_autoneg_reset = true +" appears to be an error. It does not assign new value to multispeed_autoneg_reset.

SuggestedRemedy

delete "multispeed_autoneg_reset = true +"

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **21** # 237
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

multispeed_autoneg_reset = true + (in state COMPLETE ACKNOWLEDGEMENT) is at the wrong position within the state diagram

SuggestedRemedy

move "multispeed_autoneg_reset = true +" to the initial reset condition of the state diagram

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **77** *L* **26** # 181
Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

There is a change in the "AN GOOD CHECK" box that is not indicated by a red box. Published Figure 98-7 first line in box: link_control_[notHCD] <= DISABLE, first line in cg: mr_autoneg_enable = true. Note, this was changed since D2p0.

SuggestedRemedy

If this change was intentional, put a red box around the new text. If this change was not intentional change it to match 802.3:2018. FYI - I don't find a comment to change this from D2p0, just a comment to make the changes obvious.

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **79** *L* **6** # 238
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] _[ANSP]_ is missing the red change box

SuggestedRemedy

Add red change box.

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **79** *L* **11** # 239
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] receive_DME_active Ü true

SuggestedRemedy

receive_DME_active <= true (change "Ü" by "<="). There are also 3 other occurrences within the same state diagram which need to be changed (lines 16, 18 and 24)

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **80** *L* **11** # 240
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] transmit_DME_wait Ü true

SuggestedRemedy

transmit_DME_wait <= true (change "Ü" by "<="). There are also 2 other occurrences within the same state diagram which need to be changed (lines 12 and 19)

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **81** *L* **4** # 241
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**
mr_main__reset + pwr_on_reset

SuggestedRemedy
power_on = true + mr_main_reset = true + mr_restart_negotiation = true + mr_autoneg_enable = false (change the initial reset condition of the AN mode selection state machine to the same behavior as the AN arbitration state machine has, otherwise the arbitration state machine would be reset, but not the speed selection state machine)

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.5** *P* **81** *L* **12** # 242
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] multispeed_autoneg_reset <=

SuggestedRemedy
multispeed_autoneg_reset <= true (true has been missed).

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6** *P* **80** *L* **13** # 36
Zimmerman, George CME Consulting et al

Comment Type **T** *Comment Status* **X**
Missing value to be assigned to multispeed_autoneg_reset in state SPEED_DETECTION.

SuggestedRemedy
assign multispeed_autoneg_reset to TRUE in state SPEED_DETECTION

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6** *P* **80** *L* **48** # 35
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**
"This state diagram shall be implemented as top level state diagram of the Auto-Negotiation process. Depending on the detected Auto-Negotiation speed the timer values for the under laying state diagrams are loaded and the Auto-Negotiation process itself is started." - this doesn't make sense. the state diagrams don't have hierarchy or loading... better to explain how it works, as much as I dislike explanatory text.

SuggestedRemedy
Change "This state diagram shall be implemented as top level state diagram of the Auto-Negotiation process. Depending on the detected Auto-Negotiation speed the timer values for the under
laying state diagrams are loaded and the Auto-Negotiation process itself is started." to "Figure 98-11 determines the mode used for the timers in Figures 98-7, 98-8, 98-9, 98-10, and 98-11 through the variable autoneg_speed, and synchronizes them through the variable multispeed_autoneg_reset."

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6** *P* **81** *L* **4** # 37
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
variable mr_main_reset on entry to SPEED_DETECTION has two underscores between main and reset.

SuggestedRemedy
change mr_main__reset to mr_main_reset on entry to SPEED_DETECTION

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6** *P* **81** *L* **13** # 462
McClellan, Brett Marvell

Comment Type **T** *Comment Status* **X**
missing a value to be assigned

SuggestedRemedy
change "multispeed_autoneg_reset <="
to "multispeed_autoneg_reset <= TRUE"

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6** *P* **81** *L* **15** # 38

Zimmerman, George — CME Consulting et al

Comment Type **E** *Comment Status* **X**

We don't say x_timer expired as a condition in state diagrams, we say x_timer_done. This diagram doesn't conform to the usual rules for state diagrams.

SuggestedRemedy

change "detection_timer_expired" to "detection_timer_done" on arc from SPEED DETECTION TO LOW-SPEED AN, Change "failure_timer expired" to "failure_timer_done" ion the 2 arcs exiting HIGH-SPEED AN and LOW-SPEED AN going back to SPEED DETECTION

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6** *P* **81** *L* **81** # 483

Bains, Amrik — Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

Figure 98-11 missing variable value

SuggestedRemedy

Assign vaule to multispeed_auto-neg_reset

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6.1** *P* *L* **37** # 482

Bains, Amrik — Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

98.5.6.1 Varibables defined after state machines

SuggestedRemedy

Move section 98.5.6.1 before 98.5.5 and re-number

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6.1** *P* **81** *L* **43** # 137

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

"Figure 98-11" should be a cross-reference

SuggestedRemedy

Make "Figure 98-11" a cross-reference

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6.1** *P* **81** *L* **46** # 243

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Descriptions for TRUE and FALSE are reversed.

SuggestedRemedy

Reverse descriptive text for TRUE and FALSE (the state diagrams are restarted, if multispeed_autoneg_reset is TRUE).

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6.1** *P* **81** *L* **51** # 39

Zimmerman, George — CME Consulting et al

Comment Type **T** *Comment Status* **X**

Several variables in this list are no longer used in Figure 98-11. (mr_autoneg_enable, mr_restart_negotiation, pwr_on)

SuggestedRemedy

Delete mr_autoneg_enable and mr_restart_negotiation from the list of variables, change pwr_on to power_on (the correct name in 98.5.1)

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.5.6.2** *P* **82** *L* **20** # 138

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

According to the rules set out in:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#numbers
"In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000)."
Consequently, "2 000" should be "2000"

SuggestedRemedy

Change "2 000" to "2000"

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.6.4** *P* **84** *L* **10** # 139

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

1.2.6 of the base standard says "Unless otherwise stated, numerical limits in this standard are to be taken as exact, with the number of significant digits and trailing zeros having no significance."
Also, usual practice in 802.3 is to not have a space between a number and %.

SuggestedRemedy

In item DME8, show "shall be 30.0 ns ± 0.01%." as changing to "shall be 30 ns ± 0.01%."
In item DME8a, change "800.0 ns ± 0.005 %" to "800 ns ± 0.005%"

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.6.8** *P* **84** *L* **33** # 140

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

According to the rules set out in:
http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#numbers
"In text, where this improves clarity, follow the IEEE Editorial Style Manual: Use spaces instead of commas between numbers in tens or hundreds of thousands (e.g., 62 000, 100 000, but 4000)."
However, 15 four digit numbers in 98.6.8 have had spaces added, which is not in accordance with the rules set out above.

SuggestedRemedy

Remove the added spaces from the 15 four digit numbers in 98.6.8

Proposed Response *Response Status* **O**

Cl **98** *SC* **98.6.8** *P* **85** *L* **8** # 3

Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

"nsfrom" should be "ns from"

SuggestedRemedy

change "nsfrom" to "ns from"

Proposed Response *Response Status* **O**

Cl **98** *SC* **98B.3** *P* **224** *L* **41** # 45
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

The inserted requirements in 98B.3 are in the wrong place and define requirements on the user. Annex 98B.3 describes the fields, it does not put requirements. If requirements are needed, those should be in clauses 146, 147 and 148 as applicable.

SuggestedRemedy

Delete P224 L39 through P225L12 (insert instruction and related text). (Bits A20 & A21 do not need a new section in clause 148). Insert new subclause 147.6.1 (page 187 line 30) Support for Auto-Negotiation, modeled after 55.6.1 describing the "Auto-Negotiation may be performed as part of the initial set-up of the link and allows negotiation of the duplex mode of operation. When Auto-Negotiation is used, Technology ability field Bit A22 shall contain..." (and continue with the text currently at lines 48 through 52 P224. Similarly, insert new subclause 146.6.1 "Support for Auto-Negotiation" (and renumber subsequent subclauses), with text ""Auto-Negotiation may be performed as part of the initial set-up of the link and allows negotiation of MASTER/SLAVE for loop timing, increased transmit level, and EEE capabilities." Insert new subclause (new) 146.6.4 "Increased Transmit Level configuration" (after PHY initialization and before PMA and PCS MDIO function mapping), , with text "When Auto-Negotiation is implemented and enabled, bit A23 shall contain..., and bit A24 shall contain..." (continue with text from paragraphs at P225 lines 1 (bit A23) and line 4 (bit A24). Insert new subclause 146.6.5 EEE configuration, after new 146.6.4, with text "When Auto-Negotiation is implemented an enabled, bit A25 shall contain..., and bit A26 shall contain..." (continue with text from P225 L7 (bit A25) and P225 L10 (bit A26).

Proposed Response *Response Status* **O**

Cl **98** *SC* **98B.4** *P* **226** *L* **3** # 464
McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

missing the prioritization for 10BASE-T1S full duplex vs half duplex

SuggestedRemedy

change "10BASE-T1S"
to "- 10BASE-T1S full duplex
- 10BASE-T1S half duplex"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104** *P* **86** *L* **1** # 141
Anslow, Pete Ciena

Comment Type **TR** *Comment Status* **X**

Comment #69 against D2.0 pointed out that the title of Clause 104 is: "Power over Data Lines (PoDL) of Single Balanced Twisted-Pair Ethernet".
The response to this comment was:
REJECT.
"Single-Pair Ethernet" is aligned with the text in bullets 7, 8, and 16 in the project objectives.
This response is completely inadequate. The title of an in-force Clause cannot be changed by simply showing it as different text in an Amendment.

SuggestedRemedy

Place an editing instruction above the title of Clause 104:
"Change the title of Clause 104 as follows:"
Replace the current title with:
"Power over Data Lines (PoDL) of Single<s> Balanced Twisted</s>-Pair Ethernet".
Where <s> and </s> are the start and end of strikethrough font.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.2** *P* **86** *L* **21** # 244
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] (Classes 0 and 1) (line 21) and (Classes 2 through 9) (line 23)

SuggestedRemedy

Remove brackets around "Classes 0 and 1" and "Classes 2 through 9".

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.2** *P* **86** *L* **21** # 41
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

Unnecessary parentheses around class numbers e.g., "(Classes 0 and 1)".

SuggestedRemedy

Change "(Classes 0 and 1)" to "Classes 0 and 1", change "(Classes 2 through 9)" to "Classes 2 through 9"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.2** *P* **86** *L* **23** # 142
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The omega in "The link segment dc loop resistance shall be less than 59 <omega> for" should be underlined as it is being added.

SuggestedRemedy

Underline it

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.3** *P* **86** *L* **33** # 42
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

Table 104-1 is in the draft and should not be marked external

SuggestedRemedy

Make Table 104-1 an active cross reference

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.3** *P* **86** *L* **33** # 185
Wienckowski, Natalie General Motors

Comment Type **T** *Comment Status* **X**

There is an "and" with nothing after it.

SuggestedRemedy

Change "...are shown in Table 104–1, and ." to "...are shown in Table 104–1, and Table 104-2."

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.3** *P* **86** *L* **33** # 245
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] ... are shown in Table 104-1, and .

SuggestedRemedy

Replace by: ... are shown in Table 104-1, and Table 104-2."

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.3** *P* **86** *L* **33** # 143
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"are shown in Table 104–1, and ." should be "are shown in Table 104–1, and Table 104-1a."

SuggestedRemedy

Change "are shown in Table 104–1, and ." to "are shown in Table 104–1, and Table 104-1a."

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.3** *P* **87** *L* **1** # 246
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

Insert Table 104-1a ...

SuggestedRemedy

Insert Table 104-2 ... (the table below is shown as table 104-2, if this is problematic, as it changes the numbering of all other tables in Clause 104, then the table should be named 104-1a). This will then also affect the previous comment.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.3** *P* **87** *L* **4** # 144
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Table 104-2 should be Table 104-1a

SuggestedRemedy
Renumber Table 104-2 to Table 104-1a

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.4.3.5** *P* **87** *L* **46** # 247
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
… return the VOLT_POWER_INFO, POWER_ASSIGN registers.

SuggestedRemedy
… return the VOLT_POWER_INFO, and POWER_ASSIGN registers. (add "and").

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.4.4.1** *P* **88** *L* **22** # 44
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**
We shouldn't be changing the 802.3-2018 requirement for legacy types. In Table 104-3 item 5, types A, B, C, and D draft 2.1 shows the output capacitance during detection for PSEs being changed from 2.4 uF to 200 nF. (200nF was in 802.3bu, but changed to 2.4uF by a maintenance request in 802.3-2018)

SuggestedRemedy
Revert types A,B,C and D on item 5 Table 104-3, to values in 802.3-2018 as follows: Remove the edit changing uF to nF, remove the edit changing 2.64 to 200 in the Max column for types A, B, C, D, and change the 400 in the Max column for Type E to 0.4 (to align with the uF units).

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.4.6.3** *P* **89** *L* **41** # 248
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
Formula 104-1

SuggestedRemedy
Within D2.1 formula 104-1 has been modified in a way, that the omega symbol was moved to the end of the formula. At other positions in IEEE802.3 it is written in a form 100 ohm +/- 1%, thus my expectation would be to have the omega symbol after the 100 and not at the end. Nevertheless, if the writing in D2.1 is the correct version, then please remove the additional space after the 100.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.4.6.3** *P* **89** *L* **27 and** # 82
Fritsche, Matthias HARTING Technology

Comment Type **E** *Comment Status* **X**
We have here a reference to Figure 104-7 from 802.3bu, but we don't show this figure.

SuggestedRemedy
For better understanding Figure 104-7 from 802.3bu should be added

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.4.6.4** *P* **92** *L* **28 and** # 83
Fritsche, Matthias HARTING Technology

Comment Type **E** *Comment Status* **X**
We have here a reference to Figure 104-9 from 802.3bu, but we don't show this figure.

SuggestedRemedy
For better understanding Figure 104-9 from 802.3bu should be added

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.5.3.5** *P* **90** *L* **22** # 145
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"Change the description of the do_classification function as follows:" should be "Change the description of the do_sccp function as follows:"

SuggestedRemedy

Change "do_classification" to "do_sccp"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.5.6** *P* **91** *L* **4** # 7
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

":." should be ":"

SuggestedRemedy

change ":." to ":"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7** *P* **93** *L* **3** # 146
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

There is no need for two editing instructions in 104.7

SuggestedRemedy

Replace the first editing instruction with:
"Change the text in 104.7 as follows:"
Delete the second editing instruction.
Show the added paragraph in underline font.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7** *P* **93** *L* **14** # 492
Stewart, Heath Analog Devices

Comment Type **T** *Comment Status* **X** *Late*

Cable resistance measurement scheme requires a binding shall to ensure the PD allocated power calculation does not exceed Pclass, min and incorporates sufficient margin for items such as cable temperature rise.

SuggestedRemedy

See stewart_1118_01.pdf

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7** *P* **93** *L* **17** # 147
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

45.2.9.3 defines the "PoDL PSE Status 2 register"

SuggestedRemedy

Change:
"shall report assigned power through PSE Status 2 Register (see 45.2.9.3)." to:
"shall report assigned power through the PoDL PSE Status 2 Register (see 45.2.9.3)."

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.1.1** *P* **93** *L* **23** # 8
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

Change ":." to ":"

SuggestedRemedy

Change ":." to ":"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.1.3** *P* **96** *L* **7** # 78
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Table 104-8 editting instruction for new column PSE/PD type is an insert instruction.

SuggestedRemedy

Remove underline from entries in column PSE/PD type and from column header.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.1.3** *P* **96** *L* **32** # 77
Maguire, Valerie The Siemon Company

Comment Type **E** *Comment Status* **X**

Table 104-8 editting instruction for new lines 6b, 20, and 21 is an insert instruction.

SuggestedRemedy

Remove underline from rows 6b, 20, and 21.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.4** *P* **98** *L* **28** # 148
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"Change rTable 104-9" should be "Change Table 104-9"

SuggestedRemedy

Change "rTable 104-9" to "Table 104-9"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.4** *P* **98** *L* **29** # 9
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

Editorial instrucions state "Change rTable 104-9 as follows:", but
- The table is actually on the next page (not next to the editiorial text"
- "rTable" probably should be "Table"

SuggestedRemedy

Correct "rTable" to "Table" and move the comment so it is right before the updated Table 104-9 (or move the table so it is right after the comment)

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.4** *P* **98** *L* **30** # 249
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] rTable

SuggestedRemedy

Table (remove "r")

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.4** *P* **99** *L* **10** # 10
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

"occurred" misspelled as "occured"

SuggestedRemedy

change "occured" to "occurred"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.4** *P* **100** *L* **28** # 43
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"Change rTable 104-9 as follows:" has both an extra "r" in front of Table, and is separated from the table by text.

SuggestedRemedy

Change "rTable" to "Table" (just delete the r, the Table is in the xref), and bring Table 104-9 to be immediately following the editing instruction.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.6** *P* **99** *L* **34** # 4
Regev, Alon Keysight Technologies

Comment Type **T** *Comment Status* **X**

Title of Table 104-10 should be "VOLT_POWER_INFO Register Table"

SuggestedRemedy

Change the title of Table 104-10 from
"CLASS_TYPE_INFO Register Table"

to
"VOLT_POWER_INFO Register Table"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.6** *P* **99** *L* **34** # 250
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] CLASS_TYPE_INFO

SuggestedRemedy

VOLT_POWER_INFO

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.6** *P* **99** *L* **40** # 251
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Currently only 6 bits are used to encode the requested power. This leads to a possible power request range between 0 W and 19.7 W. This is enough to currently fulfill all specified power classes of Clause 104, including the new ones. Nevertheless thinking about possible future extensions (especially for higher two wire data rates, where the typical link segment length is likely significant shorter than 1000 m, then more power may be suitable (e.g. to PoDL power complete kiosk systems or similar things).

SuggestedRemedy

Suggestion would be to use an 8 bit value for the requested power level (which then allows to request for up to 79.7 W) or alternatively, if at least one bit should stay reserved, to have one bit increasing the base unit from 0.3125 W to 1.25 W, if set, thus allowing to also encode up to 78.75 W. The encoding for the PD assigned power should be handled in the same way (see Table 104-11).

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.7** *P* **100** *L* **1** # 5
Regev, Alon Keysight Technologies

Comment Type **T** *Comment Status* **X**

Title of Table 104-11 should be "POWER_ASSIGN Register Table"

SuggestedRemedy

Change the title of Table 104-11 from
"CLASS_TYPE_INFO Register Table"

to
"POWER_ASSIGN Register Table"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.7** *P* **100** *L* **1** # 252
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] CLASS_TYPE_INFO

SuggestedRemedy

POWER_ASSIGN

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.7** *P* **100** *L* **4** # 149
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Footnote a should not be on a separate line from "R/W"

SuggestedRemedy

Increase the column width to fix this

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.7.2.7** *P* **100** *L* **8** # 150
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Bits b[5:0] are shown as "Write only" (with WO in the R/W column and W/O in the footnote). There are no write only bits in the whole of 802.3 as this would mean that it would not be possible to check what the bits are set to.

SuggestedRemedy

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

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.9** *P* **101** *L* **2** # 151
Anslow, Pete Ciena

Comment Type **TR** *Comment Status* **X**

Comment #82 against D2.0 pointed out that the title of 104.9 is: "Protocol implementation conformance statement (PICS) proforma for Clause 104, Power over Data Lines (PoDL) of Single Balanced Twisted-Pair Ethernet".
The response to this comment was:
ACCEPT IN PRINCIPLE.
Replace "Clause 104, Reconciliation Sublayer (RS) and Media Independent Interface (MII)" with "Clause 104, Power over Data Lines (PoDL) of Single-Pair Ethernet"
This response is incorrect. The title of an in-force subclause cannot be changed by simply showing it as different text in an Amendment.

SuggestedRemedy

Place an editing instruction above the title of 104.9:
"Change the title of 104.9 as follows:"
Replace the current title with:
"Protocol implementation conformance statement (PICS) proforma for Clause 104, Power over Data Lines (PoDL) of Single<s> Balanced Twisted</s>-Pair Ethernet".
Where <s> and </s> are the start and end of strikethrough font.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.9.4.2** *P* **101** *L* **36** # 152
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

PICS item PSE37 (and others) have a Status entry of "CRM:M" but "CRM" is not defined in the Clause 104 PICS

SuggestedRemedy

Add a row to the Clause 104 PICS to define "*CRM"

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.9.4.3** *P* **102** *L* **15** # 153
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

In PICS item PD27 Value/Comment "Clause 146" is in the wrong font size

SuggestedRemedy

Make the font size the same as the rest of the text.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.1** *P* **103** *L* **10** # 187
Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing Oxford commas throughout document, especially Clauses 146, 147, and 148.

SuggestedRemedy

Change "PCS, PMA and MDI." to "PCS, PMA, and MDI."
Search document and add all other missing Oxford commas.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.1.2** *P* **86** *L* **40** # 312
Wendt, Matthias Signify

Comment Type **TR** *Comment Status* **X**

"A 10BASE-T1L PHY shall be capable of operating as MASTER or SLAVE, per runtime configuration."

Is the intention here that a PHY supports both and this can be configured through runtime ? Or does it get to pick one and not support the other ?

SuggestedRemedy

Option1: "A 10BASE-T1L PHY shall be capable of operating both as MASTER or SLAVE, with one mode active per runtime configuration."

Option2: "A 10BASE-T1L PHY shall be capable of operating as either MASTER or SLAVE."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.1.3.1** *P* **106** *L* **6** # 473
Law, David HPE

Comment Type **T** *Comment Status* **X**

Subclause 146.1.3.1 'State Diagram Notation' states that 'The notation used in the state diagrams follows the conventions of 21.5.'. Further Subclause 21.5 'State diagrams' of IEEE Std 802.3-2018 states 'The conventions of 1.2 are adopted, with the following extensions.'.

While the use of conditions such as 'IF' is defined in subclause 1.2, and the addition of ELSE to the construct is defined in IEEE Std 802.3-2015 Table 21–1, although I think that was more as a valid transition qualifier rather than part of an IF statement (see IEEE Std 802.3-2015 subclause 21.5.3, item e), the addition of END to the construct isn't defined. Suggest that the IF-THEN-ELSE-END construct be locally defined in subclause 33.2.5.2.

Also, I note that in some cases an IF-ELSE construct is used, see Figure 148-5, while in others an IF-THEN-ELSE construct is used. Finally, I believe the IF, THEN, ELSE and END use in IF-THEN-ELSE constructs in the past are uppercase, see Figure 28–16 'Transmit state diagram' for example.

SuggestedRemedy

Suggest that:

[1] The following definition is added to subclause 146.1.3.1:

Some states in the state diagrams use an IF-THEN-ELSE-END construct to condition which actions are taken within the state. If the logical expression associated with the IF evaluates TRUE all the actions listed between THEN and ELSE will be executed. In the case where ELSE is omitted, the actions listed between THEN and END will be executed. If the logical expression associated with the IF evaluates FALSE the actions listed between ELSE and END will be executed. After executing the actions listed between THEN and ELSE, between THEN and END, or between ELSE and END, the actions following the END, if any, will be executed.

[2] The IF-THEN-ELSE-END construct is used consistently in the IEEE P802.3cg draft.

[3] The 'IF', 'THEN', 'ELSE' and 'END' used in IF-THEN-ELSE-END constructs are uppercase.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3** *P* **114** *L* **5** # 253
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

signal "receiving" from PCS RECEIVE to PCS TRANSMIT is not needed, also signal "link_status" going to PCS TRANSMIT is not needed.

SuggestedRemedy

As there is no usage of signal "receiving" in PCS TRANSMIT, the arc from PCS RECEIVE to PCS TRANSMIT needs to be removed. Additionally as "link_status" is not used in PCS TRANSMIT, also this arc needs to be removed (PCS TRANSMIT is indirectly informed about the link_status over the signals from PCS DATA TRANSMISSION ENABLE block).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.2** *P* **115** *L* **16** # 254
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] The stars (symbols of the "and" function, 2 occurrences) are not in the valid font style or size compared to other state diagrams.

SuggestedRemedy

Correct the font size and/or style.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.2.1** *P* **116** *L* **4** # 255
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] 22.2.2.5 is a reference to an external Clause and needs to be formatted in green.

SuggestedRemedy

Format the reference to the external Clause in green.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.3.1.4** *P* **119** *L* **30** # 256
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] tx_disparity<= 2

SuggestedRemedy

tx_disparity <= 2 (add space)

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.3.1.4** *P* **119** *L* **33** # 257
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] (tx_enable_mii = FALSE)*

SuggestedRemedy

(tx_enable_mii = FALSE) * (add space before the star). There is a second occurrence, which needs to be changed in line 38.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.3.9** *P* **122** *L* **39** # 46
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"The running disparity reflects this difference and is used to choose the coding of the next symbol coding." extra "coding" at the end shouldn't be there.

SuggestedRemedy

change "next symbol coding" to "next symbol"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.3.9** *P* **122** *L* **40** # 47
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"The same ternary symbol encoding is used while in SEND_I and SEND_N." - what "same ternay symbol encoding" isn't clear. The previous sentence doesn't talk about encoding, but talks about running disparity. It appears to indicate that the encoding described by the entire paragraph is the same whether the tx_mode is SEND_I or SEND_N.

SuggestedRemedy

Move sentence to the beginning of the paragraph at line 37 (before "The scrambled bits Sdn...")

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1** *P* **124** *L* **16** # 412
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

editorial cleanup

SuggestedRemedy

Change
"When rcv_max_timer expires, the PCS Receive state diagram is reset and transition to IDLE state is forced."
to
"When rcv_max_timer expires, the PCS Receive state diagram is reset and transitions to IDLE."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.1** *P* **125** *L* **3** # 259
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

If MDIO is implemented, it reflects bit 1.2294.10 as described in 45.2.1.186c.5.

SuggestedRemedy

If MDIO is implemented, and Auto-Negotiation is disabled or not present, it reflects bit 1.2294.10 as described in 45.2.1.186c.5. (1.2294.10 is only valid and used, if EEE is not negotiated during AN).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.1** *P* **125** *L* **11** # 260
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] 22.2.2.8 is a reference to an external Clause and should be green colored.

SuggestedRemedy

Use the style for an external reference (green color).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.1** *P* **125** *L* **42** # 261
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

rcv_jab_detected

SuggestedRemedy

rcv_overrun_detected (see presentation for Receive watchdog state diagram).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.1** *P* **125** *L* **43** # 262
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

JAB state

SuggestedRemedy

RECEIVE OVERRUN state (see presentation for Receive watchdog state diagram).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.1** *P* **125** *L* **47** # 263
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

Srn[3:0] is not used anymore in Receive state diagram.

SuggestedRemedy

Remove reference and descriptive text for Srn[3:0].

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.2** *P* **126** *L* **19** # 264
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Srn[3:0] = inverse_table4B3T(Rxn)

SuggestedRemedy

RXD[3:0] = descramble(inverse_table4B3T(Rxn)) (add descramble function as the receive state diagram now returns RXD[3:0] instead of Srn[3:0].

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.3** *P* **127** *L* **4** # 265
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

(disparity_error = TRUE) + is too much in the path leading to LINK FAILED state.

SuggestedRemedy

remove (disparity_error = TRUE) + (originally a disparity error entered the LINK FAILED state resetting the receive state diagram; implementing the other changes in the receive state machine for D2.1, this behavior was changed and a disparity error is only setting the TX_ER signal at the MII, which is a less harsh behaviour).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.3** *P* **127** *L* **44** # 266
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

"RX_ER <= disparity_error" can cause conflicts as the disparity_error variable is used in the same state as it is modified by oring the current CHECK_DISP function result.

SuggestedRemedy

Implement changes as described in "Receive State Diagram Disparity Error" presentation.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.1.3** *P* **129** *L* **1** # 267
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

The Receive watchdog state machine does have misleading state and variable names.

SuggestedRemedy

Modify Receive watchdog state diagram as described in presentation "Receive Watchdog State Diagram".

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.4.2** *P* **129** *L* **36** # 79
Andre, Szczepanek HSZ Consulting

Comment Type **ER** *Comment Status* **X**

This is a follow-on comment to Comment 261 on D2.0

Re 261, synchronisation of a non self-synchronous scrambler requires a lengthy brute-force search if no “training sequence” is provided. In this case I believe such a sequence occurs during the PHY control SM training states.
If this is the case, informing the reader of the standard that this can be used to determine the state of the encoding side-stream scrambler is not a “tutorial” but makes the standard intelligible and informative - rather than forcing the reader to trawl through a different clause to determine whether this was the intention or not, as I had to do.

SuggestedRemedy

Add sentence the sentence below after "PCS Receive generates the sequence of symbols and indicates the reliable acquisition of the descrambler state by setting the parameter scr_status to OK."

"Descrambler state can be acquired during the PHY control SM training states."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.3.5** *P* **130** *L* **36** # 341
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

Does not indicate that data matching tests will not work unless the polynomial registers match, an abnormal situation in normal operation.

SuggestedRemedy

Add the following text at the end of the paragraph: “When PMA loopback mode is present and enabled, the PCS transmit scrambler polynomial and the receiver descrambler polynomial should be matched , e.g., the MASTER scrambler polynomial and the SLAVE descrambler polynomial, in order for looped data to be properly descrambled at the MII.”

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4** *P* **131** *L* **41** # 154
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

There are two notes in Figure 146-11, so they should be NOTE1 and NOTE 2
Also, the first note overlaps the figure

SuggestedRemedy

Change the notes to be NOTE1 and NOTE 2
Move the notes so that they don't overlap the figure

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.3.1** *P* **124** *L* **27** # 258
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

"." too much.

SuggestedRemedy

Please remove ".".

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4** *P* **133** *L* **36** # 268
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] "." at the end of the sentence is missing.

SuggestedRemedy

Add "."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4** *P* **133** *L* **38** # 343
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

Or what? This does notspecify what happens if this shall is not met.

SuggestedRemedy

Add text to say what happens, whether it is physical or whether it is (merely) a requirement to assert compliance.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.1** *P* **133** *L* **38** # 413
Jones, Peter Cisco

Comment Type **T** *Comment Status* **X**

The time listed here (3030 milliseconds) is an unusual value and seems to come out of nowhere in a normal reading of the text. I see that it's later in the definition of maxtraining_timer (3000 ms ± 30 ms). Is this an arbitary number, or is it based on specific characteristsics of the training.

SuggestedRemedy

Check the number and correct if need be. Add a reference to where it comes from (146.4.4.2 Timers maxtraining_timer) and an explanation of how it was derived.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.2** *P* **135** *L* **11** # 344
Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**
Missing space

SuggestedRemedy
Change: "...expire100 ms..." to "...expire 100 ms..."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.2** *P* **135** *L* **11** # 269
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] expire100 ms

SuggestedRemedy
expire 100 ms (add space)

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.2** *P* **135** *L* **11** # 48
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
missing space - "expire100 ms"

SuggestedRemedy
insert space between "expire" and "100"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.2** *P* **135** *L* **20** # 270
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**
2050 µs +/- 50 µs

SuggestedRemedy
20 500 µs +/- 50 µs (This is the timer for Tq. As during the last meeting it has been discussed to reduce the assumed clock tolerance from 5 ppm to 0.5 ppm, the quiet time can be increased by the same factor).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.2** *P* **135** *L* **39** # 345
Thompson, Geoff GraCaSI S.A.

Comment Type **E** *Comment Status* **X**
Grammar in the note needs some work.

SuggestedRemedy
Change "will not" to "should not". Add comma after "therefor". Swap "some time" and "SEND_IDLE" in the last sentence.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.4.4.2** *P* **135** *L* **39** # 155
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"NOTE— After" should not have a space between "—" and "After"

SuggestedRemedy
Delete the space.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.2** *P* **139** *L* **23** # 271
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[MDIO REGISTERS] 1.2298.15:13 is reflecting the old MDIO register numbering. Since D2.1 register addresses changed.

SuggestedRemedy

Change to: 1.2296.15:13

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.3** *P* **139** *L* **42** # 49
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"The tolerance of the termination resistor shall be ± 0.1%." - there is no resistor labeled "termination resistor" in Figures 146-17 and 146-18. Further, 146-17 and 146-18 are fixtures which "can be used" and are not required, therefore, a requirement on a component of these non-required fixtures is out of order. Further, the load resistance for the tests in Figure 146-17 is specified already in 146.5.4, and there is no resistance shown in Figure 146-18.

SuggestedRemedy

Delete "The tolerance of the termination resistor shall be +/- 0.1%."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.3** *P* **140** *L* **5** # 359
Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Figure 146-17 has reference to multidrop and 50 O transmitter load R.

Additionally, the test probe capacitance has changed from <30 pF, to < 10pF. Steffen Graber's comment #237 (resolved accepted) only referenced reducing the probe capacitance for T1L, not T1S.

Figure appears to be a copy/paste error from same figure in Clause 147.

SuggestedRemedy

Keep updated/cleaned figure, but revert the text from:
"Transmitter load: 50 Ohm (multidrop mode) or 100 O"

Back to:
"Transmitter load: 50 Ohm (multidrop mode) or 100 O +- "

Change: <10 pF probe capacitance back to <30 pF (only in Clause 146, T1L)

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.3** *P* **140** *L* **6** # 445
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Figure 146-17 should not include multidrop in transmitter load description. This description applies in Figure 147-12, but not here.

SuggestedRemedy

Change to: "Transmitter load: 100 [omega]"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.1** *P* **140** *L* **48** # 301

Yseboodt, Lennart — Signify

Comment Type **TR** *Comment Status* **X**

"Transmitter output voltage shall be tested using test mode 1 in combination with the test fixture shown in Figure 146-17."

We can't put requirements on the tester, only on the device.

SuggestedRemedy

Rewrite the requirement:
"When tested with the test fixture shown in Figure 146-17 in test mode 1, the transmitter output voltage shall ... <show some property>."

Possibly the very next sentence already covers this. In that case, make the quoted sentence informative.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.1** *P* **140** *L* **51** # 484

Bains, Amrik — Cisco Systems INC

Comment Type **T** *Comment Status* **X** *Late*

This test in test fixture and not with partner PHY auto-neg is not possible

SuggestedRemedy

Remove ""Additionally, Auto-Negotiation can be used
to find a common transmitter output voltage for the two PHYs"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.1** *P* **141** *L* **6** # 272

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

The transmitter output voltage can be selected by setting bit 1.2294.12 (10BASE-T1L PMA control register) of the PHY Management register set as described in 45.2.1.186c.3.

SuggestedRemedy

Replace by: The transmitter output voltage can be selected by setting bit 1.2294.12 (10BASE-T1L PMA control register) of the PHY Management register set as described in 45.2.1.186c.3, if Auto-Negotiation is disabled or not present. (The MDIO register 1.2294.12 is only used, if the transmit amplitude is not derived from Auto-Negotiation, so this needs to be reflected in the text.)

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.1** *P* **141** *L* **9** # 485

Bains, Amrik — Cisco Systems INC

Comment Type **T** *Comment Status* **X** *Late*

This test in test fixture and not with partner PHY auto-neg is not possible

SuggestedRemedy

Remove ""Additionally, Auto-Negotiation can be used
to find a common transmitter output voltage for the two PHYs"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.3** *P* **141** *L* **21** # 302

Yseboodt, Lennart — Signify

Comment Type **TR** *Comment Status* **X**

"The transmitter symbol-to-symbol jitter shall be tested using test mode 1 in combination with the test fixture shown in Figure 146-17."

We can't put requirements on the tester, only on the device.

SuggestedRemedy

Make sentence informative.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.3** *P* **141** *L* **22** # 383

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Cycle to cycle (or symbol to symbol) jitter is defined as the maximum value of |T1-T0| according to JEDEC, where T1 and T0 are the minimum and maximum measured symbol/clock period over a certain number of samples. For this reason the number cannot be negative and the plus/minus sign is meaningless. In my understanding 10 ns is the intended value in this case (i.e. just remove the plus/minus sign).

SuggestedRemedy

Remove the plus/minus sign

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.4** *P* **142** *L* **9** # 448
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Limit lines in Figure 146-19 are not clear, especially the -70 limit.

SuggestedRemedy
Thicken the limit lines (including in key) relative to the grid lines.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.4** *P* **142** *L* **11** # 447
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Key in Figure 149-19 needs clarification.

SuggestedRemedy
Change "lower PSD 2.4v" to "Lower PSD 2.4 Vpp" and "Upper PSD 2.4v" to "Upper PSD 2.4 Vpp"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.4** *P* **142** *L* **28** # 273
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] 1 Vpp

SuggestedRemedy
2.4 Vpp (Figure 146-19 reflects the PSD mask for the 2.4 Vpp mode).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.4** *P* **142** *L* **29** # 446
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Figure 146-19 title refers to wrong voltage.

SuggestedRemedy
Change "1 Vpp" to "2.4 Vpp"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.4** *P* **143** *L* **3** # 450
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Limit lines in Figure 146-20 are not clear.

SuggestedRemedy
Thicken the limit lines (including in key) relative to the grid lines.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.4.4** *P* **143** *L* **5** # 449
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**
Key in Figure 149-20 needs clarification.

SuggestedRemedy
Change "Lower PSD 1v" to "Lower PSD 1 Vpp" and "Upper PSD 1v" to "Upper PSD 1 Vpp"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.5.1** *P* **143** *L* **38** # 50
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
"Differential signals received at the MDI, that were transmitted from a remote transmitter within the specifications of Transmitter Electrical Specifications" is redundant and doesn't refer to 146.5.4 correctly.

SuggestedRemedy
Change "Transmitter Electrical Specifications" to a cross reference to 146.5.4.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.5.3** *P* **144** *L* **9** # 313
Yseboodt, Lennart Signify

Comment Type **E** *Comment Status* **X**

In Figure 146-21 there are no round connection points drawn for the 100 Ohm resistor in parallel with the noise source.

SuggestedRemedy

Attention to detail is what seperates us from lesser standards.
Add connecting dots.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.5.3** *P* **144** *L* **16** # 156
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"NOTE— If" should not have a space between "—" and "If"

SuggestedRemedy

Delete the space.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.5.3** *P* **144** *L* **17** # 303
Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **X**

"NOTE-- If the output level is too high for the noise generator, the resistor divider network may be adopted to allow for a lower noise generator output level. The noise signal fed into the receiver shall have a magnitude of -106 dBm/Hz with a bandwidth of 10 MHz, taking the 100 Ohm termination within the PHY into account."

NOTEs are informative and may not contain requirements.
Also, this requirement seems to be on a particular test, rather than a property of the device.

SuggestedRemedy

Remove shall, make informative.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.5.3.1** *P* **144** *L* **20** # 51
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

This was 146.5.6, and somehow became 146.5.5.3.1. Additionally, the editor's note below was indicating that this section was to be deleted but the header kept to keep the subsequent numbering the same. At this point, might as well just delete it and the note - the numbering has now changed...

SuggestedRemedy

Delete 146.5.5.3.1 header and editors note on page 144 lines 20-26.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.5.3.1** *P* **144** *L* **22** # 346
Thompson, Geoff GraCaSI S.A.

Comment Type **E** *Comment Status* **X**

Editor's note is mislabled as to clause and is unnecessary as deletion of 146.5.5.3.1 will not cause any clause renumbering

SuggestedRemedy

Remove sub-clause heading and note.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.5.6** *P* **145** *L* **2** # 347
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

Scrambler matching not mentioned as necessary for packet comparison.

SuggestedRemedy

Add the following text at the end of the paragraph: “When PMA loopback mode is present and enabled, the PCS transmit scrambler polynomial and the receiver descrambler polynomial should be matched , e.g., the MASTER scrambler polynomial and the SLAVE descrambler polynomial, in order for looped data to be properly descrambled at the MII.”

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.6.2** *P* **145** *L* **52** # 157
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

Comment #134 against D2.0 was:
146.6.2, P 126, L 52
Comment
"45.2.1.131" is not the correct reference for register 1.2100
SuggestedRemedy
Change "45.2.1.131" to "45.2.1.185" here and in 146.11.4.3 item MI3
ACCEPT.

SuggestedRemedy

Change "45.2.1.131" to "45.2.1.185" and make it a cross-reference

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7** *P* **146** *L* **42** # 348
Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**

It says: the link segment is specified based on process control applications. This is not so. It is specified based on process control application REQUIREMENTS.

SuggestedRemedy

Insert the word “requirements” in the sentence.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.2** *P* **148** *L* **32** # 274
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

Return Loss is using a capital "L" in Loss, while Insertion loss is written with a small "l" at the beginning of loss, should be unified.

SuggestedRemedy

Return loss

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.4** *P* **149** *L* **44** # 452
Brandt, David Rockwell Automation

Comment Type **T** *Comment Status* **X**

Clause does not adjust TCL and ELTCTL for 1 Vpp and 2.4 Vpp transmit voltages.

SuggestedRemedy

Suggest 2 row pairs in Table 146-5 for 1 Vpp and 2.4 Vpp with a 7.6 dB differential.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.5** *P* **150** *L* **6** # 349
Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**

Editor's note is incorrect with respect to process.

SuggestedRemedy

Change last sentence to read: “The updated references will be considered for inclusion within the balloting pocess should they be received before approval of this standard.”

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.5** *P* **150** *L* **18** # 275
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

0.1 to 20

SuggestedRemedy

0.1 <= f <= 20 (as for the other tables/frequency ranges in 146.7).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.5** *P* **150** *L* **18** # 158
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

In Table 146-6, the Frequency entry should be "0.1 to 20" but the "to" uses symbol font

SuggestedRemedy

Replace with "0.1 to 20" all in the default font.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.5** *P* **150** *L* **19** # 52
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

Table 146-6 has font problems in the entry - size changes and greek letters for "to" - these should be roman.

SuggestedRemedy

Use consistent paragraph style (cell body), make standard size and use roman for "to".

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.5** *P* **150** *L* **19** # 453
Brandt, David Rockwell Automation

Comment Type **E** *Comment Status* **X**

Table 146-6, under Frequency, uses tau instead of a t for the word "to".

SuggestedRemedy

Use correct letter.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.7.1.5** *P* **150** *L* **19** # 454
Brandt, David Rockwell Automation

Comment Type **T** *Comment Status* **X**

Clause does not adjust Tcoupling attenuation for 1 Vpp and 2.4 Vpp transmit voltages.

SuggestedRemedy

Suggest 2 row pairs in Table 146-6 for 1 Vpp and 2.4 Vpp with a 7.6 dB differential.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.1** *P* **152** *L* **13** # 350
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

Doesn't specify that the equipment side of the MDI is the socket side of the mated pair.

SuggestedRemedy

Change the text: “MDI connector on the PHY.” to “MDI socket connector on the PHY.”

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.1** *P* **152** *L* **13** # 159
Anslow, Pete Ciena

Comment Type **TR** *Comment Status* **X**

With only placeholders for Figures 146-XXX, YYY and ZZZ, this draft is not ready to move to Sponsor ballot, hence this is a required comment.

SuggestedRemedy

Populate Figures 146-XXX, YYY and ZZZ

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.1** *P* **152** *L* **16** # 81
Fritsche, Matthias HARTING Technology

Comment Type **TR** *Comment Status* **X**

The 10BASE-T1L link segment is defined for industrial use cases. IEEE802.3 ask TIA 42 and ISO/IEC SC25 WG3 via Liaison letter regarding a proposal for SPE connectors. At the last TIA 42 meeting in Mesa Oct. 2018 also TIA finish the connector selection and we have a consistent result from both cabling standardisation groups with “LC style” according to IEC 63171-1 and the “Industrial style” according to IEC 61076-3-125. To complete the IEEE 802.3cg this “Industrial style” SPE connector must be added for the industrial M2I2C2E2 and M3I3C3E3 applications.

SuggestedRemedy

Insert new paragraf:
"Connectors meeting the requirement of IEC 61076-3-125: 201x may be used as the mechanical interface to the balanced cabling for M2I2C2E2 and M3I3C3E3 environment. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informal use only) in Figure 146-xxx and Figure 146-xxx. The assignment of PMA signals to connector contacts for PHY is shown in Figure 146-xxx."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.1** *P* **152** *L* **34** # 407

Jones, Peter Cisco

Comment Type **TR** *Comment Status* **X**

The IEC 63171-1 connector was prematurely added to the draft, and should be removed.
Comments against D1.0 (#571, #572, #617, #618) requested that IEC 63171-1(MICE1) & IEC 61076-3-125 (MICE3) be defined for both T1-L and T1-S (as listed in "SC25 WG3 Interim Update Report for 802.3 Sept 2018.pdf"). Comment resolution for D2.0 only added IEC 63171-1(MICE1) for T1-L making the draft internally inconsistent (T1L vs T1-S) and also inconsistent with the liaison from S25/WG3.
I am not aware of any public review or assessment performed on these connectors outside that done in ISO/IEC SC25/WG3. I am also not aware of the membership of ISO/IEC SC25/WG3, or if it's detailed assessments are publically available.
The only presentation to 802.3cg that I can find providing significant details is pelletier_3cg_01_0918.pdf presented in Spokane. While it addresses IEC 63171-1 limits for IL, RL, TCL and TCTL, I don't see any information about other key parameters (e.g., mechanical characteristics, relative costs of different solutions) that are needed to make an informed decision
Given the importance of connector selection to the success of BASE-T1 in building/industrial automation, I believe that we should remove this paragraph and the accompanying note from the draft, and consider the best way to perform connect selection that can engage important ecosystem partners (e.g. system vendors, system integrators) who were not part of the ISO/IEC SC25/WG3 process.

SuggestedRemedy

Delete lines 34 to 45 in "146.8.1 MDI connectors". This is the second paragraph and the accompanying editor's note.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.1** *P* **152** *L* **34** # 409

Jones, Peter Cisco

Comment Type **TR** *Comment Status* **X**

Comments against D1.0 (#571, #572, #617, #618) requested that IEC 63171-1(MICE1) & IEC 61076-3-125 (MICE3) be defined for both T1-L and T1-S (as listed in "SC25 WG3 Interim Update Report for 802.3 Sept 2018.pdf"). Comment resolution for D2.0 only added IEC 63171-1(MICE1) for T1-L making the draft internally inconsistent (T1L vs T1-S) and also inconsistent with the liaison from S25/WG3. Add IEC 63171-1(MICE1) to T1-L. Add IEC 63171-1(MICE1) & IEC 61076-3-125 (MICE3) to T1-S.

SuggestedRemedy

Change paragraph 2 of 146.8.1 MDI connectors to say
"Connectors meeting the requirements of IEC 63171-1 (MICE1 environments) or IEC 61076-3-125 (MICE3 environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informational use only) in Figure 146-XXX and Figure 146-YYY. The assignment of PMA signals to connector contacts for PHYs is shown in Figure 146-ZZZ"
Update editor's note in 146.8.1 to match.
Add the following paragraph to 147.9.1 MDI connectors
"Connectors meeting the requirements of IEC 63171-1 (MICE1 environments) or IEC 61076-3-125 (MICE3 environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informational use only) in Figure 147-XXX and Figure 147-YYY. The assignment of PMA signals to connector contacts for PHYs is shown in Figure 147-ZZZ"
Add equivalent editor's note taken from 146.8.1.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.3** *P* **152** *L* **38** # 276

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] 1 < f} <= 10 MHz

SuggestedRemedy

1 < f <= 10 MHz (remove "}")

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.4** *P* **152** *L* **48** # 351
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

What is the justification for limiting this requirement to only “industrial applications” especially when no requirement for other applications is specified?

SuggestedRemedy

Remove the words: “For industrial applications”

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.4** *P* **152** *L* **48** # 416
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Unless there are other applications where this sub-clause does not apply, then "For industrial applications," is redundant here.
Same for 146.8.5 MDI fault tolerance.

SuggestedRemedy

Change "For industrial applications, the" to "The"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.4** *P* **152** *L* **48** # 277
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

For industrial applications, the wire pair of the MDI shall withstand without damage the application of positive voltages of up to 60 V dc with the source current limited to 1200 mA, under all operating conditions, for an indefinite period of time.

SuggestedRemedy

For industrial applications, in non-engineered systems, the wire pair of the MDI shall withstand without damage the application of positive voltages of up to 60 V dc with the source current limited to 1200 mA, under all operating conditions, for an indefinite period of time. (Background to limit the DC voltage tolerance to non-engineered systems is, that in engineered systems, e.g. intrinsically safe systems, the maximum voltage is limited to 17.5 V and that a voltage tolerance of up to 60 V adds a burden to these devices related to size, effort and cost. Therefore while it is a reasonable thing for plug-and-play systems to withstand PoDL voltages, for engineered systems, this makes things more complicated and should be omitted.)

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.4** *P* **152** *L* **51** # 161
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"the devices does not" should be "the device does not"

SuggestedRemedy

Change "the devices does not" to "the device does not"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.4** *P* **152** *L* **51** # 160
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"Clause 104" should be a cross-reference.

SuggestedRemedy

Make "Clause 104" a cross-reference.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.5** *P* **153** *L* **3** # 352
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

What is the justification for limiting this requirement to only “industrial applications” especially when no requirement for other applications is specified?

SuggestedRemedy

Remove the words: “For industrial applications”

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.5** *P* **153** *L* **4** # 278
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] … or ground potential,as per …

SuggestedRemedy

… or ground potential, as per … (add space after comma)

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.5** *P* **153** *L* **4** # 11
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

Need space between comma and "as"

SuggestedRemedy

change "potential,as" to "potential, as"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.5** *P* **153** *L* **8** # 304
Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **X**

"The wire pair of the MDI shall also withstand, without damage, high-voltage transient noises and ESD per application requirements."

Not specific enough for a requirement.

SuggestedRemedy

Either appropriate minimum limits of "high-voltage" need to be provided, or this text needs to be turned informative.
Also, we really should not make requirements depend on what the application of the device is.
Our job is the set the minimum requirements for interoperability.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.5** *P* **153** *L* **32** # 162
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"NOTE— Typically" should not have a space between "—" and "Typically"

SuggestedRemedy

Delete the space.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.1** *P* **153** *L* **41** # 53
Zimmerman, George CME Consulting et al

Comment Type **T** *Comment Status* **X**

"All equipment subject to this clause is expected to conform to IEC 60950-1 or IEC 62368-1 for IT and industrial applications. For industrial applications only, all equipment subject to this clause is expected to conform to IEC 61010-1, if required by the given application." - "is expected" isn't quite right. We can't really make statements of fact about the overall equipment. However, one can expect that conformance is a requirement and is meetable... Also, saying "industrial applications only" isn't right either the way the statement is written. one could look at IEC 61010-1 under any circumstance "if required by the given application".

SuggestedRemedy

Change "is expected" to "can be expected" (both places), and delete "only" after "For industrial applications"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.1** *P* **153** *L* **41** # 305
Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **X**

"All equipment subject to this clause is expected to conform to IEC 60950-1 or IEC 62368-1 for IT and industrial applications."

The two referenced IEC standards ensure basic electrical safety of the port and really need to be a requirement. We really don't ever want to see a device that does NOT meet 60950-1.

SuggestedRemedy

"All equipment subject to this clause shall conform to IEC 60950-1 or IEC 62368-1."

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.2.1** *P* **154** *L* **7** # 306

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **X**

Comment #352 against D2.0 was AIP, but the comment resolution was not implemented.

SuggestedRemedy

Implement #352:
Replace "shall conform to" with "is expected to conform to" on P 154 line 7.
Clause 147.10.2.1 is already aligned with this change.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.2.1** *P* **154** *L* **9** # 54

Zimmerman, George CME Consulting et al

Comment Type **T** *Comment Status* **X**

"In industrial applications, all equipment subject to this clause shall conform to the potential environmental stresses with respect to their mounting location, as defined in the following specifications, where applicable:" We are putting requirements on equipment outside the scope of 802.3.

SuggestedRemedy

Change "shall conform" to "can be expected to be conform"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.2.1** *P* **154** *L* **18** # 353

Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **X**

Wish wash BS. What is the conformance test requirement for this text.

SuggestedRemedy

Remove or replace with something of substance.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.2.2** *P* **154** *L* **20** # 307

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **X**

I commented (#353) on 146.9.2.2, saying it is out of scope.
The comment was rejected with the following reason:
"Electromagnetic compatibility clauses similar to this are common in 802.3 PHY clauses. This clause is modeled after those for automotive and industrial PHYs."

First, the rationale for rejection is not strong. Just because the other two clauses have the same out of scope requirements is not reason to propagate this here.

So what's the issue here ?
The requirements in 146.9.2.2 drag in no less than 8 separate ISO IEC standards. But only for "industrial applications".
What are industrial applications ? There is no definition for that. For clear-cut industrial applications, I'm sure that all of these IEC standard are appropriate and reasonable. But what about devices used in a similar environment that may or may not be considered "industrial applications" ?

They suddenly get to deal with an enormous mountain of requirements, that may not be appropriate for the application at all.

The real question here is: is it 802.3cg responsability to put what are clearly SYSTEM requirements on a device ?
No. Our job is twofold:
- ensure interoperability between 10SPE devices
- ensure basic electrical sanity (such as ISO/IEC 60950)

More strenuous requirements, while wholly appropriate, belong in the requirements document you send to your 10SPE switch vendor. Not in 802.3cg.

SuggestedRemedy

Remove the 3 shalls in 146.9.2.2, on line 24, and twice on 27.

See 147.10.2.2 for an example of an apprpriate section.

Proposed Response *Response Status* **O**

Cl **146** SC **146.9.2.2** P **154** L **24** # 411
Jones, Peter Cisco

Comment Type **TR** *Comment Status* **X**

D3.0 rejected comment #353 requests removal of this section. The first paragraph is boilerplate but the 2nd and 3rd have issues, including liisting specific tests. These may not be complete , could change over time, and are covered within "all applicable local and national codes". It also contains additional "shall/may"'s that are not in the PICS, and doesn't match 147.10.2.2

SuggestedRemedy

Remove the 2nd and 3rd paragraphs of 146.9.2.2 leaving it as "A system integrating the 10BASE-T1L PHY shall comply with all applicable local and national codes."

Proposed Response *Response Status* **O**

Cl **146** SC **146.9.2.2** P **154** L **24** # 55
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"In industrial applications, a 10BASE-T1L PHY shall be tested according to the MICE classification depending on the intended electromagnetic classification (MICE E1 to MICE E3)." - first, this isn't just industrial applications - and second, this is a requirement on the user. (also two shalls in the subsequent sentence) - finally, an "as applicable" shall is useless.

SuggestedRemedy

Delete "In industrial applications" and change "shall be tested" to "can be tested" to align with 146.5.1.2 Change "Where applicable, testing according to IEC 61326-1 and NAMUR NE021 test methods, which are similar or even more severe than a MICE E3 environment, shall be done, and the following industrial EMC requirements shall be met:" to "Where applicable, testing according to IEC 61326-1 and NAMUR NE021 test methods, which are similar or even more severe than a
MICE E3 environment, can be performed, according to the following industrial EMC requirements:"

Proposed Response *Response Status* **O**

Cl **146** SC **146.9.2.2** P **154** L **24** # 478
Carty, Clark Cisco Systems, Inc.

Comment Type **T** *Comment Status* **X** *Late*

D3.0 rejected comment #353 that requests removal of this section. The second and third paragraphs have issues. This includes listing specific tests. These test may not be complete, could change over time, and are covered within "all applicable local and national codes". There are also "shalls and mays" that are not in the PICS, and don't match 147.10.2.2.

SuggestedRemedy

Remove the 2nd and 3rd paragraphs of 146.9.2.2 leaving it as "A system integrating the 10BASE-T1L PHY shall comply with all applicable local and national codes."

Proposed Response *Response Status* **O**

Cl **146** SC **146.9.2.2** P **154** L **24** # 330
Jones, Chad Cisco

Comment Type **TR** *Comment Status* **X**

A comment was filed against D2.0 to remove this section and was rejected (#353). This section contains untestable shalls which additionally have nothing to do with interoperability. It was improper to reject this comment.

SuggestedRemedy

delete the section or delete the untestable shalls.

Proposed Response *Response Status* **O**

Cl **146** SC **146.9.2.2** P **154** L **26** # 163
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

This says "NAMUR NE021 test methods" whereas on Page 26, line 44 we have "NAMUR NE 021:2017"

SuggestedRemedy

Change "NAMUR NE021 test methods" to "NAMUR NE 021 test methods"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.9.2.2** *P* **154** *L* **27** # 164

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

This says that "testing … shall be done"
The 802.3 standard does not usually prescribe what tests have to be done, only that if tested, the implementation has to pass.

SuggestedRemedy

Change the requirement from "testing has to be done" to "requirements have to be met"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.11.2.2** *P* **156** *L* **1** # 165

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

Comment #101 against D2.0 was:
Cl 146, SC 146.11.2.2, P 136, L 33
Comment
146.11.2.2 should be on the same page as the rest of the PICS initial text.
SuggestedRemedy
Uncheck "Keep with next" for the heading of 146.11.2.2
ACCEPT
However, this has not been implemented.

SuggestedRemedy

Uncheck "Keep with next" for the heading of 146.11.2.2

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.11.3** *P* **156** *L* **25** # 166

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

EEE is not used in the Status column anywhere in the Clause 146 PICS, so it should not be preceded by a "*"

SuggestedRemedy

Change "*EEE" to "EEE"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.11.4.3** *P* **162** *L* **15** # 167

Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

Comment #107 against D2.0 was:
Cl 146, SC 146.11.4.3, P 143, L 15
Comment
The Status entry for Item MI3 is:
"ANEG:
MDIO:
M"
"ANEG" is undefined. This should be "AN"
It is not clear what the intent of this entry is.
The syntax for multiple elements ORed together used elsewhere (e.g., 104.9.4.4) is similar but different from that used here.
The text in 146.6.2 seems to match ORed elements: Mandatory for Auto-Negotiation or MDIO capability.
Alternatively, the syntax for multiple elements ANDed together is defined in 21.6.2 as "<item1>*<item2>:"
SuggestedRemedy
If the intent is for the conditions to be ORed, then change the Status entry for Item MI3 to:
"AN:M
MDIO:M"
If the intent is otherwise, change to some other valid entry such as:
"AN*
MDIO:M"
Increase the width of the Status column (in all of the PICS tables) and decrease the width of the Status column to compensate, so that individual elements such as MDIO:M do not wrap.
ACCEPT
However, this has not been implemented.

SuggestedRemedy

If the intent is for the conditions to be ORed, then change the Status entry for Item MI3 to:
"AN:M
MDIO:M"
If the intent is otherwise, change to some other valid entry such as:
"AN*
MDIO:M"
Increase the width of the Status column (in all of the PICS tables) and decrease the width of the Subclause column to compensate, so that individual elements such as MDIO:M do not wrap.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.20** *P* **229** *L* **17** # 440
Jones, Peter Cisco

Comment Type **ER** *Comment Status* **X**

The acronym DCR is used without definition (I believe it's Direct Current Resistance).

SuggestedRemedy

Add DCR to "1.5 Abbreviations" , and also spell out on first use, i.e., Direct Current Resistance(DCR).

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.A.1** *P* **227** *L* **50** # 178
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

"NOTE— The" should not have a space between "—" and "The"

SuggestedRemedy

Delete the space.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146A.1** *P* **226** *L* **22** # 438
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

This standard does not define an IC or how functions are packages into physiocal components. Fix that and also some other editorials.

SuggestedRemedy

Change "In addition, the realization of the PHY IC has a strong impact on the possible intrinsic safety concepts," to In addition, the PHY implementation has a strong impact on intrinsic safety,"

Proposed Response *Response Status* **O**

Cl **146** *SC* **146A.1** *P* **227** *L* **24** # 439
Jones, Peter Cisco

Comment Type **T** *Comment Status* **X**

Even as examples, do figures 146A–1, 146A-2 and 146A–3 make any sense without values for the components (e.g. Capacitors)? See Figure Figure 147–33, 147–32, 147–24, 147–23 for circuuit diagrams that include the values.

SuggestedRemedy

Add values as appropriate

Proposed Response *Response Status* **O**

Cl **146** *SC* **Fig 146-11** *P* **131** *L* **40** # 342
Thompson, Geoff GraCaSI S.A.

Comment Type **E** *Comment Status* **X**

Improve clarity of 1st note, remove undefined term.

SuggestedRemedy

Change text to read: The “recovered_clock” shown indicates the delivery of the recovered clock back to PMA TRANSMIT in SLAVE mode for loop timing.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147** *P* **164** *L* **1** # 59
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**

The title and first paragraph of the clause leaves out the PMD which is defined in the clause and shown in the architecture figure Either the PMD needs to be architecturally defined as a separate unit or folded into the PMA

SuggestedRemedy

Fold the PMD into the PMA by making the following changes: delete the PMD sublayer from figure 147-1 (both the layer and the definition), change 147.3.2.1 P169 L6 from "change the PMD state according to 147.4.2" to "change the output to a high impedance state, according to 147.4.2", change 147.4.2 item b (P182 L8) to from "put the PMD into high-impedance state" to "present the minimum impedance described in 147.9.2 at the MDI", change 147.4.2 item c (P182 L9) from "the PMD drives a " to "the PMA drives", change all references to PMD in Figure 147-17 (P188) to PMA (3 references, including caption).

Proposed Response *Response Status* **O**

Cl **147** *SC* **147** *P* **167** *L* **1** # 388
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**

All timer names are uppercase, but it appears that in other clauses these are lowercase.

SuggestedRemedy

Change all timer names to lowercase across clause 147. Implement this comment after all other comments have been resolved.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1** *P* **164** *L* **12** # 56
Zimmerman, George CME Consulting et al

Comment Type **ER** *Comment Status* **X**

"The 10BASE-T1S PHY is a full-/half-duplex point-to-point and half-duplex multidrop PHY specification, capable of operating at 10 Mb/s. The 10BASE-T1S PHY is intended to be operated over the point-to-point link segment defined in 147.7 and the mixing segment defined in 147.8." is less clear than it could be The "PHY" is not a specification and the mixed modes make it confusing. (this relates to unsatisfied comment i-268) [OPTIONS]

SuggestedRemedy

Replace the first and 2nd sentences of the paragraph with "The 10BASE-T1S PHY is specified to be capable of operating at 10 Mb/s in several modes. All 10BASE-T1S PHYs can operate a half-duplex PHY with a single link partner over a point-to-point link segment defined in 147.7, and, additionally, there are two mutually exclusive optional operating modes: a full-duplex point-to-point mode over the link segment defined in 147.7, and a half-duplex shared-medium mode, referred to as multidrop mode, capable of operating with multiple link partners connected to a mixing segment, defined in 147.8.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1** *P* **190** *L* **44** # 179
Huszak, Gergely Kone

Comment Type **TR** *Comment Status* **X**

Single node failure on a multidrop segment may interfere with, or even prevent all communication there

SuggestedRemedy

Define fail-safe transmitter-enable, driven by the non-binary “OK” outputs of the internal supervision of PCS, PMA and PMD

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.1** *P* **164** *L* **29** # 417
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Editorial cleanup

SuggestedRemedy

Change "Auto-Negotiation
for 10BASE-T1S is defined in Clause 98 and available only while not in multidrop mode." to "Auto-Negotiation
for 10BASE-T1S is defined in Clause 98 and is not available in multidrop mode."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.1** *P* **164** *L* **31** # 418
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Not clwar why this paragraph include ""Optional MDIO is defined
in Clause 45. Management is not optional. MII is defined in Clause 22"

SuggestedRemedy

Remove "Optional MDIO is defined in Clause 45. Management is not optional. MII is defined in Clause 22."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.1** *P* **164** *L* **32** # 486
Bains, Amrik Cisco Systems INC

Comment Type **T** *Comment Status* **X** *Late*

Optional MDIO is defined
in Clause 45. Management is not optional

SuggestedRemedy

Change to " Management Entity is required using MDIO or other function"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **38** # 57

Zimmerman, George — CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"The 10BASE-T1S PHY may operate using full-duplex or half-duplex point-to-point communications on a link segment using a single balanced pair of conductors, supporting up to four in-line connectors and up to at least 15 meters in reach, with an effective rate of 10 Mb/s in each direction simultaneously." - this isn't true of half duplex mode. [OPTIONS]

SuggestedRemedy

Rewrite first paragraph of 147.1.2 as follows: "All 10BASE-T1S PHYs can operate using half-duplex point-to-point communications on a
link segment using a single balanced pair of conductors, supporting up to four in-line connectors and up to at least 15 meters in reach, with an effective rate of 10 Mb/s shared between the two directions of transmission. Additionally, 10BASE-T1S PHYs supporting the full-duplex point-to-point operation may operate with an effective rate of 10 Mb/s in each direction simultaneously."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **46** # 362

Baggett, Tim — Microchip

Comment Type **E** *Comment Status* **X**

Text will refer to "differential manchester encoding (DME) modulation". However, DME is a line code, not a modulation.

SuggestedRemedy

Remove "modulation".

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **46** # 361

Baggett, Tim — Microchip

Comment Type **E** *Comment Status* **X**

The term "DME" is not defined at its first use in Clasue 147 and later uses either full "Differential Manchester Encoding" or redefine "Differential Manchester Encoding (DME)".

SuggestedRemedy

On Page 146 Line 64 (first use of DME), change "DME" to "differential Manchester encoding (DME)", and replace all subsequent references of "Differential Manchester Encoding" or "differential Manchester encoding (DME)" in Clause 147 to simply "DME". See P181 L1, P181 L15, and P183 L29.

Editorial license to mode the 'first use' definition of "differential Manchester encoding (DME)" if its location changes during comment resolution.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **47** # 58

Zimmerman, George — CME Consulting et al

Comment Type **E** *Comment Status* **X**

"4B/5B encoding is used to further improve EMC performance and to signaling among the connected PHYs." - extra "to" before "signaling"

SuggestedRemedy

delete "to" in "to signaling"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **47** # 363

Baggett, Tim — Microchip

Comment Type **E** *Comment Status* **X**

The phrase "and to signaling among connected PHYs" is awkward. It appears that changes for resolved d2p0 Comment #641 were not correctly applied to the latest d2p1 draft (deleted "perform" along with "out-of-band").

SuggestedRemedy

Change:
====
4B/5B encoding is used to further improve EMC performance and to signaling among the connected PHYs.
====
to:
====
4B/5B encoding is used to further improve EMC performance and to perform signaling among the connected PHYs.
====

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **47** # 325

Xu, Dayin — Rockwell Automation

Comment Type **E** *Comment Status* **X**

Change "... and to signaling ..." to " ... and signaling ..."

SuggestedRemedy

Change "... and to signaling ..." to " ... and signaling ..."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.1.2** *P* **164** *L* **47** # 168

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

In "4B/5B encoding is used to further improve EMC performance and to signaling among the connected PHYs."
"signaling" should be "signal"

SuggestedRemedy

Change "signaling" to "signal"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.2** *P* **165** *L* **31** # 474

Law, David — HPE

Comment Type **T** *Comment Status* **X**

While Clause 146 'Physical Coding Sublayer (PCS), Physical Medium Attachment (PMA) sublayer and baseband medium, type 10BASE-T1L' contains subclause 146.1.3 'Conventions in this clause' which defines, for example, the state diagram conventions, I don't see similar subclauses in clauses 147 and 148 which also contain state diagrams.

SuggestedRemedy

Add subclauses to the Clauses 147 and 148 to define the conventions used in these clauses too. This could potentially be achieved by cross-referencing subclause 146.1.3.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.2** *P* **166** *L* **37** # 279

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

Currently for a 10BASE-T1S PHY in point-to-point mode Auto-Negotiation is precluded (for mixing segments in a multidrop environment, Auto-Negotiation is not required). Main reason for this is that the PMA_LINK.indication primitive (link status) is not yet supported by a 10BASE-T1S PHY in point-to-point mode. Therefore also the optional PMA_LINK.request and PMA_LINK.indication signals and optional Technology Dependent Interface are missing in Figure 147-2.

SuggestedRemedy

To be able to provide PMA_LINK.indication (link status) signal, and therefore to be able to implement Auto-Negotiation for 10BASE-T1S point-to-point mode, an additional Heart Beat signal, in case no data communication is active on the link, is required. This can be implemented, as described in presentation http://www.ieee802.org/3/cg/public/adhoc/beruto_3cg_T1S_autoneg_revF.pdf. Please perform the necessary changes as described in the mentioned presentation and add the optional PMA_LINK.request and PMA_LINK.indication signals and optional Technology Dependent Interface.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.2** *P* **166** *L* **42** # 280
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
[EASY] PMA_CARRIER.indication(pma_crs)

SuggestedRemedy
PMA_CARRIER.indication (pma_crs) (add space before the opening bracket). There is also a second occurrence on page 167, line 2, which needs to have a space added.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.2.1.1** *P* **166** *L* **51** # 60
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
"Maps the primitive PMA_CARRIER.indication to the MII CRS sign." - "sign" should be "signal"

SuggestedRemedy
Change "sign" to "signal"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.1** *P* **167** *L* **27** # 169
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
In: "The receipt of a request for reset from the management entity (see 3.2291.15 in 45.2.3.58e.1), independently from the current state of pcs_reset."
"see 3.2291.15 in 45.2.3.58e.1" does not make sense and also "3.2291.15" and "45.2.3.58e.1" should not be in forest green.

SuggestedRemedy
Change to: "The receipt of a request for reset from the management entity (bit 3.2291.15 defined in 45.2.3.58e.1), independently from the current state of pcs_reset."
with "3.2291.15" in normal font and "45.2.3.58e.1" as a cross-reference.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2** *P* **172** *L* **6** # 390
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**
The recirculating arc of the SILENT state in figure 147-4 is now useless.

SuggestedRemedy
Remove the recirculating arc of SILENT state in Figure 147-4.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2** *P* **172** *L* **14** # 369
Beruto, Piergiorgio Canova Tech Srl

Comment Type **TR** *Comment Status* **X**
COMMAND state in Figure 147-4 needs a recirculating arc with an "ELSE" condition. This is required to refresh the tx_sym value when tx_cmd changes.

SuggestedRemedy
Add a recirculating arc to state COMMAND in figure 147-4 (part a) specifying "ELSE" as condition.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2** *P* **173** *L* **18** # 391
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**
Exit condition from state ESD is incomplete.

SuggestedRemedy
In Figure 147-5 (part b) in transition from state ESD to state GOOD_ESD change the condition from "STD * !err" to "STD * !err * !xmit_max_timer_done"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.1** *P* **168** *L* **47** # 326
Xu, Dayin Rockwell Automation

Comment Type **E** *Comment Status* **X**
Line 53 on this page and other places use "5B" and here uses "five-bit", not consistent

SuggestedRemedy
Use 5B instead of five-bit

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.2** *P* **169** *L* **20** # 170
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
Comment #111 against D2.0 was:
Cl 146, SC 146.3.2.1, P 98, L 4
Comment
"22.2.2.5" should be a cross-reference.
Same issue in 147.3.2.2 (page 149, line 36)
SuggestedRemedy
Make "22.2.2.5" a cross-reference here and in 147.3.2.2 (page 149, line 36).
ACCEPT
However, this has not been implemented in 147.3.2.2.

SuggestedRemedy
Make "22.2.2.5" a cross-reference

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.2** *P* **170** *L* **3** # 461
McClellan, Brett Marvell

Comment Type **ER** *Comment Status* **X**
txcnt is a counter and should be moved into a counters subclause

SuggestedRemedy
insert subclause 147.3.2.4 Counters prior to 147.3.2.4 Abbreviations and renumber accordingly. Move txcnt definition to the new subclause.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.3** *P* **173** *L* **10** # 281
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
XMIT_MAX_TIMER done

SuggestedRemedy
XMIT_MAX_TIMER_done (replace 2 occurences in line 11 and line 19).

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.3** *P* **173** *L* **33** # 282
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
UNJAB_TIMER done

SuggestedRemedy
UNJAB_TIMER_done (replace space by underline)

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.3** *P* **173** *L* **36** # 327
Xu, Dayin Rockwell Automation

Comment Type **TR** *Comment Status* **X**
err and XMIT_MAX_TIMER done are two independent conditions, STD*!err is not a complete condition from ESD to GOOD_ESD. Both err and XMIT_MAX_TIMER done could occur at the same time.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.4** *P* **173** *L* **38** # 487
Bains, Amrik Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*
Abbreviations should be bfore figure 147-5

SuggestedRemedy
Move section 147.3.2.4 to be before Figure 147-4

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.6** *P* **174** *L* # 488
Bains, Amrik Cisco Systems INC

Comment Type **T** *Comment Status* **X** *Late*
Not clear on what the timers are based on?

SuggestedRemedy
Clarify how the timer values are based on - number of packets or symbols

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3** *P* **178** *L* **15** # 314
Xu, Dayin Rockwell Automation

Comment Type **ER** *Comment Status* **X**
Typo of "RXn2 = ESDOK2 ="

SuggestedRemedy
Change "RXn2 = ESDOK2 =" to "RXn-2 = ESDOK"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.1** *P* **174** *L* **52** # 283
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
ESDOK, ESDERR or ESDJAB symbol

SuggestedRemedy
ESDOK, ESDERR, or ESDJAB symbol (add comma before "or")

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.1** *P* **175** *L* **2** # 284
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**
… ESDJAB and ESDERR see 147.3.2.2.

SuggestedRemedy
… ESDJAB, and ESDERR see 147.3.2.2. (add comma before "and")

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.2** *P* **175** *L* **13** # 61
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**
"If MDIO is implemented, this variable is set according to bit 8 in MDIO register 0, defined in Table 22-7. If MDIO is not implemented, duplex_mode should be set by the means of equivalent interface." - register zero is not part of MDIO. It is in the clause 22 "MII management interface" which is mandatory if MII is implemented.

SuggestedRemedy
Change "If MDIO is implemented," to "If MII is implemented according to Clause 22," and "If MDIO is not implemented" to "If MII is not implemented according to clause 22"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.2** *P* **175** *L* **14** # 465

McClellan, Brett Marvell

Comment Type **TR** *Comment Status* **X**

"bit 8 in MDIO register 0 defined in Table 22-7."
this text references a Clause 22 register bit, but Clause 45 register bits are used for 10BASE-T1S
We need to change the Clause 22 register bit to a Clause 45 PCS register bit.
However, there is no Duplex Mode bit defined for the 10BASE-T1S PCS. I propose we define bit 13 in the 10BASE-T1S PCS control register (3.2291) to be Duplex Mode and it applies when Auto-Negotiation is not implemented or is disabled.
Also, this text fails to indicate that when Auto-Negotiation is implemented that duplex_mode is set based on priority resolution. It also fails to indicate that Multidrop mode takes precedence in setting duplex_mode to DUPLEX_HALF.

SuggestedRemedy

suggested remedy
page 175 line 50
change
"duplex_mode
This variable indicates whether the PHY is configured for full-duplex operation (DUPLEX_FULL) or half-duplex operation (DUPLEX_HALF). This variable is set after bit 8 in MDIO register 0 defined in Table 22-7."
to
"duplex_mode
This variable indicates whether the PHY is configured for full-duplex operation (DUPLEX_FULL) or half-duplex operation (DUPLEX_HALF). If Multidrop mode MDIO register bit 1.2299.10 is set to one and multidrop mode is supported according to bit 1.2300.10 then duplex_mode is set to DUPLEX_HALF. Else, if Auto-Negotiation is enabled then duplex_mode is set by the priority resolution defined in 98B.4. Otherwise, this variable is set by MDIO register bit 3.2291.13. If MDIO is not implemented, duplex_mode is set by the means of an equivalent interface."
Values: DUPLEX_FULL or DUPLEX_HALF

page 52 line 50
insert new row in Table 45–237c
3.2291.13 Duplex mode1 = Set to Half duplex 0 = Set to Full duplexR/W
change "3.2291.13:0" to "3.2291.12:0"

page 53 line 28 insert paragraph
"45.2.3.68c.3 Duplex mode (3.2291.13)
Bit 3.2291.13 is used to configure the PCS duplex_mode variable when Auto-Negotiation enable bit 7.512.12 is set to zero, or if Auto-Negotiation is not implemented. If bit 3.2291.13 is set to one then duplex_mode is set to DUPLEX_HALF. If bit 3.2291.13 is set to zero then duplex_mode is set to DUPLEX_FULL. This bit shall be ignored when the Auto-Negotiation enable bit 7.512.12 is set to one."

45.2.1.186f.4 page 47 line 17
change "The 10BASE-T1S PMA/PMD shall operate in multidrop mode over a mixing segment network (see Clause 147) when bit 1.2299.10 is set to one."
to
"The 10BASE-T1S PMA/PMD shall operate in multidrop mode over a mixing segment network (see Clause 147) and the PCS shall operate in half duplex when bit 1.2299.10 is set to one."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.2** *P* **175** *L* **17** # 419

Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

editorial cleanup, this seem to imply that if duplex_mode is set via management, it can't be set via autoneg.

SuggestedRemedy

change "If MDIO is not implemented, duplex_mode should be set by the means of equivalent interface. Otherwise, duplex_mode can be set by the means of Auto-Negotiation. To ""If MDIO is not implemented, duplex_mode should be set by the means of equivalent interface. In addition, duplex_mode can be set by the means of Auto-Negotiation."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.5** *P* **177** *L* **1** # 399

Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**

The PCS Receive state diagram should be in its own sub-clause section.

SuggestedRemedy

Introduce new sub-clause titled "PCS Receive state machine".

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.3.5** *P* **177** *L* **8** # 285

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

RXn=SYNC (line 8) / RXn=SSD (line 16)

SuggestedRemedy

RXn = SYNC / RXn = SSD (add spaces).

Proposed Response *Response Status* **O**

Cl **147** SC **147.3.3.5** P **177** L **8** # 398
Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**

The PCB Receive state diagram doesn't show the progression of symbol time index n to indicate the next symbol received. For example before SYNCING state there is RXn=SYNC and after SYNCING state RXn=SSD. Shouldn't the RXn=SSD be replaced with RXn+1=SSD? There is a similar finding where WAIT_SSD state, there is RXn = SSD. After WAIT_SSD state, RXn=SSD where in this case n should be n+1.

SuggestedRemedy

Correct symbol time index n throughout diagram.

Proposed Response *Response Status* **O**

Cl **147** SC **147.3.3.5** P **177** L **31** # 286
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] precnt = 9 / precnt ≠ 9 has a too small font size.

SuggestedRemedy

Match font size.

Proposed Response *Response Status* **O**

Cl **147** SC **147.3.3.5** P **178** L **13** # 287
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

RSCD * RXn-3 = ESD * RXn2 = ESDOK2 =

SuggestedRemedy

RSCD * RXn-3 = ESD * RXn-2 = ESDOK

Proposed Response *Response Status* **O**

Cl **147** SC **147.3.5** P **179** L **14** # 354
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **X**

The Collision Detection requirements are not precisely defined for this clause.

SuggestedRemedy

Add a new second paragraph that says: “The 10BASE-T1S PHY shall meet collision detect requirements equivalent to those specified in 8.2.1.3.”

Proposed Response *Response Status* **O**

Cl **147** SC **147.3.5** P **179** L **15** # 315
Xu, Dayin Rockwell Automation

Comment Type **ER** *Comment Status* **X**

"CRS is generated by … is CARRIER_OFF" does not belong this subclause

SuggestedRemedy

Move this paragragh (line 15-17) after line 23 on page 179

Proposed Response *Response Status* **O**

Cl **147** SC **147.3.6** P **179** L **24** # 316
Xu, Dayin Rockwell Automation

Comment Type **ER** *Comment Status* **X**

Delete the line 24 "CRS is generated … variables"

SuggestedRemedy

Delete the line 24 "CRS is generated … variables"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.6** *P* **179** *L* **25** # 381

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **ER** *Comment Status* **X**

Text changes from approved resolution of comment #649 in draft 2.0 didn't meet the specs in draft 2.1. Unfortunately the description of CRS is a critical part of the specifications, thus this comment is a required editorial.

SuggestedRemedy

Change "CRS is generated by PCS Receive as the logical OR of the “transmitting” and “receiving” variables." to "CRS is generated by mapping the PMA_CARRIER.indication(pma_crs) primitive to the MII signal CRS.
CRS shall be asserted when the pma_crs parameter is CARRIER_ON.
CRS shall be de-asserted when the pma_crs parameter is CARRIER_OFF."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.7.1** *P* **180** *L* **11** # 317

Xu, Dayin — Rockwell Automation

Comment Type **ER** *Comment Status* **X**

change "RXD" to "RXD<3:0>"

SuggestedRemedy

change "RXD" to "RXD<3:0>"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.7.3** *P* **180** *L* **23** # 62

Zimmerman, George — CME Consulting et al

Comment Type **E** *Comment Status* **X**

Since 147.3.7.3 is the end of the lowest level numbering, there is no need to keep it around with an editors note - just remove it. The same applies to 147.4.4

SuggestedRemedy

Delete header 147.3.7.3 and editors note on P180 L 23 through 28. Delete header 147.4.4 and editors note on P182 L29-34.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4** *P* **180** *L* **29** # 475

Law, David — HPE

Comment Type **TR** *Comment Status* **X**

I note that while the 10BASE-T1S PHY defines a PMD sublayer, see Figure 147–1, the 10BASE-T1L PHY does not, see figure 146–1. I can think two main reasons to define a PMD sublayer for the 10BASE-T1S PHY.

The first would be to support different media types, such as copper and fibre, with a common PCS and PMA. This is the approach supported by the 100BASE-X PCS and PMD (see Clause 24) where adding a 'fibre' PMD sublayer (see Clause 26) provides a 100BASE-FX PHY, and adding a 'twisted pair' PMD sublayer (see Clause 25) provides a 100BASE-TX PHY, more commonly referred to as 100BASE-T. I would assume this is not the reason for providing a PMD sublayer for the 10BASE-T1S PHY.

The second would be to enable interoperable implementation of the PMD function as a separate instantiation from the PCS, PMA and other functions. To achieve this the PMD service interface (the interface between the PMA and PMD) would be defined as a chip-to-chip compatibility interface, no mechanical connector would be specified. This would enable a 'system' (PCS, PMA, other functions) chip with a 'digital' interface to a 'driver' (PMD) chip. I assume that this is the reason for providing a PMD sublayer for the 10BASE-T1S PHY.

Based on the above, subclause 147.5 'PMA electrical specifications' and its subclauses are actually the PMD electrical specifications since they define transmit and receive characteristics at the MDI. As an example subclause 147.4.3 'PMA Receive function' states 'It detects 5B symbols from the signals received at the MDI and presents these sequences to the PCS Receive function.'. It is the PMD that interfaces to MDI, not to PMA, see Figure 147–1. For the same reasons subclause 147.4 'Physical Medium Attachment (PMA) Sublayer' actually defines the PMD subclause. Finally, I don't see any definition of the PMD service interface, the interface between the PMA and PMD, for 10BASE-T1S in the draft.

SuggestedRemedy

If it is the intention to support a separable PMD instantiation for the 10BASE-T1S PHY with an interoperable PMD service interface suggest that:

[1] Subclause 147.4 'Physical Medium Attachment (PMA) Sublayer' be changed to be the PMD Sublayer definition.
[2] Subclause 147.5 'PMA electrical specifications' be changed to be the PMD electrical definition.
[3] A subclause is added to define the functions provided by the PAM subclause.
[4] A subclause is added to define an interoperable PMD service interface.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4** *P* **180** *L* **53** # 63

Zimmerman, George — CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"The PMA provides either full duplex and half duplex communications to and from" - full duplex mode is optional, and "either" needs to be followed by "or", not "and" [OPTIONS]

SuggestedRemedy

Change "The PMA provides either full duplex and half duplex communications to and from" to "The PMA provides either half duplex communications, or, optionally full duplex communications to and from"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4** *P* **180** *L* **53** # 420

Jones, Peter — Cisco

Comment Type **E** *Comment Status* **X**

editorial cleanup

SuggestedRemedy

Change "The PMA provides either full duplex and half duplex communications" to "The PMA provides either full duplex or half duplex communications"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.1** *P* **181** *L* **4** # 455

Brandt, David — Rockwell Automation

Comment Type **T** *Comment Status* **X**

PMA Reset performs no function.

SuggestedRemedy

Suggest PMA Transmit output goes to high-Z, buffered tx_sym is discarded, PMA_UNITDATA.indication is cleared.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.1** *P* **181** *L* **8** # 318

Xu, Dayin — Rockwell Automation

Comment Type **E** *Comment Status* **X**

Add reference of the PMA management entity

SuggestedRemedy

Add "(see 1.2294.15 in 45.2.1.186c.1)" after " the management entity"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.2** *P* **181** *L* **12** # 319

Xu, Dayin — Rockwell Automation

Comment Type **E** *Comment Status* **X**

Reword the sentence

SuggestedRemedy

Change the sentence from " During transmission, PMA_UNITDATA.request conveys to the PMA using tx_sym the value of the symbols to be sent over the single transmit pair." to " During transmission, PMA_UNITDATA.request conveys the tx_sym variable to the PMA. The value of the tx_sym variable is sent over the single balanced pair of conductors, BI_DA."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.2** *P* **181** *L* **15** # 320

Xu, Dayin — Rockwell Automation

Comment Type **E** *Comment Status* **X**

Change " a vector of 5 bits" to " a 5B vector"

SuggestedRemedy

Change " a vector of 5 bits" to " a 5B vector"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.2** *P* **181** *L* **42** # 375

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Having more silence in between subsequent (different) transmissions would make the PMA RX implementation simpler when it comes to reliably detect the end of a DME sequence in some corner cases. This silence period is currently defined as 200ns which is far below the minimum IPG (9.6us), thus there's margin for increasing it.

SuggestedRemedy

In table 147-2 change the minimum value for parameter T1 (Delay between transmissions) to 640ns.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.2** *P* **181** *L* **47** # 376

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

What's the purpose of the T4 parameter? DME is only sensible to transitions, not to levels, so this is not needed to reliably detect the end of a transmission. Besides, the transmitter, once the PMD is in high-impedance state, has no control over the line anyway. It also makes no sense that T4 is greater than T1 anyway.

SuggestedRemedy

In table 147-2 remove specification for parameter T4 (Time from line driven state to high-Z or 0V). In figure 147-11 remove markers showing T4.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.2** *P* **182** *L* **9** # 321

Xu, Dayin — Rockwell Automation

Comment Type **E** *Comment Status* **X**

Change " … point-to-point mode, the PMD drives …" to "… point-to-point mode, make the PMD drive …"

SuggestedRemedy

Change " … point-to-point mode, the PMD drives …" to "… point-to-point mode, make the PMD drive …"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.4.3** *P* **182** *L* **26** # 392

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Untastable shall

SuggestedRemedy

Change "shall achieve proper synchronization" to "needs to achieve proper synchronization"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.5.2** *P* **183** *L* **28** # 360

Baggett, Tim — Microchip

Comment Type **E** *Comment Status* **X**

Comment #614 from d2p0 was closed AIP, but text changes were not implemented correctly into the latest d2p1 draft.

SuggestedRemedy

Change this:
====
When test mode 3 is enabled, the PHY shall transmit continually a pseudo-random sequence of +1 and –1 symbols generated by PRBS7 with the generating polynomial of encoded using Differential Manchester Encoding (DME) as in 147.4.2.
====
to this:
====
When test mode 3 is enabled, the PHY shall transmit continually a pseudo-random sequence of positive and negative voltage levels, generated by the scrambler defined in 147.3.2.5 and encoded using DME as in 147.4.2. The input to the scrambler shall be a constant stream of zeroes.
====

Proposed Response *Response Status* **O**

Cl **147** SC **147.5.3** P **184** L **33** # 64

Zimmerman, George — CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"The tolerance of the termination resistor shall be ± 0.1%." - there is no resistor labeled "termination resistor" in Figures 147-12 and 147-13. Further, 147-12 and 147-13 are fixtures which "can be used" and are not required, therefore, a requirement on a component of these non-required fixtures is out of order. This comment differs from the one on clause 146 in that the load resistance for the tests in Figure 147-12 is not specified in 147.5.4.

SuggestedRemedy

Delete "The tolerance of the termination resistor shall be +/- 0.1%." Add at P184 L47, (end of 2nd paragraph of 147.5.4), "Transmitter electrical tests are specified with a load tolerance of +/- 0.1%."

Proposed Response *Response Status* **O**

Cl **147** SC **147.5.4.1** P **184** L **53** # 441

Brandt, David — Rockwell Automation

Comment Type **T** *Comment Status* **X**

Market potential would benefit by 10BASE-T1S having an option increased voltage level similar to 10BASE-T1L. Applications in elevators, lighting, and industrial automation have use for increased reach, higher node count, and improved immunity. Existing non-Ethernet systems with substantially similar modulation schemes have been successfully deployed within emissions limits.

SuggestedRemedy

Add an optional 2.4 Vpp differential transmit level as an autonegotiated option for point-point and an engineered option for both point-point and multidrop. Proposed changes are described within: brandt_cg_01_1118.pdf.

Proposed Response *Response Status* **O**

Cl **147** SC **147.5.4.1** P **184** L **53** # 180

Huszak, Gergely — Kone

Comment Type **TR** *Comment Status* **X**

Extended use-cases (e.g. in industrial with more nodes, longer reach, higher total capacitance/inductance), where immunitiy is more, while emmision is less of a factor may not be possible to cover with the current TX voltage of 1Vpp

SuggestedRemedy

Define the configurable, optional secondary TX Vpp of 2.4V (with appropriate tolerances) for T1S, and consider AutoNeg for auto-selection (similar to T1L) for Pt2Pt mode of operation

Proposed Response *Response Status* **O**

Cl **147** SC **147.5.4.1.1** P **185** L **3** # 308

Yseboodt, Lennart — Signify

Comment Type **TR** *Comment Status* **X**

"Transmitter output voltage shall be tested using test mode 1 in combination with the test fixture shown in Figure 147-12."

Puts a requirement on the test(er), rather than on the device.

SuggestedRemedy

Rewrite to put requirement on the PHY, or make informative.

Proposed Response *Response Status* **O**

Cl **147** SC **147.5.4.1.2** P **185** L **8** # 309

Yseboodt, Lennart — Signify

Comment Type **TR** *Comment Status* **X**

"Transmitter output droop shall be measured using test mode 2 and with the test fixture shown in Figure 147-12."

Puts a requirement on the test(er), rather than on the device.

SuggestedRemedy

Rewrite to put requirement on the PHY, or make informative.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.5.4.2** *P* **185** *L* **33** # 310

Yseboodt, Lennart — Signify

Comment Type **TR** *Comment Status* **X**

"The transmitter symbol-to-symbol jitter shall be tested using test mode 1 in combination with the test fixture shown in Figure 147-12. The maximum jitter at the transmitter side shall be less than +-5 ns symbol-to-symbol jitter."

Puts a requirement on the test(er), rather than on the device.

SuggestedRemedy

Rewrite to put requirement on the PHY, or make informative.
Does the requirement only hold when using this particular test ?
Or is the test the only way to correctly observe ?

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.5.4.2** *P* **185** *L* **34** # 384

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Cycle to cycle (or symbol to symbol) jitter is defined as the maximum value of |T1-T0| according to JEDEC, where T1 and T0 are the minimum and maximum measured symbol/clock period over a certain number of samples. For this reason the number cannot be negative and the plus/minus sign is meaningless. 5 ns is the intended value in this case (i.e. just remove the plus/minus sign).

SuggestedRemedy

Remove the plus/minus sign

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.5.4.3** *P* **185** *L* **37** # 288

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

The PSD mask in D2.1 is identical, independent, if a 10BASE-T1S PHY is running in point-to-point or in multidrop mode. In point-to-point mode a 10BASE-T1S PHY is driving nom. 1 Vpp into 100 ohm, while being in multidrop mode a 10BASE-T1S PHY is driving nom. 1 Vpp into 50 ohms (see Figure 147-13 and 147.5.4.1). Therefore in multidrop mode, the output power of a 10BASE-T1S PHY is two times the output power in point-to-point mode. Therefore the PSD of a 10BASE-T1S PHY is 3 dB lower in point-to-point mode than in multidrop mode.

SuggestedRemedy

Add an additional PSD mask specification for the point-to-point mode with all limits being reduced by 3 dB (-64 dB/-43 dB - 1.4f/-78 dB in new Equation 147-3 and -90 dB + 2f/-50 dB - 2f in new Equation 147-4 and add another PSD mask fitting the new equations). Also modify the paragraph starting on page 185, line 42 in the following way: The measured PSD shall be between the upper and the lower bounds specified in 147.5.4.3.1 and 147.5.4.3.2, respectively when operating in multidrop mode and between the upper and lower bounds specified in 147.5.4.3.4 and 147.5.4.3.5, respectively when operating in point-to-point mode. Add Upper PSD (point-to-point) in Clause 147.5.4.3.4, Lower PSD (point-to-point) in Clause 147.5.4.3.5 and PSD Mask (point-to-point) in Clause 147.5.4.3.6.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.5.4.4** *P* **186** *L* **31** # 456

Brandt, David — Rockwell Automation

Comment Type **T** *Comment Status* **X**

Transmit clock frequency is stated as 25 MHz. This is a period of 40 ns. Figure 147-11 shows T2 as a clock to clock transition of 80 ns, or 12.5 MHz.

SuggestedRemedy

Change stated frequency to 12.5 MHz.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.5.4.5** *P* **186** *L* **33** # 451
Brandt, David Rockwell Automation

Comment Type **T** *Comment Status* **X**

Clause contains no "Receiver electrical specifications" section.

SuggestedRemedy

Insert:
147.5.4.5 Receiver differential input signals
Differential signals received at the MDI, that were transmitted from a remote transmitter within the specifications
of Transmitter Electrical Specifications, and have passed through a link segment specified in 147.7,
shall be received with a bit error ratio less than 10–10.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.7.1** *P* **187** *L* **45** # 289
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

InsertionLoss (and also ReturnLoss, Clause 147.7.2 and ModeconversionLoss, Clause 147.7.3) should be aligned to the rest of the text and Clause 146.7

SuggestedRemedy

Insertion loss, Return loss, Modeconversion loss

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.8** *P* **188** *L* **31** # 421
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

"mixing segment" is already defined in 1.4.332 mixing segment

SuggestedRemedy

Change "The term “mixing segment” used in this clause refers to single balanced pair of conductors which may have more than two MDIs attached." to "The 10BASE-T1S mixing segment (1.4.332) is a single balanced pair of conductors which may have more than two MDIs attached".

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.8** *P* **188** *L* **53** # 406
Jones, Chad Cisco

Comment Type **TR** *Comment Status* **X**

Figure 147-17, the terminations do not show the DC blocking required to allow powering.

SuggestedRemedy

add dc blocking caps to the three terminations.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.8.3** *P* **189** *L* **14** # 422
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Editorial cleanup - 147.8.1 and 147.8.3 use inconsistent language for the same thing.
"between any two MDI attachment points" vs "between any pair of MDI attachment points."

SuggestedRemedy

Change "between any pair of MDI attachment points." to "between any two MDI attachment points."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.9.1** *P* **189** *L* **21** # 400
Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**

Remove 2-pin & 3-pin restriction.

SuggestedRemedy

Update paragraph to say "… the balance cabling should have a minimum of 3-pin connector …"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.9.1** *P* **189** *L* **24** # 328

Shariff, Masood CommScope

Comment Type **TR** *Comment Status* **X**

Text for the connector should be made consistent between comparable subclauses of clause 146 and clause 147. A reference to the IEC 63171-1 connector was added for 10BASE-T1L. Having a single connector for M1I1C1E1 environments for both 10BASE-T1S and 10BASE-T1L is good standardization practice and will increase the broad market potential for 10SPE applications/infrastructure. Note that this connector is not proposed for automotive or industrial environments, as was presumed and rejected at the last IEEE 802.3cg meeting in Spokane.

SuggestedRemedy

Add at the end of line 24: Connectors meeting the requirements of IEC 63171-1 (CD) may be used as the mechanical interface to the balanced cabling for M1I1C1E1 environments. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informational use only) in Figure 147-XXX and Figure 147-YYY. The assignment of PMA signals to connector contacts for PHYs is shown in Figure 147-ZZZ.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.9.2** *P* **189** *L* **29** # 186

Wienckowski, Natalie General Motors

Comment Type **E** *Comment Status* **X**

Missing commas

SuggestedRemedy

Change "R, L Ctot and Cnode" to "R, L, Ctot, and Cnode"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.9.2** *P* **190** *L* **4** # 28

Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"Inductive elements are only required" reads like a requirement when it is meant to be an informative statement - it also isn't necessarily true - you never know what people might do...

SuggestedRemedy

Change "Inductive elements are only required where power is applied across the data lines." to "Inductive elements are often used when power is applied across the data lines, and may be absent in non-powered implementations."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.9.3** *P* **190** *L* **32** # 65

Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**

"PoDL" is a trade name - the intent here is to provide tolerance for powering.

SuggestedRemedy

"Change "PoDL" to "line powering" in header for 147.9.3 (line 32) and in 2nd sentence of paragraph (line 36).

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.9.3** *P* **190** *L* **35** # 66

Zimmerman, George CME Consulting et al

Comment Type **T** *Comment Status* **X**

1200 mA is less than the maximum current of clause 104 powering (1360 mA per Table 104-1)

SuggestedRemedy

Change 1200mA to 1360mA

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.10.1** *P* **190** *L* **48** # 311
Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **X**

"All equipment subject to this clause shall conform to IEC 60950-1 or IEC 62368-1 (for IT and industrial applications), and to IEC 61010-1 (for industrial applications only, if required by the given application)."

See my earlier comment on the rationale of why we should not drag in while IEC standards in a requirement based on something being "industrial application, if required by the given application". This latter part of the requirement has no teeth.

SuggestedRemedy

Replace by:
"All equipment subject to this clause shall conform to IEC 60950-1 or IEC 62368-1."

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.10.1** *P* **190** *L* **48** # 67
Zimmerman, George CME Consulting et al

Comment Type **TR** *Comment Status* **X**

"All equipment subject to this clause shall conform to IEC 60950-1 or IEC 62368-1 (for IT and industrial
applications), and to IEC 61010-1 (for industrial applications only, if required by the given application)." We are putting requirements on equipment outside the scope of 802.3, and "industrial applications only" is kind of meaningless when conditioned by "if required...")

SuggestedRemedy

Change "shall conform" to "can be expected to be conform", and delete "only"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.10.2.1** *P* **191** *L* **50** # 290
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] Climatic loads standards are written in justify mode, should ber left aligned.

SuggestedRemedy

Left align text related to climatic loads. The same should be done for the text in line 4 on page 192.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.12.3** *P* **194** *L* **6** # 171
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **X**

MDIO is used in the Status column of the PICS entry PCSL1 (and others) but it is not defined.

SuggestedRemedy

Add a row to the table in 147.12.3 for "*MDIO"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.12.4.6.1** *P* **196** *L* **41** # 12
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**

"boundry" should be "boundary"

SuggestedRemedy

change "boundry" to "boundary"

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.12.4.6.2** *P* **197** *L* **49** # 291
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] 0.1 % (space too much)

SuggestedRemedy

0.1% (remove space). The same should also be done for the 0.1 % on page 198, line 5.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.12.4.10** *P* **200** *L* **6** # 292
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

References to Clause 146 in 147.12.4.10 and 147.12.4.11

SuggestedRemedy

Change in total 4 references from Clause 146 to Clause 147.

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.12.4.10** *P* **200** *L* **6** # 355

Baggett, Tim — Microchip

Comment Type **E** *Comment Status* **X**

Clause 147 (T1S) PICS proforma tables incorrectly refer to subclauses in 146 (T1L). (Copy/paste error)

SuggestedRemedy

147.12.4.10 Environmental specifications
* Line 6, ES1 - change subclause 146.9.1 to 147.10.1
* Line 9, ES2 - change subclause 146.9.1 to 147.10.1

147.12.4.11 Delay constraints
* Line 19, DC1 - change subclause 146.10 to 147.11
* Line 20, DC2 - change subclause 146.10 to 147.11

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.12.4.11** *P* **200** *L* **18** # 293

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

1.6 µs are 16 bit times and 4 µs are 40 bit times @ 10 MBit/s.

SuggestedRemedy

Change 32 bit times to 16 bit times and 64 bit times to 40 bit times.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148** *P* **201** *L* **1** # 389

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **E** *Comment Status* **X**

All timer names are uppercase, but it appears that in other clauses these are lowercase.

SuggestedRemedy

Change all timer names to lowercase across clause 148. Implement this comment after all other comments have been resolved.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148** *P* **201** *L* **1** # 393

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **TR** *Comment Status* **X**

There is no reason for PLCA RS to be defined generic. This probably relates also to unsatisfied comment #290 which did not provide sufficient explanation nor remedy. The actual reason for not using the "generic" qualifier is that a generic RS as defined in TSSI clause 90 is supposed to operate in conjuction with any other RS. While the PLCA RS is supposed to work in conjuction with PHYs specifying support for it, not with any other RS.

SuggestedRemedy

Search through clauses 147, 148 and replace all occurrences of "Generic Reconciliation Sublayer" and its abbreviated form "gRS" into "Reconciliation Sublayer" and "RS" respectively.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148** *P* **201** *L* **1** # 365

Baggett, Tim Microchip

Comment Type **T** *Comment Status* **X**

Add support to PLCA for providing a group of PHYs a higher transmit precedence than other PHYs as determined by the PHY local_nodeID. The PLCA bus cycle is conceptually split into a high precedence segment and a low precedence segment. All PHYs assigned a local_nodeID within the high precedence segment will have equal "round robin" opportunity to transmit at the beginning of a bus cycle as currently specified for PLCA. PHYs assigned a local_nodeID within the low precedence segment are then given the opportunity to transmit. However, unassigned TOs within the low precedence segment are used as opportunities for high precedence PHYs to advertise the need to transmit. Upon receiving the request to transmit, the PLCA coordinator will restart the bus cycle by issuing a BEACON returning the bus cycle to the high precedence segment giving all high precedence PHYs an opportunity to transmit a frame. Since the preemption by high precedence PHYs may cause a very low precedence PHY (one with a high local_nodeID) to be "locked out", a starvation prevention mechanism is added. If the PLCA bus coordinator sees too many consecutive preempted cycles, it will deny preemptions and allow the cycle to run through to completion (to curID==plca_max_id) allowing all PHYs the opportunity to transmit.

PHYs (other than the coordinator) not implementing PHY precedence will interoperate with PHYs implementing precedence provided they are not assigned a local_nodeID that is reserved for advertising preemption.

[MASTER COMMENT][PHY_PRECEDENCE]

SuggestedRemedy

A presentation was given in the 24 Oct ad-hoc. An updated presentation and proposed text changes will be made available prior to the meeting in Bangkok.

Summary of changes:
1) Update the PLCA control state machine to support transmission and reception of preemption request (PRQ) in unused TO. Reception of PRQ will cause the PLCA coordinator (localID==0) to restart the cycle by issuing a new BEACON.

2) Add configurable PRQ transmission and reception time control variable to filter against impulse noise.

3) Add precedence preemption enable/disable control variable. When disabled, current PLCA behavior is exhibited.

4) Add control variable for identifying first TO which may be used in transmitting/receiving PRQ.

5) Add control variable for limiting how many cycles may be preempted before the coordinator will force a full cycle to prevent starving low precedence PHYs.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.1** *P* **201** *L* # 489

Bains, Amrik Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

"PLCA provides improved performance over the standard CSMA/CD method in terms of throughput and latency for small multidrop networks having a limited number of nodes and high utilization"

Text "and high utilization" seems to be redundent

SuggestedRemedy

"PLCA provides improved performance over the standard CSMA/CD method in terms of throughput and latency for small multidrop networks having a limited number of nodes"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.1** *P* **201** *L* **1** # 477

Curtis, Donahue UNH-IOL

Comment Type **T** *Comment Status* **X**

The proposed PLCA protocol is not interoperable as it does not have a method for the automatic assignment of "local_nodeID".

This comment was originally submitted as comment #598 in the d2.0 circulation.

SuggestedRemedy

At this time, a proposal with an adequate remedy to resolve this issue is not ready. The commentor recognizes that this is not-ideal and the Task Force may choose to 'reject' this comment since the Suggested Remedy does not offer an immediate resolution for review, but a proposal will be ready for Task Force consideration by the Nov'18 Plenary meeting. The commentor asks that the TF considers such a proposal at that time.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.1** *P* **201** *L* **14** # 423
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Which part of clause 22 is being referred to?

SuggestedRemedy

Change "When disabled, the system operates as specified in Clause 22." to "When disabled, the system operates as defined in Clause 22 Reconciliation Sublayer ".

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.2** *P* **201** *L* **18** # 425
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Editorial cleanup

SuggestedRemedy

Change " is granted transmit opportunities based on its assigned node ID ." to " is granted transmit opportunities in sequence based on its assigned node ID ."

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.2** *P* **201** *L* **18** # 424
Jones, Peter Cisco

Comment Type **ER** *Comment Status* **X**

Editorial cleanup. Throughout 148, use "station" instead of "PHY" when referring to a device on the mixing segment

SuggestedRemedy

Throughout clause 148, when referring to a network mode, change "each PHY", "the PHY", ... to "each station", "the station", ….

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.2** *P* **201** *L* **24** # 329
Zimmerman, George CME Consulting/BMW

Comment Type **TR** *Comment Status* **X**

Submitted on behalf of Kirsten Matheus, BMW, per phone conversation, “Transmit opportunities are generated in a round-robin fashion every time the PHY with node ID = 0 signals a BEACON on the medium, indicating the start of a new cycle. This happens after each node has had a transmission opportunity. “ It is important for the broad market potential of 10BASE-T1S PLCA networks that they provide a mechanism to allow some nodes to generate more timely traffic than others. Generating traffic with a single transmission opportunity per node may have fairness but does not maximize the market potential. Proposals have been generated for allowing some nodes to have more transmit opportunities.

SuggestedRemedy

adopt PLCA burst mode or a similar proposal. Change “This happens after each node has had a transmission opportunity” appropriately for the adopted proposal.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.3** *P* **201** *L* **34** # 426
Jones, Peter Cisco

Comment Type **ER** *Comment Status* **X**

Throughout clause 148, there are refences to "generic Reconciliation Sublayer" when discussing the PLCA RS. This is not a generic RS, it's specific to multidrop 10BASE-T1S. Checking with 802.bz, it juts uses "RS", not "generic RS".

SuggestedRemedy

in clause 148, remove "generic" when used with RS, e.g. change "PLCA generic Reconciliation Sublayer" to "PLCA Reconciliation Sublayer" or even better "PLCA RS", change gRS to RS, etc

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.3** *P* **201** *L* **37** # 374
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **X**

TSSI is not defined for mixing-segment networks, while PLCA is only defined for mixing-segment.

SuggestedRemedy

Remove "Ethernet support for time synchronization protocols is defined in Clause 90."

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.3** *P* **201** *L* **37** # 172

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

Comment #118 against D2.0 was:
Cl 148, SC 148.3, P 173, L 38
Comment
"Clause 90" is an external cross-reference, so should be in forest green
SuggestedRemedy
Apply Character Tag "External" to "Clause 90"
ACCEPT
However, this has not been implemented.

SuggestedRemedy

Apply Character Tag "External" to "Clause 90"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.3** *P* **202** *L* **18** # 173

Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

In Figure 148-1 the MDI should not be shaded

SuggestedRemedy

Remove the shading

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.3** *P* **202** *L* **18** # 468

Law, David — HPE

Comment Type **E** *Comment Status* **X**

As this figure is showing the 'Relationship of PLCA generic Reconciliation Sublayer to the ISO/IEC OSI reference model and the IEEE 802.3 Ethernet Model' only the Reconciliation Sublayer should be cross-hatched.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.1** *P* **202** *L* **36** # 427

Jones, Peter — Cisco

Comment Type **ER** *Comment Status* **X**

PLCA is not a "generic Reconciliation sublayer (gRS)"

SuggestedRemedy

delete "Within the scope of Clause 148, the term generic Reconciliation sublayer (gRS) is used to denote
any IEEE 802.3 Reconciliation sublayer (RS) used to interface a MAC with any PHY supporting the PLCA
capability through the MII."

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.1.1** *P* **203** *L* **7** # 373

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **E** *Comment Status* **X**

Figure 148-2 is wrong. It should not contain references to TS service interface, nor TS_SFD detect blocks. Besides, Figure 148-3 already contains all the information inteded to be provided by Figure 148-2.

SuggestedRemedy

remove subclause 148.4.1.1 along with figure 148-2.

In clause 148.4.2 replace:
"PLCA state diagrams are contained in the generic RS as shown in Figure 148–3. Interaction with optional
Clause 90 (Ethernet support for time synchronization protocols) is also depicted."
with :
"Figure 148-3 depicts the RS interlayer service interfaces. The PLCA RS contains the Control and Data state diagrams, the variable delay line and command detect logic."

In figure 148-3 add a dashed vertical line with label as in current Figure 148-2 indicating the PLS service interface boundary

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.4.1.1.** *P* **206** *L* **35** # 428

Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

Saying "PHY Specifications" or "RS Specifications" is redundant. It should just be "PHYs" or "RSs". This is in (at least) 148.4.4, 148.4.4.1.1, 148.4.4.1.2 .

SuggestedRemedy

Change "PHY Specifications" to "PHYs" and "RS Specifications" to "RSs" thoughout clause.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5** *P* **207** *L* **18** # 490

Bains, Amrik Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

This section not clear on how the node_ID and various conditions are determined. I think it would help to state the PLCA parameters should be configured before enable transmit and receive data

SuggestedRemedy

Add statement "To acehive error free operation the PLCA node should be configured approriatley before transmit function are enabled"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **207** *L* **29** # 174

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

This says "as shown in Figure 148–4 and Figure 148–4" which is the same figure number twice.

SuggestedRemedy

Change the second part of the state diagram "PLCA Control state diagram (continued)" to be Figure 148-5

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **207** *L* **29** # 322

Xu, Dayin Rockwell Automation

Comment Type **ER** *Comment Status* **X**

Delete "and Figure 128-4"

SuggestedRemedy

Delete "and Figure 128-4"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **207** *L* **29** # 356

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Reference to Figure 148-4 is duplicated. Actually, the first reference is to Figure 148-4 on page 209, and the second reference is to the continuation of the figure on page 210. The portion of Figure 148-4 which the text refers to is only the entry into the DISABLE state on page 209.

SuggestedRemedy

Remove second reference to Figure 148-4 which links to the continuation on page 210.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **207** *L* **29** # 401

Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**

Referencing Figure 148-4 twice

SuggestedRemedy

Remove 2nd reference.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **207** *L* **51** # 429
Jones, Peter Cisco

Comment Type **TR** *Comment Status* **X**

the text says "where RXlat is the worst case receive latency difference among all the PHYs". Where is the value of RXlat defined, derived or computed?

SuggestedRemedy

Add Rxlat value, derivation or calculation.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **15** # 175
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**

The list between lines 15 and line 26 is not formatted correctly.

SuggestedRemedy

Change the paragraph type of all of the items to "DL,DashedList" and remove the existing "- " tab from each.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **17** # 430
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

editorial cleanup

SuggestedRemedy

Change "switch to RESYNC state if a BEACON is received, starting a new cycle. This can only happen to PHYs with local_nodeID != 0." to "switch to RESYNC state if a BEACON is received with local_nodeID != 0 starting a new cycle."
PHYs with local_nodeID != 0"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **20** # 431
Jones, Peter Cisco

Comment Type **ER** *Comment Status* **X**

editorial cleanup - PHYs and stations have no gender.

SuggestedRemedy

Change "In this case the PHY skips his TO" to "In this case the PHY skips it's TO".

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **20** # 470
Law, David HPE

Comment Type **E** *Comment Status* **X**

Suggest the text 'In this case the PHY skips his TO and waits ...' be changed to read 'In this case the PHY skips its TO and waits ...' (change 'his' to 'its').

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **20** # 469
Law, David HPE

Comment Type **E** *Comment Status* **X**

The abbreviation 'TO' in 'In this case the PHY skips his TO and waits ...' is not defined, please define the abbreviation 'TO' on first use.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **25** # 357

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Sentence wording may lead to confusion to readers not familiar with the spec development.

SuggestedRemedy

Change:
This is required not to send a BEACON while other PHYs might still be using their TO.

To:
This is required so as not to send a BEACON while other PHYs might still be using their TO

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **25** # 432

Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

editorial cleanup

SuggestedRemedy

Change "This is required not to send a BEACON" to "This avoids sending a BEACON"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **30** # 324

Xu, Dayin Rockwell Automation

Comment Type **TR** *Comment Status* **X**

PHY should allow transmitting mutiple packets in a burst mode when it owns the Transmition opportunity

SuggestedRemedy

IEEE 802.3cg PLCA Burst mode presentation at this link
http://www.ieee802.org/3/cg/public/adhoc/beruto_3cg_PLCA_burst_mode_revA%20.pdf
Supported use case presentation: xu_3cg_01_1118.pdf

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **208** *L* **34** # 364

Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**

Text in lines 34-37 incorrectly indicates that non-PLCA nodes are allowed to interwork with PLCA nodes in a collision domain:

"In some rare cases (e.g. a non-PLCA enabled node transmits is connected to the network) it is possible to receive data in YIELD state. If this unlikely event happens, PLCA switch in RECEIVE state to wait until the end of the transmission and increment curID properly."

However, the state diagram on page 210 does not include the transition from the YIELD state to RECEIVE that was proposed in withdrawn D2P0 comment #550.

SuggestedRemedy

Delete following text:
====
"In some rare cases (e.g. a non-PLCA enabled node transmits is connected to the network) it is possible to receive data in YIELD state. If this unlikely event happens, PLCA switch in RECEIVE state to wait until the end of the transmission and increment curID properly."

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **209** *L* **12** # 408

Jones, Peter Cisco

Comment Type **TR** *Comment Status* **X**

Unresolved rejected comment from D2.0 # 512
Unresolved rejected comment from D2.0 # 516.
Comment has to do with the ranges for local_node_id and plca_max_id (was MAX_ID)
Range for local_node_id is 0-255 (default 255) , and range for plca_max_id is 0-255.
The text for plca_max_id says “When PLCA is enabled and local_nodeID is set to value 0, bits 28.1.15:8 define the highest node ID getting a transmit opportunity on the PLCA network. The default value of bits 28.1.15:8 is 8.”
I believe that the name and description are off by one. In 48–4—PLCA Control state diagram NEXT_TX_OPPORTUNITY I see “curID <= curID + 1” then “local_nodeID = 0 * curID = plca_max_id”. For 8 nodes, local_node_id range is 0-7. With the increment before the test, curId range is 1-8. even though max node_id is 7.
I think we should change the draft so the naming relects definition and usage. In addition, we should prevent local_node_id = 255 (the default) to actively participate in PLCA.

SuggestedRemedy

Proposed changes
Change the definition of 30.3.9.2.3 aPLCAMaxID to
Attribute
aPLCANodeCount
Behavior
This value is assigned to define the maximum number of nodes getting a transmit opportunity before a new BEACON is generated.
Change the definition of 30.3.9.2.4 aPLCALocalNodeID to
Behavior
This value is assigned to define the ID of the local node on the PLCA network. Value must be in the range of [0, aPLCANodeCount-1] (inclusive);

Change the definition of plca_max_id in 45.2.13.2 PLCA Control 2 register (Register 28.1) to
plca_node_count = number active PLCA nodes on the mixing segment
Change the definition of plca_max_id in 148.4.5.2 PLCA Control variables to
plca_node_count = number active PLCA nodes on the mixing segment receiving transmit opportunities before the node with local_nodeID = 0 generates a new BEACON, reflecting the value of aPLCANodeCount

In 148–4—PLCA Control state diagram.
add a transition from DISABLE back to DISABLE with the condition “plca_en = TRUE * local_nodeID = 255)”
modify the condition from DISABLE to RESYNC to be (plca_en = TRUE * local_nodeID !=0 * local_nodeID !=255)
modify the condition from NEXT_TX_OPPORTUNITY to RESYNC to be (local_nodeID* curID = plca_node_count - 1).

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **209** *L* **16** # 74

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **X**

In Figure 148-4, isn't the command to start a timer "Start" regardless of whether the time is running or halted.

SuggestedRemedy

Change "restart" to "start" in the RECOVER state of Figure 148-4 1 of 2

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **210** *L* **9** # 402

Asmussen, Jes Rockwell Automation

Comment Type **E** *Comment Status* **X**

Missing minor detail to reset curID counter

SuggestedRemedy

Add "Reset curID counter" after "start TO_TIMER".

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **210** *L* **21** # 73

Slavick, Jeff Broadcom

Comment Type **T** *Comment Status* **X**

In Figure 148-4 (continued) you have a state named Yield whos exit criteria is a subset of the entry criteria. And it does no operations.

SuggestedRemedy

Remove YIELD state

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.1** *P* **210** *L* **210** # 372

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

In corner cases PLCA could receive packets out of the BEACON cycle due to transients (e.g. switching PLCA on). MAC could also reset in the middle of a TX. In such cases PLCA should be able to tolerate the temporary problem without getting stuck or jamming the line.

SuggestedRemedy

Integrate changes marked as [PLCA_ROBUST] in the attached file "Clause 148 - PLCA robustness.pdf".
NOTE for editors: moving YIELD state to the left in picture 148-4 could help.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.2** *P* **211** *L* **27** # 323

Xu, Dayin — Rockwell Automation

Comment Type **ER** *Comment Status* **X**

Delete RX_DV variable since it is never used in the state diagram

SuggestedRemedy

Delete RX_DV variable since it is never used in the state diagram

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.2** *P* **211** *L* **30** # 380

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **ER** *Comment Status* **X**

Description of "receiving" variable is a copy of tx_cmd. This variable has been added as part of comment #649 resolution in draft 2.0 but the approved text didn't meet the spec (copy & paste error). Unfortunately the description of this variable is critical for understanding the State Diagrams, so this is a required editorial comment.

SuggestedRemedy

Replace the whole description of variable "receiving" with:
"Helper variable, defined as: (RX_DV = TRUE) + (rx_cmd = COMMIT)
Values: TRUE or FALSE"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.2** *P* **212** *L* **6** # 434

Jones, Peter — Cisco

Comment Type **E** *Comment Status* **X**

The draft contains variants of a "If MDIO is not implemented, a similar functionality shall be provided by another interface" 10 times, and variants of "When MDIO is not present, the functionality of YYYY can be provided by equivalent means." 5 times. This redundant text does not improve the draft. Clause 45 already says "The MDIO electrical interface is optional. Where no physical embodiment of the MDIO exists, provision of an equivalent mechanism to access the registers is recommended."

SuggestedRemedy

remove all cases of "If MDIO is not implemented, a similar functionality shall be provided by another interface" and "When MDIO is not present, the functionality of YYYY can be provided by equivalent means." throughout the draft.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.4** *P* **212** *L* **40** # 394

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Untastable shall

SuggestedRemedy

Change "and shall be greater" to "needs to be greater"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.4** *P* **212** *L* **46** # 395

Beruto, Piergiorgio — Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Untastable shall

SuggestedRemedy

Change "timer value shall be long enough" to "timer needs to be long enough"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.4** *P* **212** *L* **48** # 435
Jones, Peter Cisco

Comment Type **TR** *Comment Status* **X**

The text says "TO_TIMER" should be long enough to cover worst case RX/TX/Propagation delays. The default is 20 bit times, but the range is up to 65535. Given the definition of the mixing mixing and resonable assumptionm about PHY RX/TX delays, what are reasonable numbers here? How would a user decide what number to set this to?

SuggestedRemedy

Provide some guidance for a user on how to determine what to set this to.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.4** *P* **212** *L* **50** # 367
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **X**

Untastable shall

SuggestedRemedy

Change "shall be set equal" to "have to be set equal"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.5.4** *P* **213** *L* **3** # 368
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **X**

RECV_BEACON_TIMER is not controllable

SuggestedRemedy

Change "is controllable" to "is implementation specific"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **213** *L* **4** # 294
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

TO_TIMER x (plca_max_id + 1) + BEACON_TIMER (font size is in parts too small)

SuggestedRemedy

Adjust font size to normal text font size. The same adjustment needs to be done in line 38 of page 213.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **213** *L* **10** # 436
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**

editorial cleanup

SuggestedRemedy

change "PLCA Data state diagram is responsible for detecting when the MAC is ready to send a packet and delay the transmission until a transmit opportunity is met" to "PLCA Data state diagram is responsible for detecting when the MAC is ready to send a packet and delaying the transmission until a transmit opportunity is detected"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **213** *L* **10** # 472
Law, David HPE

Comment Type **E** *Comment Status* **X**

Suggest the text 'PLCA Data state diagram...' be changed to read 'The PLCA Data state diagram ...'.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **213** *L* **16** # 404

Asmussen, Jes — Rockwell Automation

Comment Type **E** *Comment Status* **X**

This paragraph is missing reference of the IDLE state.

SuggestedRemedy

Modify sentence to say "When PLCA functions are enabled, the PLCA Data state diagram transitions to the IDLE state and waits for the MAC to start a transmission or the PHY to assert carrier sense".

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **213** *L* **36** # 437

Jones, Peter — Cisco

Comment Type **TR** *Comment Status* **X**

The text says that the delay line length is"no greater than TO_TIMER × (plca_max_id + 1) + BEACON_TIMER.". TO_TIMER can be configued up to go up to 64K bit times. (148.4.5.4 Timers) . It seems unreasonable to build a system with that much delay. What is the guidance to an implentor regarding the interaciton between TO_TIMER and the sizing of the variable delay line.

SuggestedRemedy

provide guidance to implementor to avoid configuraiton and/interoptability issues with respect to the interacitn between TO_TIMER and the delay line size.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **213** *L* **54** # 471

Law, David — HPE

Comment Type **E** *Comment Status* **X**

Suggest the text '... until PLCA Control state diagram signals ...' be changed to read '... until the PLCA Control state diagram signals ...' (add 'the' before 'PLCA Control state diagram').

SuggestedRemedy

See comment.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **8** # 295

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

[EASY] if CRS= TRUE

SuggestedRemedy

if CRS = TRUE (add space before "=").

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **14** # 296

Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

Transition with plca_en = TRUE condition is too long, reaching into the body of state NORMAL.

SuggestedRemedy

Adapt line length.

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **15** # 405

Asmussen, Jes — Rockwell Automation

Comment Type **E** *Comment Status* **X**

The reason for ELSE branch needs further explaination.

SuggestedRemedy

TBD

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **15** # 403
Asmussen, Jes — Rockwell Automation

Comment Type **E** *Comment Status* **X**

The middle branch transition from NORMAL state to IDLE state needs anotation/branch reason description. Would like to understand the conditions to transition from NORMAL state to IDLE state.

SuggestedRemedy

TBD

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **42** # 297
Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

committed = FALSE*

SuggestedRemedy

committed = FALSE * (add space after FALSE).

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **44** # 298
Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **X**

receiving= FALSE

SuggestedRemedy

receiving = FALSE (add space after receiving).

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.1** *P* **215** *L* **51** # 299
Graber, Steffen — Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **X**

receiving = FALSE

SuggestedRemedy

receiving = FALSE * (likely add an "and" condition after FALSE, but check, if this is the correct logical operator here and remove the final "and" operator at the end of the condition in line 52).

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.6.2** *P* **217** *L* **1** # 491
Bains, Amrik — Cisco Systems INC

Comment Type **E** *Comment Status* **X** *Late*

This is a repeat Data Variables

SuggestedRemedy

Remove 148.4.6.2 and add missing variables to section before 148.4.6.1

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.7.1** *P* **218** *L* **10** # 176
Anslow, Pete — Ciena

Comment Type **E** *Comment Status* **X**

"i.e. receiving" should be "i.e., receiving"

SuggestedRemedy

Change "i.e. receiving" to "i.e., receiving"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.7.2** *P* **218** *L* **54** # 177
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **X**
"30.3.9.1.2" should be a cross-reference

SuggestedRemedy
Make "30.3.9.1.2" a cross-reference

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.7.4** *P* **219** *L* **15** # 370
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **X**
PLCA_STATUS_TIMER is not controllable

SuggestedRemedy
Change "is controllable" to "is implementation specific"

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.5.1** *P* **208** *L* **36** # 433
Jones, Peter Cisco

Comment Type **E** *Comment Status* **X**
Sentence doesn't make sense " PLCA switch in RECEIVE state to wait until the end of the transmission and increment curID properly."

SuggestedRemedy
Change to "PLCA switches to RECEIVE state to wait until the end of the transmission and increment curID properly."

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.5.3** *P* **221** *L* **6** # 68
Zimmerman, George CME Consulting et al

Comment Type **E** *Comment Status* **X**
The PHY type is not a major capability or option used in the PICS, nor is this called out in any of the other RS's PICS.

SuggestedRemedy
Delete 148.5.3 (replace with editor's note for renumbering)

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.5.4.3** *P* **222** *L* **14** # 358
Baggett, Tim Microchip

Comment Type **E** *Comment Status* **X**
Value/Comment for PICS item PLCA4 should refer to RX_DV, not RX.

SuggestedRemedy
Change:
PHY shall not assert RX

To:
PHY shall not assert RX_DV

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.5.4.6** *P* **223** *L* **10** # 13
Regev, Alon Keysight Technologies

Comment Type **E** *Comment Status* **X**
"PLCAStatus" should be "PLCA Status"

SuggestedRemedy
change "PLCAStatus" to "PLCA Status"

Proposed Response *Response Status* **O**