Cl **00** *SC* **FM** *P* **9** *L* **2** *#* 6

Anslow, Pete Ciena

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

There is text to the left of the list of WG ballot members on page 9 that should be below the list

SuggestedRemedy

Move the text to be below the list.
This can be done by changing the anchoring position of the frame containing the list to be "Below Current Line"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Master comment #6. Consider with #75.

Cl **00** *SC* **FM** *P* **12** *L* **52** *#* 351

Anslow, Pete Ciena

Comment Type **E** *Comment Status* **D** *Late*

Summary text for the IEEE Std 802.3cg-20xx amendmet is missing from the frontmatter here.

SuggestedRemedy

Add summary text for the IEEE Std 802.3cg-20xx amendment here:
IEEE Std 802.3cgTM-20xx
This amendment includes changes to IEEE Std 802.3-2018 and adds Clause 146 through Clause 148 and Annex 146A and Annex 146B. This amendment adds 10 Mb/s Physical Layer (PHY) specifications and management parameters for operation on a single balanced pair copper cable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **0** *L* **0** *#* 223

Kim, Yong NIO

Comment Type **TR** *Comment Status* **D** *Big Ticket Item - Definitions*

Use of the word "collision" and use of term "logical collision" "local collision", and "physical collision. This is a pile on comment to unresolved D2.0 draft comment. Use of terms other than just "collisoin" in .3cg bothered me. This time, I went through some research. 1.1.2.1 Half duplex operation states "...if... message collides...to ensure propogation of collision through out the system." states collision is system wide. 1.4.202 collsion: A condition that results from concurrent transmission from multiple data terminal equipment (DTE) sources wihtin an single collision domain.   And 1.4.203 collision domain: A single, half duplex mode CSMA/CD network. If two or more Media Access Control (MAC) sublayers are within the same collsion domain and both transmit at the same time, a collision will occur. MAC sublayers separated by a repater..."   All of these prompt whether .3cg's use of "logical collsion" or "local collision" are proper use of the word collsion. "physical collision" should just be "collsion". In addition, the use of "logical collision" to describe an event that is not an observable event on the medium is confusing to 802.3 readers, who associates collision to an event on the shared medium.

SuggestedRemedy

Please consider careful global search and replace of "physical coillsion" to just "collsion" and use some other term for "logical collision" and "local collision" if that remains in the draft. Cannot commup with a good suggestion for the alternate word, since the "local collision" function within .3cg in my mind is access control mechanism.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

There are 3 parts to this comment, so all 3 will be addressed.
A. "local collision" - There is no such thing as a local collision in the draft. There is only the 'local collision domain', where local refers to the domain, not the collision. The term collision domain is used as defined in 1.4.203. No additional change required.

B. "logical collision" - In this case, the term collision will suffice. Delete use of "logical collision" in the only two places it occurs:
148.4.6.1, P224 L6: Delete "This is called a logical collision."
148.4.6.1, P225, L10: Change "and a logical collision is triggered" to "and a collision is triggered"

C. "physical collision" - this represents corruption on the medium, an error case for PLCA, and needs a new term. Since it results in a collision being signalled, it is a collision, and should be referred to as such. Add definition for "physical collision", based on the existing definition for "collision": Insert after 1.4.387 Physical Coding Sublayer
1.4.387a physical collision: A condition where transmitted data is corrupted on the medium that results from concurrent transmissions from multiple data terminal equipment (DTE) sources within a single collision domain.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **00**
SC **0**

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Cl **00**   *SC* **0**   *P* **9**   *L* **3**   # 75

Graber, Steffen   Pepperl+Fuchs GmbH

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

When the IEEE-SA Standards Board approved . text is accidently written in vertical direction.

SuggestedRemedy

Format text to be below the names list.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Master comment #6. Consider with #6.

Cl **00**   *SC* **0**   *P* **15**   *L* **17**   # 76

Graber, Steffen   Pepperl+Fuchs GmbH

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

Within the table of contents in several lines there is no space between the Clause number and the Cause title text.

SuggestedRemedy

Add a space after the Clause numbers in the affected lines or format the table of contents in a way, so that there is enough space there. Affected pages are 15, 21, 23 (several lines on each page)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Update the tab stop and left indents in the TOC as follows:
For H3 from 65 to 70
For H4 from 90 to 95
For H5 from 115 to 120

Cl **01**   *SC* **1.1.3**   *P* **27**   *L* **8**   # 7

Anslow, Pete   Ciena

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

The editing instruction is "Change the text at the bottom of the right column of Figure 1-1 as follows:" but there are changes in the NOTE that are not marked as changes and not covered by this editing instruction.
Also "of 10BASE-T1L and 10BASE-T1S and 100 Mb/s and above" has too many "and"s

SuggestedRemedy

Replace the editing instruction with "Change the text at the bottom of the right column and in the NOTE in Figure 1-1 as follows:"
Change the inserted text in the NOTE to : ""10BASE-T1L, 10BASE-T1S, and" in underline font.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **01**   *SC* **1.3**   *P* **27**   *L* **52**   # 117

Maguire, Valerie   The Siemon Company

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

Incorrect title and date referenced for IEC 60079-0.

SuggestedRemedy

Replace: "IEC 60079-0: 2014, Explosive atmospheres. Part 1. Equipment protection by flameproof enclosures" with "IEC 60079-0: 2017, Explosive atmospheres - Part 0: Equipment - General requirements"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **01**   *SC* **1.3**   *P* **28**   *L* **6**   # 79

Graber, Steffen   Pepperl+Fuchs GmbH

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

IEC 61000-4-5:   2017

SuggestedRemedy

IEC 61000-4-5:2017 (remove spaces before 2017)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "IEC 61000-4-5: 2017"

with, "IEC 61000-4-5:2017"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **01**
SC **1.3**

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Cl **01**   *SC* **1.4.389a**   *P* **29**   *L* **16**   # 196
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Big Ticket Item - Definitions*

This could be a pile on comment. .avoid physical collision on the medium.   There is a definition for collision and contention. What is "physical collision" on the medium conveyed in the definitions.

SuggestedRemedy

change "physical collision" to "collision". Or expand why the word "physical" is needed.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "avoid physical collision on the medium" to "avoid corrupting data being transmitted by other nodes on the medium".

Cl **01**   *SC* **1.4.495a**   *P* **29**   *L* **18**   # 5
Wienckowski, Natalie   General Motors

Comment Type **T**   *Comment Status* **D**   *Editorial*

Missing Type E PoDL definition

SuggestedRemedy

Editors instuction: Insert the Type E PoDL System definition into the list after 1.4.495 Type D PoDL System as follows:
Text: "Type E PoDL System: A system comprising a PoDL PSE, link section, and PD that are compatible with 10BASE-T1L."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert Editor's instruction on line 19, "Insert the Type E PoDL System definition into the list after 1.4.494 Type D PoDL System (re-numbered from 1.4.495 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:"

Followed by text, "1.4.494a Type E PoDL System: A system comprising a PoDL PSE, link section, and PD that are compatible with 10BASE-T1L."

Cl **22**   *SC* **22.2.2.4**   *P* **31**   *L* **20**   # 80
Graber, Steffen   Pepperl+Fuchs GmbH

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

148.4.5.1 is in the wrong font size.

SuggestedRemedy

Please correct font size to match normal text.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **22**   *SC* **22.2.2.4**   *P* **31**   *L* **22**   # 133
Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   *PLCA*

The values of TXD that shall have no effect upon the PHY are already listed in Table 22-1, text could simply point to the table instead of listing them again.

SuggestedRemedy

Replace "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" with "When TX_EN is deasserted and TX_ER is asserted, values of TXD<3:0> other than the ones listed in table 22-1 shall have no effect upon the PHY"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "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"

with, "When TX_EN is deasserted and TX_ER is asserted, values of TXD<3:0>, other than the ones listed in Table 22-1, shall have no effect upon the PHY"

(Editor's note: Change from proposed resolution is to add two commas and capitalize Table).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **22**
SC **22.2.2.4**

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Cl **22**   *SC* **22.2.2.4**   *P* **33**   *L* **13**   # 198
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Big Ticket Item - Definitions*

Also 22.2.2.5, 22.2.2.8 22.8.3.2 CL22 MII is an existing exposed interoperability test point. Any material changes to its function effect interoperability to installed base. EEE related modifications prior connects to EEE services client, not MAC. These proposed changes directly effect interoperability to existing installed base to MAC services.

SuggestedRemedy

Reverse all proposed modifications to CL22 that effect shall shatement that existed prior. A good test for this would be that there is no modifications to the PICS table with status "M". See Slides 4~6 in http://www.ieee802.org/3/cg/public/Nov2018/Kim_3cg_01a_1118.pdf for a complext context.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Commenter fails to demonstrate a compatibility problem. Compatibility is satisfied. The preexisting clause 22 will result in the new functionality not being exercised, and the network will operate correctly as a CSMA/CD network. Likewise, except for when PLCA is enabled and supported, the MII as defined in Clause 22 as modified by 802.3cg will operate correctly because the new codes are specified to have 'no effect on the PHY' - this means those in the existing 802.3-2018, and even as modified by 802.3cg. Hence, there are no backward compatibility issues. New text simply adds another 2 codes to the expanded code space added by 802.3az (when TX_EN is deasserted and TX_ER is asserted). Complete text of 22.2.2.4 now reads:
TXD is a bundle of 4 data signals (TXD<3:0>) that are driven by the Reconciliation sublayer. TXD<3:0> shall transition synchronously with respect to the TX_CLK. For each TX_CLK period in which TX_EN is
asserted, TXD<3:0> are accepted for transmission by the PHY. TXD<0 >is the least significant bit. While TX_EN and TX_ER are both deasserted, TXD<3:0> shall have no effect upon the PHY.
For EEE capability, the RS shall use the combination of TX_EN deasserted, TX_ER asserted, and TXD<3:0> equal to 0001 as shown in Table 22-1 as a request to enter, or remain in a low power state.

When PLCA capability is supported and enabled (see 45.2.13.1.1 and 45.2.13.4), the RS shall use the combination of TX_EN deasserted, TX_ER asserted, and TXD<3:0> equal to 0010 or 0011 as shown in
Table 22-1 to send respectively a BEACON or a COMMIT request as defined in 148.4.5.1. 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.

Cl **22**   *SC* **22.2.2.5**   *P* **31**   *L* **49**   # 325
Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PLCA*

According to Clause 148, PLCA is exclusively a 10BASE-T1S feature and not a 10BASE-T1L feature. Associated implementation does not apply to 10BASE-T1L.

SuggestedRemedy

Change from:
"with the exception of 10BASE-T1L and 10BASE-T1S"

To:
"with the exception of 10BASE-T1S"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **22**   *SC* **22.2.2.8**   *P* **32**   *L* **7**   # 8
Anslow, Pete   Ciena

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

"148.4.5.1" should be a cross-reference

SuggestedRemedy

make "148.4.5.1" a cross-reference

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **22**   *SC* **22.8.3.2**   *P* **33**   *L* **36**   # 326
Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PLCA*

According to Clause 148, PLCA is exclusively a 10BASE-T1S feature and not a 10BASE-T1L feature. Associated implementation does not apply to 10BASE-T1L.

SuggestedRemedy

Change from:
"with the exception of 10BASE-T1L and 10BASE-T1S"

To:
"with the exception of 10BASE-T1S"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **22**
SC **22.8.3.2**

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Cl **30**   *SC* **30.2.2.1**   *P* **34**   *L* **13**   # 199
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **X**   Big Ticket Item - Management

PHY is NOT the same as Physcal Layer in layer definition.   PHY has xMII on one side and MDI on the other (1.4.391). RS in Physical Layer but not in PHY. So by definition, oPLCA CANNOT be in oPHYEntity.   Note: look at other RS related entities in Fig 30-3 to see the consistency

SuggestedRemedy

Change the text so that the oPLCA is iin oMAC (not oPHY), and make other appropirate changes

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Master comment #199. Consider with #200.

PLCA management was moved under the PHY entity in response to satisfied TR comment 301 on initial working group ballot.

Additional information: The Reconciliation Sublayer extensions specified in Clause 65 for point-to-point emulation extend the Reconciliation Sublayer to support multiple MACs above a single PHY, see Figure 65-1 'RS location in the OSI protocol stack'. These extensions effectively add a set of functions above the PLS service interface at the 'top' of the existing Reconciliation Sublayer specified in Clause 35 to provide support for multiple instances of the PLS service interface. These functions include replacing some of the preamble on transmit with information protected by a CRC8, and examining this information on receive to determine which of the multiple MACs a packet is forwarded to. These are in effect a set of functions operating between the existing Reconciliation Sublayer and the multiple MACs, and as a result, the oOMPEmulation object to support these additional functions has to be placed between the multiple oMACEntity objects and the single oPHYEntity object. Note the many-to-one mapping from the oMACEntity object to the oOMPEmulation object in Figure 30-3 DTE System entity relationship diagram.

This is not the case for Energy-efferent Ethernet or Time Synchronisation which did not impact the interface presented to the MAC. As a result, the additional attributes were either placed in the oPHYEntity object, this was the case for Energy-efferent Ethernet, or in an object contained within the oPHYEntity object, this the case for Time Synchronisation where the oTimeSync object was added. It is for the same reasons that the oPLCA object should be contained within the oPHYEntity object too.

Cl **30**   *SC* **30.2.3**   *P* **34**   *L* **19**   # 201
Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   *Editorial*

The editting instruction says "Replace Figure 30-3 to add oPLCA as follows".   Shouldn't it be "Change Figure.."   Meaning allow other projects to change this Figure without such change being lost?

SuggestedRemedy

Consider use of "Change"

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The use of the replace editing instruction is aligned with the text on page 26 that says, "Replace is used to make changes in figures or equations by removing the existing figure or equation and replacing it with a new one." A Change instruction would required the use of underlines and strikethroughs, which are impractical for figure blocks. Subsequent projects can change or replace this figure as needed.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **30**
SC **30.2.3**

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Cl **30**	*SC* **30.2.3**	*P* **35**	*L* **37**	# 200

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   Big Ticket Item - Management

PHY is NOT the same as Physcal Layer in layer definition.   PHY has xMII on one side and MDI on the other (1.4.391).   RS in Physical Layer but not in PHY. So by definition, oPLCA CANNOT be in oPHYEntity.   Note: look at other RS related entities in Fig 30-3 to see the consistency

SuggestedRemedy

Move oPLCA from below oPHY and locate it below oMAC

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Master comment #199. Consider with #199.

PLCA management was moved under the PHY entity in response to satisfied TR comment 301 on initial working group ballot.

Additional information: The Reconciliation Sublayer extensions specified in Clause 65 for point-to-point emulation extend the Reconciliation Sublayer to support multiple MACs above a single PHY, see Figure 65-1 'RS location in the OSI protocol stack'. These extensions effectively add a set of functions above the PLS service interface at the 'top' of the existing Reconciliation Sublayer specified in Clause 35 to provide support for multiple instances of the PLS service interface. These functions include replacing some of the preamble on transmit with information protected by a CRC8, and examining this information on receive to determine which of the multiple MACs a packet is forwarded to. These are in effect a set of functions operating between the existing Reconciliation Sublayer and the multiple MACs, and as a result, the oOMPEmulation object to support these additional functions has to be placed between the multiple oMACEntity objects and the single oPHYEntity object. Note the many-to-one mapping from the oMACEntity object to the oOMPEmulation object in Figure 30-3 DTE System entity relationship diagram.

This is not the case for Energy-efferent Ethernet or Time Synchronisation which did not impact the interface presented to the MAC. As a result, the additional attributes were either placed in the oPHYEntity object, this was the case for Energy-efferent Ethernet, or in an object contained within the oPHYEntity object, this the case for Time Synchronisation where the oTimeSync object was added. It is for the same reasons that the oPLCA object should be contained within the oPHYEntity object too.

Cl **30**	*SC* **30.3.9.1.2**	*P* **38**	*L* **28**	# 202

Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   PLCA

"..aPLCAStatus is driven by plca_status variable.." The word "driven" is poor choise of word - does not define how plca_status variable value maps to aPLCAStatus.

SuggestedRemedy

Use "equal" or "same as" or other words that offer more explicit meaning

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "driven by" with "maps to".

Provide editorial license to align this text in other places.

(Editor's note: This is the common language used in clause 30.)

Cl **30**	*SC* **30.3.9.2.1**	*P* **38**	*L* **40**	# 203

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   PLCA

"This action provides a means to alter aPLCAAdminState." is completely superfluous.

SuggestedRemedy

Consider deleting the sentence. This comment is on text that has not changed and has no unresolved disapprove.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Text out of scope for recirculation, text was unchanged, and does not fix a problem. Commenter is invited to re-submit on initial sponsor ballot.

Cl **30**	*SC* **30.3.9.2.3**	*P* **39**	*L* **11**	# 134

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   PLCA

aPlcaNodeCount speified the exact number of nodes getting a transmit opportunity, not the maximum.

SuggestedRemedy

Change "the maximum number of nodes" into "the number of nodes"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **30**   Page 6 of 86
SC **30.3.9.2.3**   1/4/2019 8:18:31 AM

| *Cl* **30** | *SC* **30.3.9.2.3** | *P* **39** | *L* **12** | # | 344 |

Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   PLCA

Default is not defined. Define consistently with Clause 45.2.13.2.2.

SuggestedRemedy

Add "The default value is 255 (unassigned)."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

| *Cl* **30** | *SC* **30.3.9.2.5** | *P* **39** | *L* **28** | # | 131 |

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   PLCA

Syntax does not include the range as for other integer attributes.

SuggestedRemedy

At line 28 replace "INTEGER" with "INTEGER VALUE in the following range (inclusive): 1 to 255"

At line 33 replace "is an integer number between 1 and 255, expressed as" with "represents"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

| *Cl* **30** | *SC* **30.3.9.2.5** | *P* **39** | *L* **31** | # | 204 |

Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   PLCA

"for a specific LocalNodeID" the word "specific" is not clear. "aPLCATransmitOppotunity maps to the duration", the word "maps" is not clear. "See 148.4.5.4 for further information", "for further information" is not used, just "See <ref>.".

SuggestedRemedy

Suggest using "given" instead of "specific", use "related" instead of "maps", and delete "for further information"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "specific" with "given" and delete "for further information".

(Editor's note: "maps to" is the common language used in clause 30).

| *Cl* **30** | *SC* **30.3.9.2.5** | *P* **39** | *L* **32** | # | 135 |

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   PLCA

The sentence "This value is assigned to define the time between PLCA transmit opportunities for a specific LocalNodeID" sounds odd.

SuggestedRemedy

Replace "for a specific LocalNodeID" with "for a specific node"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

| *Cl* **30** | *SC* **30.3.9.2.5** | *P* **39** | *L* **34** | # | 345 |

Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   PLCA

Default is not defined. Define consistently with Clause 45.2.13.2.2.

SuggestedRemedy

Add "The default value is 20."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

| *Cl* **30** | *SC* **30.3.9.2.6** | *P* **39** | *L* **44** | # | 9 |

Anslow, Pete   Ciena

Comment Type **E**   *Comment Status* **D**   Editorial

As pointed out by comment #36 against D2.0 and again in comment #96 against D2.1:
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* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "in a single transmit
opportunity. Behavior is specified in"

with, "in a single transmit
opportunity as specified in"

(Editor's note: BEHAVIOUR in clause 30 is a reserved word and should be avoided in explanatory text.)

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **30**
SC **30.3.9.2.6**

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Cl **30**	*SC* **30.3.9.2.7**	*P* **39**	*L* **47**	*#* 205		*Cl* **30**	*SC* **30.5.1.1.2**	*P* **40**	*L* **10**	*#* 10
Kim, Yong		NIO				Anslow, Pete		Ciena		

Comment Type **TR**	*Comment Status* **D**		*PLCA*

aPLCABurstTimer has at least two isseus. 1) name seem to indicate timer burst, but the definition says wait timer before terminating burst. Should rename to reduce confustion.
2) With infinitely fast statemachines and atomic frame transfers, and RS being above the xMII counters in bit times makes little sense. Obviously exposed interfaces are exceptions. If the intention is to allow building a non-complaint PHY that includes PLCA in the PHY, then this timer may be relevant in implementations (not to the specification which is done in architectural frame work). I assum this is not the intent. If this is the intent, please go through appropriate process.

SuggestedRemedy

WRT to 1) please consider chaning the timer name to more descriptive name, if 2) is rejected. If 2) is accepted, then please ignore 1) comment.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

1) aPLCABurstTimer is a self explanatory name, it relates to PLCA BURST timer described in C148, commenter provides insufficient information for remedy (no proposed alternate).
2) The PLCA RS maps PLS primitives to MII interface which includes the concept of MII RX and TX clock. This implies the RS can actually count bits, as C22 RS does. Besides, implementing an RS and a PHY entity within a single chip/system is not against the specifications which purpose is to specify a system behavior without suggesting a particular implementation or a product. If this commenter's statement was true then commonly used SoC including CL4 MAC, 802.1 functions and PHYs would be a violation of the specs, which is obviously not the case.

Comment Type **E**	*Comment Status* **D**		*Editorial*

Comment #41 against D2.0 and Comment #98 against D2.1 both point out that it is not appropriate to list the two new 10 Mb/s PHYs after 1000 Mb/s PHYs.
The response to Comment #98 against D2.1 was:
ACCEPT IN PRINCIPLE.
Replace "1000BASE-T" with "10BASE-FL"
There are two issues with this:
1) it has been replaced with "1000BASE-FL" (which does not exist) rather than "10BASE-FL"
2) "10BASE-FL" would make the list:
10BASE-FP in Clause 16
10BASE-FB in Clause 17
10BASE-FL in Clause 18
10BASE-T1L in Clause 146
10BASE-T1S in Clause 147
10BASE-FLHD in Clause 18
10BASE-FLFD in Clause 18
which places the two new PHYs in the middle of the three PHYs defined in Clause 18.
It seems more appropriate to put them at the end of the 10 Mb/s PHYs.

SuggestedRemedy

Change "1000BASE-FL" to "10BASE-FLFD"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **30**
SC **30.5.1.1.2**

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Cl **30**   *SC* **30.15.1.1.4**   *P* **40**   *L* **36**   # 1
Wienckowski, Natalie   General Motors

Comment Type **T**   *Comment Status* **D**   *PoDL*
Missing Type E PSE

SuggestedRemedy
Editors instruction: insert the following new entry in the APPROPRIATE SYNTAX section of 30.15.1.1.4 after the entry for "typeD":
Text: "typeE Type E PoDL PSE"

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

Insert new section on page 40, line 36

"30.15 Layer management for Power over Data Lines (PoDL) of Single Balanced Twisted-Pair Ethernet

30.15.1 PoDL PSE managed object class

30.15.1.1 PoDL PSE attributes

30.15.1.1.4 aPoDLPSEType

Insert the following new entry in the APPROPRIATE SYNTAX section of 30.15.1.1.4 after the entry for "typeD":

typeE Type E PoDL PSE"

Cl **30**   *SC* **30.15.1.1.5**   *P* **40**   *L* **37**   # 2
Wienckowski, Natalie   General Motors

Comment Type **T**   *Comment Status* **D**   *PoDL*
Missing Type E PD

SuggestedRemedy
Editors instruction: insert the following new entry in the APPROPRIATE SYNTAX section of 30.15.1.1.5 after the entry for "typeD":
Text: "typeE Type E PoDL PD"

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

Insert after the new text inserted by comment #1:

"30.15.1.1.5 aPoDLPSEDetectedPDType

Insert the following new entry in the APPROPRIATE SYNTAX section of 30.15.1.1.5 after the entry for "typeD":

typeE Type E PoDL PD"

Cl **45**   *SC* **45.2.1.186d**   *P* **47**   *L* **28**   # 11
Anslow, Pete   Ciena

Comment Type **E**   *Comment Status* **D**   *EZ*
"Table 45-150d" should be a cross-reference

SuggestedRemedy
make "Table 45-150d" a cross-reference

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.1.186d**

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Cl **45**   *SC* **45.2.1.186d.1**   *P* **48**   *L* **12**   # 32
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   PMA

Reads from all other bits shall be ignored.

SuggestedRemedy

Reads from all other bits are indeterminate and the values are invalid. (align with 10BASE-T1L text and also adjust PICS entry MM184 by removing "Reads for all other bits are ignored").

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "Reads for all other bits shall be ignored."

with, "Reads from all other bits are indeterminate and the values are invalid."

Delete, "Reads for all other bits are ignored" and the "." after 1.0.15

Cl **45**   *SC* **45.2.1.186e**   *P* **49**   *L* **25**   # 81
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   PMA

Receive Fault Bit should have a latching high behavior (do the same change as we did for the last draft in 10BASE-T1L)

SuggestedRemedy

Change RO to RO/LH in R/W column, Add LH = Latching High to legend of table 45-150e.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "RO" with, "RO/LH" in the R/W column for bit 1.2298.1.

Insert, ", LH = Latching high" after "RO = Read only" at the bottom of table 45-150e.

Cl **45**   *SC* **45.2.1.186e.5**   *P* **50**   *L* **7**   # 28
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   PMA

For 10BASE-T1L the receive fault bit behavior has been changed to latching high behavior in the last draft. 10BASE-T1S should implement the same.

SuggestedRemedy

Add sentence: The receive fault bit shall be implemented with latching high behavior. Add also associated PICS entry.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert, "This bit shall be implemented with latching high behavior." at the end of the paragraph.

Insert new PICS MM204 after MM203:

Item: MM204
Feature: The 10BASE-T1S PMA receive fault bit is implemented with latching high behavior
Subclause: 45.2.1.186e.5
Value/Comment: [blank]
Status: PMA:M
Support: Yes [ ] N/A [ ]

Cl **45**   *SC* **45.2.3.68b**   *P* **52**   *L* **20**   # 12
Anslow, Pete   Ciena

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

The name of register 3.2279 is "10BASE-T1L PCS status" (not status 1). See comment #110 against D2.1

SuggestedRemedy

Change "status 1" to "status" in the title and also the first line of 45.2.3.68b

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Master comment #12. Consider with #149.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.3.68b**

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Cl **45**   *SC* **45.2.3.68b**   *P* **52**   *L* **20**   # 149

Griffiths, Scott   Rockwell Automation

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

[EZ] Cleanup; there is only one PCS status register for T1L.

SuggestedRemedy

Change "PCS status 1 register" to "PCS status register".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Master comment #12. Consider with #12.

Cl **45**   *SC* **45.2.3.68b**   *P* **52**   *L* **22**   # 150

Griffiths, Scott   Rockwell Automation

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

[EZ] Cleanup; there is only one PCS status register for T1L.

SuggestedRemedy

Change "PCS status 1 register" to "PCS status register".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.3.68b**   *P* **52**   *L* **40**   # 30

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   PCS

10BASE-T1S PCS fault bit is latching high. 10BASE-T1L should therefore also be latching high to be consistent.

SuggestedRemedy

Change RO to RO/LH in R/W column of table 45-237b for bit 3.2279.7. Add sentence at the end of Clause 45.2.3.68b.5: The fault bit shall be implemented with latching high behavior. Add also associated PICS entry.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "RO" with, "RO/LH" in the R/W column for bit 3.2279.7.

Insert, "This bit shall be implemented with latching high behavior." at the end of 45.2.3.68b.5.

Insert new PICS RM172 after RM171 and re-number subsequent PICS:

Item: RM172
Feature: The 10BASE-T1L PCS fault bit is implemented with latching high behavior
Subclause: 45.2.3.68b.5
Value/Comment: [blank]
Status: PMA:M
Support: Yes [ ] N/A [ ]

Cl **45**   *SC* **45.2.3.68b.6**   *P* **53**   *L* **37**   # 82

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   PCS

This bit is a latching low reflection of .

SuggestedRemedy

This bit shall be a latching low reflection of . (as for several other latching register bits, this needs to be a shall statement). The shall is also already reflected in the PICS (RM172).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "This bit is a latching low reflection of the variable scr_status."

With, "This bit shall be implemented with latching low behavior and is a reflection of the variable scr_status."

Cl **45** *SC* **45.2.3.68c** *P* **54** *L* **8** # 13
Anslow, Pete   Ciena

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

The name of register 3.2291 is "10BASE-T1S PCS control" (See comment #112 against D2.1)

SuggestedRemedy

In the title of Table 237c, change "control" to "PCS control"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.68c.3** *P* **54** *L* **52** # 324
McClellan, Brett   Marvell

Comment Type **T** *Comment Status* **D**   *PCS*

The duplex mode bit does not apply when in Multidrop mode. Modify the bit description to account for this.

SuggestedRemedy

change "Bit 3.2291.8 is used to configure the PCS duplex_mode variable when Auto-Negotiation enable bit 7.512.12 is set to zero"
to "Bit 3.2291.8 is used to configure the PCS duplex_mode variable when not operating in Multidrop mode and when Auto-Negotiation enable bit 7.512.12 is set to zero"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.68d.1** *P* **55** *L* **27** # 211
Kim, Yong   NIO

Comment Type **TR** *Comment Status* **D**   *PLCA*

PLCA Support (3.2292.15) means there is a 10BASE-T1S PHY and 10BASE-T1S PLCA PHY.   So Is the PLCA RS function or RS, PCS, and possibly PMA function?   Based on this setting, it seems to indicate that PLCA is not limited to RS.   It would be good to clarify where all the layers PLCA optinoal feature/function/option reside

SuggestedRemedy

Either delete this, or clarify which layer PLCA resides.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "indicates the PCS does not support PLCA RS required functions"

with, "indicates the PCS does not support the encodings of BEACON and COMMIT".

Cl **45** *SC* **45.2.3.68d.2** *P* **55** *L* **33** # 151
Griffiths, Scott   Rockwell Automation

Comment Type **T** *Comment Status* **D**   *PCS*

Table 45-237d indicates the Fault bit (3.2292.7) is latching high, but the text does not discuss latching behavior. The fault bit in T1L's PCS status register does not latch. Is latching really desired for T1S?

SuggestedRemedy

If latching behavior is desired, add text in section 45.2.3.68d.2 to indicate this. Also add PICS item in section 45.5.3.7.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #29. Consider with #29.

Insert, "This bit shall be implemented with latching high behavior." at the end of 45.2.3.68d.2.

Insert new PICS RM188 after RM187 and re-number subsequent PICS:

Item: RM188
Feature: The 10BASE-T1S PCS fault bit is implemented with latching high behavior
Subclause: 45.2.3.68d.2
Value/Comment: [blank]
Status: PMA:M
Support: Yes [ ] N/A [ ]

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general *Cl* **45** Page 12 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn *SC* **45.2.3.68d.2** 1/4/2019 8:18:31 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**   *SC* **45.2.3.68d.2**   *P* **55**   *L* **37**   # 29

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   PCS

The 10BASE-T1S PCS status register fault bit is stated to use latching high behavior in table 45-237d, but this behavior is missing in the text of Clause 45.2.3.68d.2 and the associated PICS.

SuggestedRemedy

Add sentence at the end of Clause 45.2.3.68d.2: The fault bit shall be implemented with latching high behavior. Add also associated PICS entry.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #29. Consider with #151.

Insert, "This bit shall be implemented with latching high behavior." at the end of 45.2.3.68d.2.

Insert new PICS RM188 after RM187 and re-number subsequent PICS:

Item: RM188
Feature: The 10BASE-T1S PCS fault bit is implemented with latching high behavior
Subclause: 45.2.3.68d.2
Value/Comment: [blank]
Status: PMA:M
Support: Yes [ ] N/A [ ]

Cl **45**   *SC* **45.2.3.68e**   *P* **55**   *L* **41**   # 14

Anslow, Pete   Ciena

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

The name of register 3.2293 is "10BASE-T1S PCS diagnostic 1".
This means that references to it should be: "10BASE-T1S PCS diagnostic 1 register"

SuggestedRemedy

On lines 41 and 42 change "10BASE-T1S PCS diagnostic register 1" to "10BASE-T1S PCS diagnostic 1 register" (2 instances)
On line 43 change "10BASE-T1S PCS 1 diagnostic register" to "10BASE-T1S PCS diagnostic 1 register"
In the title of Table 45-237e change "10BASE-T1S diagnostic register" to "10BASE-T1S PCS diagnostic 1 register" (add PCS and 1)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Master comment #14. Consider with #152 and #153.

Cl **45**   *SC* **45.2.3.68e**   *P* **55**   *L* **43**   # 152

Griffiths, Scott   Rockwell Automation

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

[EZ] Text cleanup; the correct name of the register appears to be "PCS diagnostic 1"

SuggestedRemedy

Change occurances of "PCS 1 diagnostic register" and "PCS diagnostic register 1" to "PCS diagnostic 1 register"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #14. Consider with #14 and #153.

On lines 41 and 42 change "10BASE-T1S PCS diagnostic register 1" to "10BASE-T1S PCS diagnostic 1 register" (2 instances)

On line 43 change "10BASE-T1S PCS 1 diagnostic register" to "10BASE-T1S PCS diagnostic 1 register"

In the title of Table 45-237e change "10BASE-T1S diagnostic register" to "10BASE-T1S PCS diagnostic 1 register" (add PCS and 1)

Cl **45**   *SC* **45.2.3.68f**   *P* **56**   *L* **9**   # 15

Anslow, Pete   Ciena

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

"Table 45-150f" should be a cross-reference

SuggestedRemedy

make "Table 45-150f" a cross-reference

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **45**   Page 13 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **45.2.3.68f**   1/4/2019 8:18:31 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45** *SC* **45.2.3.68f**   *P* **56** *L* **10**   # 16

Anslow, Pete   Ciena

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

The name of register 3.2294 is "10BASE-T1S PCS diagnostic 2".
This means that references to it should be: "10BASE-T1S PCS diagnostic 2 register"

SuggestedRemedy

On line 10 change "10BASE-T1S PCS diagnostic register 2" to "10BASE-T1S PCS diagnostic 2 register". Also, change the "-" in "10BASE-T1S" to be non-breaking (Ctrl space).
In the title of Table 45-237f change "10BASE-T1S PCS status 2 register" to "10BASE-T1S PCS diagnostic 2 register" (status to diagnostic).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Master comment #16. Consider with #154 and #155.

Cl **45** *SC* **45.2.3.68f**   *P* **56** *L* **11**   # 154

Griffiths, Scott   Rockwell Automation

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

[EZ] Text cleanup; the correct name of the register appears to be "PCS diagnostic 2"

SuggestedRemedy

Change "PCS diagnostic register 2" to "PCS diagnostic 2 register"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #16. Consider with #16 and #155.

On line 10 change "10BASE-T1S PCS diagnostic register 2" to "10BASE-T1S PCS diagnostic 2 register".

Also, change the "-" in "10BASE-T1S" to be non-breaking (Ctrl space).

In the title of Table 45-237f change "10BASE-T1S PCS status 2 register" to "10BASE-T1S PCS diagnostic 2 register" (status to diagnostic).

Cl **45** *SC* **45.2.3.68f**   *P* **56** *L* **17**   # 287

Jones, Peter   Cisco Systems

Comment Type **T** *Comment Status* **D**   *Editorial*

The description of PhysicalColCnt in Table 45-237f "16 bits field counting the number of remote jabber errors received since last read of this register" is a copy of the description of Remote Jabber Count in Table 45-237e

SuggestedRemedy

Fix description
"16 bit field counting the number of physical collisions that occured since last read of this register"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #287. Consider with #156.

Replace, "16 bits field counting the number of remote jabber errors received since last read of this register"

with, "16 bit field counting the number of physical collisions that occured since last read of this register"

Cl **45** *SC* **45.2.3.68f**   *P* **56** *L* **18**   # 212

Kim, Yong   NIO

Comment Type **ER** *Comment Status* **D**   *PLCA*

Description says "..remote jabber errors received.." Should say "collision"

SuggestedRemedy

My preference is "collsions" not "physical collision" (I have a separate commnet WRT this)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "16 bits field counting the number of remote jabber errors received since last read of this register"

with, "16 bits field counting the number of detected collisions since last read of this register"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general *Cl* **45** Page 14 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn *SC* **45.2.3.68f** 1/4/2019 8:18:31 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**   *SC* **45.2.3.68f**   *P* **56**   *L* **18**   # 214
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   PLCA

I see the benefits of # of collisions experienced for a given packet transmit attempts -- indicates some qualitative measure of congestion. I don't see the value nor relevance of counting collisions since beginning of time. I cannot locate (easily, anway) justification for adding this counter -- and even more so in PHY/PCS rather than in the MAC.

SuggestedRemedy

Please delete this counter, or reject this comment and point me to the rationale and utility of this counter.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

When optional PLCA RS is enabled, the MAC will count the number of collisions reported by the RS via the PLS_SIGNAL.indication primitive. Having a register that counts the number of collisions detected by the PHY is, as commenter says, a useful indication for diagnosing misconfiguration problems (PLCA shall avoid collisions on the line) and to evaluate the line quality.

Cl **45**   *SC* **45.2.3.68f.1**   *P* **56**   *L* **25**   # 157
Griffiths, Scott   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   PLCA

Wrapping behavior of the counter is not defined.

SuggestedRemedy

Indicate that this counter shall not wrap; add similar text as is found in 45.2.3.68e.1.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert "since last time register 3.2294 was read" after "When the maximum allowed value (65 535) is reached, the count stops until this register is cleared by a read operation"

Cl **45**   *SC* **45.2.3.68f.1**   *P* **56**   *L* **25**   # 213
Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   PLCA

"..i.e., excluding the ones triggered by the optional PLCA RS).." makes little sense. How do you exclude events in RS in PHY, and also "triggered" is vague. Please clarify.

SuggestedRemedy

Please clarify how RS layer events could be excluded in PHY (via references may be) or some other way.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "Bits 3.2294.15:0 reports the number of physical collisions (i.e., excluding the ones triggered by the optional PLCA RS) occurred since last time register 3.2294 was read."

with, "Bits 3.2294.15:0 reports the number of physical collisions occurred since last time register 3.2294 was read."

Cl **45**   *SC* **45.2.3.68f.1**   *P* **56**   *L* **27**   # 288
Jones, Peter   Cisco Systems

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

missing word "the number of physical collisions (..) occurred since last time"

SuggestedRemedy

missing word "the number of physical collisions (..) that occurred since last time"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.7**   *P* **56**   *L* **33**   # 17
Anslow, Pete   Ciena

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

The title of Table 45-309 is "Auto-Negotiation MMD registers"

SuggestedRemedy

Change the title of Table 45-309 from "PMA/PMD registers" to "Auto-Negotiation MMD registers"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.7**

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Cl **45**	*SC* **45.2.7.25**	*P* **57**	*L* **4**	# 218
Kim, Yong		NIO		

Comment Type **TR**   *Comment Status* **D**   *AutoNeg*

Note -- this comment may be on the text that did not change from D2.1 to D2.2. The bit 7.526.15 describes 10BASE-T1L full duplex ability advertisement. Question? Is there any other mode? Then this is grossly unnecessary. Please consider deleting this bit.

SuggestedRemedy

Please consider deleting this bit and corresponding bit in 7.527. Case and point, there is no effect to CL146 behavior from this value.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #158. Consider with #158.

Replace contents of the row for bit 7.526.15 as follows:

Bit(s): 7.526.15
Name: Reserved
Description: Value always 0
R/W: RO

Cl **45**	*SC* **45.2.7.25**	*P* **57**	*L* **29**	# 215
Kim, Yong		NIO		

Comment Type **TR**   *Comment Status* **D**   *PLCA*

Note -- this comment may be on the text that did not change from D2.1 to D2.2. in both 7.527.5 and 7.527.4 "..link partner is advertising that the PHY has PLCA ability" has a concerns. PHY is between PCS to MDI. RS is not in PHY. Also referenced PHY should be 10BASE-T1S PHY, unless it is the intention to auto-negotiate PLCA ability with other PHY. Only one reference to PHY is in that form. Also I thought PLCA is only relevant to P2MP shared medium operation, where autonegotation is not appropriate.

SuggestedRemedy

Please change 1) PHY to 10BASE-T1S PHY in five places, 2) add PLCA appropriate layer, RS. In four places. I'll search, but there is a reference to P2MP auto-negotiation function, I would live to get it. Before being satisfied with this comment, I need to see why autonegotation of shared medium feature is is needed (or even how it would work).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #148, #216, #217, #253, #260, #341, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **45**	*SC* **45.2.7.25**	*P* **57**	*L* **29**	# 341
Brandt, David		Rockwell Automation		

Comment Type **T**   *Comment Status* **D**   *PLCA*

PLCA only applies to multidrop, which does not have Auto-negotiation.

SuggestedRemedy

Remove 7.526.4 and 7.526.4 and renumber Reserved bit range.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #148, #215, #216, #217, #253, #260, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.7.25**

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Cl **45**   *SC* **45.2.7.25.4**   *P* **58**   *L* **9**   # 31
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *AutoNeg*
., and the 2.4 Vpp transmit voltage operation is desired, bit 7.526.12 is set to one.

SuggestedRemedy
., and the 2.4 Vpp transmit voltage operation is desired, bit 7.526.12 shall be set to one. (change to a shall statement as for the other bits in the same register and also add an associated PICS entry).

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

Replace, " bit 7.526.12 is set to one"

with, " bit 7.526.12 shall be set to one"

Insert new PICS AM98 after AM97 and renumber subsequent bits.

Item: AM98
Feature: If a 10BASE-T1L PHY supports the 2.4 Vpp operating mode and the 2.4 Vpp transmit voltage operation is desired, bit 7.526.12 is set to one
Value/Comment: [blank]
Status: AN:M
Support: Yes [ ] N/A [ ]

Cl **45**   *SC* **45.2.7.25.7**   *P* **58**   *L* **26**   # 342
Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PLCA*
PLCA only applies to multidrop, which does not have Auto-negotiation.

SuggestedRemedy
Remove clauses 45.2.7.25.7 and 45.2.7.25.8.

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

Master comment #148. Consider with #148, #215, #216, #217, #253, #260, #341, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **45**   *SC* **45.2.7.25.8**   *P* **58**   *L* **30**   # 217
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **X**   *PLCA*
Note -- this comment may be on the text that did not change from D2.1 to D2.2. This is the ONLY place where "PLCA coordinator" is optionally present, or conversely, it is not clear whether every PLCA RS must be able to serve as the coordinator for conformance. And this caused entry to 98B.3. The refereced 148.2 does not describe optional presence. Ideally CL148.2 describes this cleary -- whether this is an optional feature or optional operation or whatever. Management clause is not the good place to put such specification (and also as stated, it is being grossly inferred by this commentor).

SuggestedRemedy
Clarify the optional/mandatory intent of "PLCA coordinator " in CL148 RS.

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

Master comment #148. Consider with #148, #215, #216, #253, #260, #341, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.7.25.8**

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Cl **45**   *SC* **45.2.7.26**   *P* **59**   *L* **30**   # 216
Kim, Yong   NIO

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

Note -- this comment may be on the text that did not change from D2.1 to D2.2.   in both 7.527.5 and 7.527.4 "..link partner is advertising that the PHY has PLCA ability" has a concerns.   PHY is between PCS to MDI. RS is not in PHY. Also referenced PHY should be 10BASE-T1S PHY, unless it is the intention to auto-negotiate PLCA ability with other PHY.   Also I thought PLCA is only relevant to P2MP shared medium operation, where autonegotation is not appropriate.

SuggestedRemedy

Please change 1) PHY to 10BASE-T1S PHY in six places, 2) add PLCA appropriate layer, RS. In four places. I'll search, but there is a reference to P2MP auto-negotiation function, I would live to get it.   Before being satisfied with this comment, I need to see why autonegotation of shared medium feature is is needed (or even how it would work).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #148, #215, #217, #253, #260, #341, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **45**   *SC* **45.2.7.26**   *P* **59**   *L* **30**   # 343
Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PLCA*

PLCA only applies to multidrop, which does not have Auto-negotiation.

SuggestedRemedy

Remove 7.527.4 and 7.527.4 and renumber Reserved bit range.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #148, #215, #216, #217, #253, #260, #341, #342, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **45**   *SC* **45.2.9.2**   *P* **60**   *L* **33**   # 3
Wienckowski, Natalie   General Motors

Comment Type **T**   *Comment Status* **D**   *PoDL*

Missing Type E PSE

SuggestedRemedy

Editors instruction: Change the row for PSE Type (as modified by IEEE Std 802.3cg-201x) in Table 45-340 as follows (unchanged rows not shown):.
Change 1 x x = Reserved row to to 1 0 0 = Type E PSE and
 1 0 1 = Reserved and
 1 1 x = Reserved.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "Change row for Bits 13.1.6:3 in Table 45-340 as follows (unchanged rows not shown):"

with, "Change rows for Bits 13.1.6:3 and Bits 13.1.9:7 in Table 45-340 as follows (unchanged rows not shown):"

Insert row for Bits 13.1.9:7 (PSE Type) from 802.3-2018 into Table 45-340 above row for 13.1.6:3 (PD Class)

Replace, "1 x x = Reserved" with, "1 0 0 = Type E PSE"

Add 1 0 1 = Reserved
Add 1 1 x = Reserved

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.9.2**

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Cl **45**   *SC* **45.2.9.2.7**   *P* **60**   *L* **53**   # 4

Wienckowski, Natalie   General Motors

Comment Type **T**   *Comment Status* **D**   PoDL

Missing Type E PSE

SuggestedRemedy

Need to add Type E PSE to the text: and when read as 100 a Type E PSE is indcated. Values of 101 and 11x are reserved.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert after Table 45-340:

45.2.9.2.7 PSE Type (13.1.9:7)

Change 45.2.9.2.7 as follows:

Use formatting to show existing text changing from:

Bits 13.1.9:7 report the PSE Type of the PSE as specified in 104.4.1. When read as 000, bits 13.1.9:7 indicate a Type A PSE, when read as 001 a Type B PSE is indicated, and when read as 010 a Type C PSE is indicated. and when read as 011 a Type D PSE is indicated. Values of 1xx are reserved.

To:

Bits 13.1.9:7 report the PSE Type of the PSE as specified in 104.4.1. When read as 000, bits 13.1.9:7 indicate a Type A PSE, when read as 001 a Type B PSE is indicated, when read as 010 a Type C PSE is indicated, when read as 011 a Type D PSE is indicated, and when read as 100 a Type E PSE is indcated. Values of 101 and 11x are reserved.

(Editor's note: there is a formatting issue for the Type D PSE in the original text that is corrected editorially by this implementation.)

Cl **45**   *SC* **45.2.9.2.8**   *P* **61**   *L* **3**   # 18

Anslow, Pete   Ciena

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

"42.2.9.2.8" should be "45.2.9.2.8"

SuggestedRemedy

change "42.2.9.2.8" to "45.2.9.2.8"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **45**   *SC* **45.2.13**   *P* **62**   *L* **13**   # 45

Graber, Steffen   Pepperl+Fuchs GmbH

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

PLCA TO Timer

SuggestedRemedy

PLCA TO timer (align with the rest of the text).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "PLCA TO Timer"

with, "PLCA TO timer"

Cl **45**   *SC* **45.2.13.1.1**   *P* **62**   *L* **43**   # 221

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   PLCA

"The PHY shall be place in PLCA mode.". PLCA is in RS. PHY is between PCS and MDI. Physcal layer is between RS and MDI.   Please make the appropriate change here and also in the whole document that seem to be inconsistent as to where PLCA resides.

SuggestedRemedy

"The RS shall be palced in PLCA mode." would be correct statement.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "The PHY shall be placed in PLCA mode of operation when bit 28.0.15 is set to one."

with, "When bit 28.0.15 is set to one the PLCA RS functions shall be enabled."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.13.1.1**

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Cl **45**	*SC* **45.2.13.2.1**	*P* **63**	*L* **19**	# 289

Jones, Peter   Cisco Systems

Comment Type **T**   *Comment Status* **D**   *PLCA*

plca_node_count (for node 0) is defined as "number of active PLCA nodes on the mixing segment.", but is shown as R/W with a default of 8. A default makes no sense for ""number of active PLCA nodes". Is this supposed to match the text for aPLCANodeCount which says "the maximum number of nodes getting..."

SuggestedRemedy

If this is "active nodes", make it R/O and remove the default.
If this should match aPLCANodeCount, change "number of active PLCA nodes on the mixing segment" to "defines the maximum number of active PLCA nodes on the mixing segment".
Same change in Table 45-351c 28.1.15:8

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #219. Consider with #289.

Replace, "number of active PLCA nodes"

with, "maximum number of PLCA nodes".

Make the same change as appropriate in Table 45-351c (p. 63, line 9), and 148.4.5.2 p. 223 line 5.

Cl **45**	*SC* **45.2.13.2.1**	*P* **63**	*L* **19**	# 219

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *PLCA*

".active PLCA nodes.". Is there any other type of nodes on the same segment? How about just "..nodes."

SuggestedRemedy

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #219. Consider with #289.

Replace, "number of active PLCA nodes"

with, "maximum number of PLCA nodes".

Make the same change as appropriate in Table 45-351c (p. 63, line 9), and 148.4.5.2 p. 223 line 5.

(Editor's note: Commenter did not provide an explicit remedy.)

Cl **45**	*SC* **45.2.13.3**	*P* **63**	*L* **31**	# 19

Anslow, Pete   Ciena

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

The name of register 28.2 is "PLCA TO Timer".

SuggestedRemedy

Change the title of Table 45-351d from "PLCA to_timer register bit definitions" to "PLCA TO timer register bit definitions"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **45.2.13.3**

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Cl **45**   *SC* **45.2.13.4**   *P* **64**   *L* **64**   # 220
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

Related to my other comment on 30.2.9.2.7 (and should consider together), 1) name seem to indicate timer burst, but the definition says wait timer before terminating burst.   Should rename to reduce confustion. 2) With infinitely fast statemachines and atomic frame transfers, and RS being above the xMII counters in bit times makes little sense. Obviously exposed interfaces are exceptions.   If the intention is to allow building a non-complaint PHY that includes PLCA in the PHY, then this timer may be relevant in implementations (not to the specification which is done in architectural frame work).   I assum this is not the intent.   If this is the intent, please go through appropriate process.

SuggestedRemedy

WRT to 1) please consider chaning the timer name to more descriptive name, if 2) is rejected.   If 2) is accepted, then please ignore 1) comment.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

1) aPLCABurstTimer is a self explanatory name, it relates to PLCA BURST timer described in C148, commenter provides insufficient information for remedy (no proposed alternate).
2) The PLCA RS maps PLS primitives to MII interface which includes the concept of MII RX and TX clock. This implies the RS can actually count bits, as C22 RS does. Besides, implementing an RS and a PHY entity within a single chip/system is not against the specifications which purpose is to specify a system behavior without suggesting a particular implementation or a product. If this commenter's statement was true then commonly used SoC including CL4 MAC, 802.1 functions and PHYs would be a violation of the specs, which is obviously not the case.

Cl **45**   *SC* **45.2.13.6**   *P* **64**   *L* **32**   # 346
Brandt, David   Rockwell Automation

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

Wrong register name.

SuggestedRemedy

Change "Control 1 register" to "Status register".

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

Master comment #159. Consider with #159.

Replace, "PLCA Control 1 register"

with, "PLCA status register"

Cl **45**   *SC* **45.2.13.6**   *P* **64**   *L* **32**   # 159
Griffiths, Scott   Rockwell Automation

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

[EZ] Incorrect section header

SuggestedRemedy

Change "PLCA Control 1" to "PLCA status".

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

Master comment #159. Consider with #346.

Cl **45**   *SC* **45.5.3.9**   *P* **71**   *L* **31**   # 347
Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PLCA*

PLCA only applies to multidrop, which does not have Auto-negotiation.

SuggestedRemedy

Delete PICS AM102 and AM103.

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

Master comment #148. Consider with #148, #215, #216, #217, #253, #260, #341, #342, and #343.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **45**   *SC* **45.5.3.24**   *P* **72**   *L* **7**   # 20
Anslow, Pete   Ciena

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

Item "*PLCA" has a status entry of "PLCA:O", which is not as per comment #131 against D2.1 and is self-referencing.
Item "*PLCA" has a support entry of "Yes [ ] N/A [ ]", which is not as per comment #131 against D2.1 (should be "Yes [ ] No [ ]"

SuggestedRemedy

Change "PLCA:O" to "O"
Change "Yes [ ] N/A [ ]" to "Yes [ ] No [ ]"

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **45**   Page 21 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **45.5.3.24**   1/4/2019 8:18:31 AM
SORT ORDER: Clause, Subclause, page, line

Cl **45**　　　*SC* **Table 45-237e**　　　*P* **55**　　　*L* **46**　　　# 153

Griffiths, Scott　　　　　　　　　　Rockwell Automation

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

[EZ] Text cleanup; incorrect table title.

SuggestedRemedy

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

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #14. Consider with #14 and #152.

On lines 41 and 42 change "10BASE-T1S PCS diagnostic register 1" to "10BASE-T1S PCS diagnostic 1 register" (2 instances)

On line 43 change "10BASE-T1S PCS 1 diagnostic register" to "10BASE-T1S PCS diagnostic 1 register"

In the title of Table 45-237e change "10BASE-T1S diagnostic register" to "10BASE-T1S PCS diagnostic 1 register" (add PCS and 1)

Cl **45**　　　*SC* **Table 45-237f**　　　*P* **56**　　　*L* **14**　　　# 155

Griffiths, Scott　　　　　　　　　　Rockwell Automation

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

[EZ] Text cleanup; incorrect table title.

SuggestedRemedy

Change "10BASE-T1S PCS status 2" to "10BASE-T1S PCS diagnostic 2"

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #16. Consider with #16 and #154.

On line 10 change "10BASE-T1S PCS diagnostic register 2" to "10BASE-T1S PCS diagnostic 2 register".

Also, change the "-" in "10BASE-T1S" to be non-breaking (Ctrl space).

In the title of Table 45-237f change "10BASE-T1S PCS status 2 register" to "10BASE-T1S PCS diagnostic 2 register" (status to diagnostic).

Cl **45**　　　*SC* **Table 45-237f**　　　*P* **56**　　　*L* **17**　　　# 156

Griffiths, Scott　　　　　　　　　　Rockwell Automation

Comment Type **E**　　*Comment Status* **D**　　　　　　　*Editorial*

Description of PhysicalColCnt in the table is wrong; it appears to be a copy & paste error.

SuggestedRemedy

Replace text in the description column of the table with appropriate text derived from 45.2.3.68f.1.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #287. Consider with #287.

Replace, "16 bits field counting the number of remote jabber errors received since last read of this register"

with, "16 bit field counting the number of physical collisions that occured since last read of this register"

Cl **45**　　　*SC* **Table 45-330a**　　　*P* **57**　　　*L* **1**　　　# 158

Griffiths, Scott　　　　　　　　　　Rockwell Automation

Comment Type **T**　　*Comment Status* **D**　　　　　　　*AutoNeg*

T1L is full duplex only. Why bother advertising a T1L full duplex ability?

SuggestedRemedy

Set bit 7.526.15 to reserved.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #158. Consider with #218.

Replace contents of the row for bit 7.526.15 as follows:

Bit(s): 7.526.15
Name: Reserved
Description: Value always 0
R/W: RO

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **45**
SC **Table 45-330a**

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Cl **78**	*SC* **78.2**	*P* **73**	*L* **32**	#	33

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *EEE*

Tq Min = 20 000, Tq Max = 21 000

SuggestedRemedy

Tq Min = 6000, Tq Max = 6300 (change from a 1 : 100 refresh to quiet rate to a 1 : 30 refresh to quiet rate). Background is, that a 1 : 100 rate for an echo cancelled PHY is only used for 1000BASE-T (which uses a well defined synchronization between both PHYs, but is still quite tricky related to EEE). For all other echo cancelled PHYs, the rate is much lower than a 1 : 100. Most PHYs have a 1 : 20 or 1 : 30 rate, thus it seems to be more suitable to go for a 1 : 30 ratio, which provides less burden on the clock recovery and echo canceller tracking requirements and seems to be technically more feasible).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace Tq Min value of "20 000" with "6000" in Table 78-2.

Replace Tq Max value of "21 000" with "6300" in Table 78-2.

Cl **98**	*SC* **98.2.1.1.2**	*P* **74**	*L* **12**	#	222

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *Editorial*

This whole paragraph would be better placed under CL 98.2.1 after the existing paragraph (and fix up spelled out acronyms, etc)

SuggestedRemedy

Consider moving it there and do reasonable editorial changes.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change editing instruction at P74 L11 to "Insert new text as new second paragraph in 98.2.1 as follows:" and move instruction and new paragraph to subclause 98.2.1.

Cl **98**	*SC* **98.2.1.1.2**	*P* **74**	*L* **15**	#	95

Slavick, Jeff   Broadcom

Comment Type **TR**   *Comment Status* **D**   *AutoNeg*

The sentence "HSM serves all single-pair Ethernet PHYs except 10BASE-T1L." is contradictory with a later sentence "If Auto-Negotiation is implemented, 10BASE-T1L PHYs shall support LSM and may optionally support HSM."

SuggestedRemedy

Delete the sentence "HSM serves all single-pair Ethernet PHYs except 10BASE-T1L."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **98**	*SC* **98.2.1.1.2**	*P* **74**	*L* **17**	#	160

Griffiths, Scott   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *AutoNeg*

How can T1S support high-speed mode with a rate of 16.667 Mb/s? This means Auto-Negotiation would happen at a higher data rate than normal data transmission.

SuggestedRemedy

T1S should only support LSM Auto-Neg.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Clause 98 HSM is DME with a nominal clock period of 60nsec, LSM is 1600nsec. Clause 147 (10BASE-T1S) is DME with a nominal clock period of 80 nsec. Clause 98 HSM is slightly faster than Clause 147, but compatible with the link segment and close to clause 147's rate, a better fit than Clause 98 LSM. Clause 98 LSM is substantially slower and out-of-band used for clause 147, due to the DME high-pass spectrum.

Cl **98**	*SC* **98.5.5**	*P* **81**	*L* **1**	#	46

Graber, Steffen   Pepperl+Fuchs GmbH

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

In state diagram 98-9 at 4 positions a Ü instead of a "<=" is being used.

SuggestedRemedy

Correct state diagram by replacing the Ü by a <= symbol.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **98**   Page 23 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **98.5.5**   1/4/2019 8:18:31 AM
SORT ORDER: Clause, Subclause, page, line

Cl **98**   *SC* **98.5.5**   *P* **82**   *L* **1**   # 47
Graber, Steffen   Pepperl+Fuchs GmbH

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

In state diagram 98-10 at 3 positions a Ü instead of a "<=" is being used.

SuggestedRemedy

Correct state diagram by replacing the Ü by a <= symbol.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **98**   *SC* **98.5.6**   *P* **84**   *L* **26**   # 323
McClellan, Brett   Marvell

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

"timer done" should be "timer_done"

SuggestedRemedy

change "failure_timer done" to "failure_timer_done" in 2 locations
change "detection_timer done" to "detection_timer_done"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **98**   *SC* **98.5.6.3**   *P* **83**   *L* **45**   # 77
Graber, Steffen   Pepperl+Fuchs GmbH

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

Timers:

SuggestedRemedy

Timers (remove double dot after Timers)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **98**   *SC* **98.5.6.3**   *P* **84**   *L* **6**   # 34
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

Within the state diagram 98-11 different styles (without and with true ore false compares) are used.

SuggestedRemedy

Unitfy the used style within the state diagram. As most of the conditions have already the true/false statements removed, it is suggested, to write "an_link_good" instead of "an_link_good = true" at two positions and also "!an_link_good" instead of "an_link_good = FALSE" at one position within the state diagram. Alternatively add to all state transition conditions the true/false statements, if the intention is to be aligned with the rest of Clause 98.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "an_link_good = TRUE" with, "an_link_good" in two locations

Replace, "an_link_good = FALSE" with, "!an_link_good" in one location

(Editor's note: Project Chair may file a sponsor ballot to change the structure here and have a single function to get the speed mode, which will make all of this look like clause 98 and simplify the diagram so its obvious the two branches are mutually exclusive.)

Cl **98**   *SC* **98.6.4**   *P* **86**   *L* **10**   # 21
Anslow, Pete   Ciena

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

Comment #139 against D2.1 was ACCEPT with part of the suggested remedy being:
In item DME8, show "shall be 30.0 ns ± 0.01%." as changing to "shall be 30 ns ± 0.01%."
Since DME8 is in the base standard, this should be done by showing ".0" in strikethrough font

SuggestedRemedy

In item DME8 add ".0" in strikethrough font after "30"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **98**
SC **98.6.4**

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1/4/2019 8:18:31 AM

Cl **98**   *SC* **98B.3**   *P* **235**   *L* **28**   # 260

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

Autonegotiation of PLCA coordinator ability does not have ANY stated function (Or, it's somewhere and I missed it). PLCA's claimed benefit is for "multidrop" performance, and AN is for link segment.

SuggestedRemedy

Delete PLCA coordinator ability from AN (or point to a reference that states how this ability from AN is used).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #148, #215, #216, #217, #253, #341, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **98**   *SC* **98B.3**   *P* **235**   *L* **28**   # 253

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

PLCA ability and PLCA coordinator ability are associated ONLY with 10BASE-T1S half duplex. Please make it user friendly by associating the set of abilities appropriately.

SuggestedRemedy

Change PLCA ability to PLCA + 10BASE-T1S half duplex ability. And PLCA coordinator ability to PLCA coordinator + PLCA + 10BASE-T1S half duplex ability. The same three bits.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #148, #215, #216, #217, #260, #341, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

Cl **98**   *SC* **98B.3**   *P* **235**   *L* **36**   # 90

Graber, Steffen   Pepperl+Fuchs GmbH

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

10BASE-T1S EEE ability bit seems to be not used anymore (at least in Clause 45 there is no bit in the AN control and status registers).

SuggestedRemedy

Please set Bit A26 back to "Reserved".

Proposed Response   *Response Status* **W**

Consider with #148

Cl **98**   *SC* **Table 98B-1**   *P* **235**   *L* **14**   # 148

Griffiths, Scott   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PLCA*

T1S EEE ability and PLCA abilities should be removed, the first because it doesn't exist, the second because PLCA is not intented to work with Pt-Pt links, which are the only ones that can use Auto-Neg.

SuggestedRemedy

T1S EEE (A26) and PLCA abilites (A20 and A21) should be removed.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Master comment #148. Consider with #215, #216, #217, #253, #260, #341, #342, #343, and #347.

1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 on page 71

(Editor's note: Commenter is correct about PLCA not being part of the AN process. EEE ability was already removed from draft 2.2, the commenter is probably referring to an older version of the draft (bit A26 does not exist).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **98**   Page 25 of 86

COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **Table 98B-1**   1/4/2019 8:18:31 AM

SORT ORDER: Clause, Subclause, page, line

Cl **104**   *SC* **104.1.3**   *P* **88**   *L* **10**   # 100
Fritsche, Matthias   HARTING Technology

Comment Type **T**   *Comment Status* **D**   PoDL
So far I understand PoDL work only with point to point link segments. Should we add here a note that 10BASE-T1S multidrop link segments are not compatible to PoDL?

SuggestedRemedy
??

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

Insert the following new sentence after "A PoDL system consists of a PSE, a link segment, and a PD.":

"Note that a link segment, as defined in 1.4.309, implies a point-to-point link. Multidrop mode for 10BASE-T1S (see Clause 147) is not supported by this clause."

Cl **104**   *SC* **104.1.3**   *P* **88**   *L* **12**   # 312
Stewart, Heath   Analog Devices

Comment Type **TR**   *Comment Status* **D**   PoDL
References were proactively added to make 10BASE-T1S and 100BASE-T1 equivalent (as PoDL Types.) These Types have grown apart and indeed 10BASE-T1S is not a point-to-point protocol.
The electrical specifications for the 10BASE-T1S and 100BASE-T1 are no longer overlapping.

SuggestedRemedy
Change
A Type A or Type C PSE and Type A or Type C PD is compatible with 10BASE-T1S and 100BASE-T1 PHYs. A Type B or Type C PSE and Type B or Type C PD is compatible with 1000BASE-T1 PHYs. A Type C PSE and Type C PD is compatible with both10BASE-T1S, 100BASE-T1, and 1000BASE-T1 PHYs.
to
A Type A or Type C PSE and Type A or Type C PD is compatible with 100BASE-T1 PHYs. A Type B or Type C PSE and Type B or Type C PD is compatible with 1000BASE-T1 PHYs. A Type C PSE and Type C PD is compatible with both 100BASE-T1 and 1000BASE-T1 PHYs.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

10BASE-T1S has point-to-point modes, which operate on a link segment aligned with 100BASE-T1 requirements. While multidrop is not supported, point-to-point modes are supported.

Task Force to discuss.

Cl **104**   *SC* **104.4.3.5**   *P* **89**   *L* **42**   # 284
Stewart, Heath   Analog Devices

Comment Type **TR**   *Comment Status* **D**   PoDL
PSE do_classification return variable list is incomplete based on new cable resistance measurement function.

SuggestedRemedy
Adopt stewart_0119_r001.pdf slide 7

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

Task Force to discuss.

Cl **104**   *SC* **104.4.3.5**   *P* **92**   *L* **24**   # 285
Stewart, Heath   Analog Devices

Comment Type **TR**   *Comment Status* **D**   PoDL
PSE do_sccp return variable list is incomplete based on new cable resistance measurement function.

SuggestedRemedy
Adopt stewart_0119_r001.pdf slide 8

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

Task Force to discuss.

Cl **104**   *SC* **104.6**   *P* **99**   *L* **38**   # 282
Stewart, Heath   Analog Devices

Comment Type **E**   *Comment Status* **D**   EZ
field should not be subscript

SuggestedRemedy
Make field normal text

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

Master comment #84. Consider with #84.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **104**
SC **104.6**

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Cl **104**   *SC* **104.6**   *P* **99**   *L* **44**   # 283
Stewart, Heath   Analog Devices

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

Incorrect implementation of change from last cycle. Equation needs an "=" assignment operator.

SuggestedRemedy

Change
P_PD_assign >=
to
P_PD_assign =

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **104**   *SC* **104.7**   *P* **94**   *L* **22**   # 286
Stewart, Heath   Analog Devices

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

Editing instructions for previously accepted comments implementing stewart_3cg_01e_1118.pdf were incomplete. Insufficient detail was given and is provided now.

SuggestedRemedy

Adopt stewart_0119_r001.pdf slides 3-6, 9-10

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Task Force to discuss.

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **5**   # 48
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

"Cable Resistance Measurement" is written with capital letters at the beginning of the words in some occurances, in other occurances it is written in all small letters.

SuggestedRemedy

Please align the text throughout the document (suggested is to replace all occurances by "Cable Resistance Measurement").

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change, "Cable Resistance Measurement" to "cable resistance measurement" in these five locations:

P99, L5
P99, L8
P99, L37
P99, L39
P100, L1

Change, "Cable Resistance Measurement" to "Cable resistance measurement" on page 101, line 18.

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **11**   # 49
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *Cable Diagnostics*

VReport_PD,max in equation 104-4 should be just VReport_PD or, if it needs to be taken care by the tolerances, then VReport_PD,min, to do a worst-case RCable_initial calculation.

SuggestedRemedy

Most likely VReport_PD,max needs to be replaced by VReport_PD (as mentioned in the variables explanation section below). Otherwise some information about possible tolerances will be needed and likely min instead of max has to be used.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "Vreport,max" with "Vreport" in Equation 104-4.

Change the cross reference on page 99, line 16 for Vreport from "Table 104-1" to "Table 104-10".

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **104**
SC **104.7.1.4**

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Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **15**   # 50
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*
. during presence pulse .

SuggestedRemedy
. during the presence pulse . (align with text of the following variable descriptions).

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

Replace, "during presence pulse"

with, "during the presence pulse"

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **22**   # 22
Anslow, Pete   Ciena

Comment Type **E**   *Comment Status* **D**   *EZ*
"Equation(104-5)" should be a cross-reference

SuggestedRemedy
Make "Equation(104-5)" a cross-reference

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

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **29**   # 51
Graber, Steffen   Pepperl+Fuchs GmbH

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

SuggestedRemedy
RCable_inital (align with Equation 104-5)

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

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **37**   # 83
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
0.1W

SuggestedRemedy
0.1 W (add space)

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

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **38**   # 84
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
", field" may not be in subscript

SuggestedRemedy
Write ", field" as normal text.

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

Master comment #84. Consider with #282.

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **39**   # 86
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
Comma after P_{PD_req} may not be subscript.

SuggestedRemedy
Write comma as normal text.

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line
Cl **104**
SC **104.7.1.4**
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1/4/2019 8:18:31 AM

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **39**   # 85
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
P(subscript)PD_Assign

SuggestedRemedy
P(subscript)PD_assign (align with Equation 145-6)

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

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **43**   # 87
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
A space after "P(subscript)PD_req," is missing and the bracket after I(subscript)PI(max)² is too much (I² * R results in power).

SuggestedRemedy
Please add space and remove wrong bracket.

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

Cl **104**   *SC* **104.7.1.4**   *P* **99**   *L* **53**   # 88
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
Table 104-10

SuggestedRemedy
Table 104-11 (the POWER_ASSIGN register table needs to be referenced)

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

Replace, "Table 104-10"

with, "Table 104-11"

Cl **104**   *SC* **104.7.2.6**   *P* **102**   *L* **8**   # 23
Anslow, Pete   Ciena

Comment Type **E**   *Comment Status* **D**   *EZ*
104.7.2.6 seems to be about the "VOLT_POWER_INFO" register

SuggestedRemedy
Change the title of Table 104-10 from "CLASS_POWER_INFO Register Table" to "VOLT_POWER_INFO Register Table"

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

Cl **104**   *SC* **104.7.2.6**   *P* **102**   *L* **17**   # 89
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*
Text in column "Name" should be left aligned.

SuggestedRemedy
Please left align text.

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

Insert "PPD_req" (with PD_req in subscript) before "Requested Power" on P102, L13.

Left justify "Voltage at PD PI during Presence Pulser" on P102, L17.

Insert "PPD_assign" (with PD_assign in subscript) before "PD Assigned Power" on P102, L42.

Cl **104**   *SC* **104.7.2.7**   *P* **102**   *L* **25**   # 78
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
PD assigned power [POWER_ASSIGN].

SuggestedRemedy
PD assigned power [POWER_ASSIGN] (remove dot at the end of the head line)

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **104**
SC **104.7.2.7**

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Cl **104**   *SC* **104.9.1**   *P* **103**   *L* **7**   # 24

Anslow, Pete   Ciena

Comment Type **E**   *Comment Status* **D**   *Editorial*

The name of the clause appears in several places in the PICS and while this amendment has changed some, others are unaltered.

SuggestedRemedy

Bring the heading and first paragraph of 104.9.1 in to the draft. Add an editing instruction: "Change the first paragraph of 104.9.1 as follows:"
in the first paragraph, show " Balanced Twisted" in strikethrough font

Bring the heading for 104.9.2 and 104.9.2.2 and the table in 104.9.2.2 in to the draft.
in the table, show " Balanced Twisted" in strikethrough font

In the heading for 104.9.4, show " Balanced Twisted" in strikethrough font

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **104**   *SC* **104.9.4.2**   *P* **103**   *L* **43**   # 25

Anslow, Pete   Ciena

Comment Type **E**   *Comment Status* **D**   *Editorial*

The editing instruction for the table in 104.9.4.2 does not include the row for "*CRM"
The reference to "CRM" in item "PSE37" points to an entry that is later in the PICS tables. This is not usual practice.
The Status entry of item "*CRM" is "SCC:O" but item "*SCC" does not exist. (Should this be "SCCP"?)

SuggestedRemedy

Move item "*CRM" to be before item "PSE37". Preferably put this with the other options in the table in 104.9.3.
Include the insertion of the row for "*CRM" in an editing instruction
If appropriate, change "SCC:O" to "SCCP:O"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete row for *CRM in table in 104.9.4.2.

Insert the following row before the row marked "." in the table in 104.9.3:

Item: *CRM
Feature: Implements cable resistance measurement functionality
Subclause: 104.7
Value/Comment: [blank]
Status: SCCP:O
Support: Yes [ ] No [ ] N/A [ ]

Change Editing Instruction for 104.9.3 from, "Insert a row for new Item *PSETE after Item *PSETC and insert a row for new Item *PDTE after Item *PDTC in the table in 104.9.3 as follows (unchanged rows not shown):"

to, Insert a row for new Item *CRM before Item *PSETA, insert a row for new Item *PSETE after Item *PSETC, and insert a row for new Item *PDTE after Item *PDTC in the table in 104.9.3 as follows (unchanged rows not shown):"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **104**   Page 30 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **104.9.4.2**   1/4/2019 8:18:31 AM
SORT ORDER: Clause, Subclause, page, line

Cl **146**	SC **146.1.3.1**	P **107**	L **8**	# 224

Kim, Yong NIO

Comment Type **E** *Comment Status* **D** *Editorial*

It would be good to say, "The conventions of 21.5 are adopted, with the foliiowing extensions." and replace the existing first sentence with it. The value of doing this is that a reader is informed that all stated conventions are common, and additoinal IF-THEN-ELSE-END was added in this clause.

SuggestedRemedy

Please consider the suggestion.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The notation used in the state diagrams follows the conventions of 21.5. Some..." to "The conventions of 21.5 are adopted with the extension that some"...

Cl **146**	SC **146.2**	P **108**	L **37**	# 161

Griffiths, Scott Rockwell Automation

Comment Type **E** *Comment Status* **D** *Editorial*

It might be appropriate to note here that the Technology Dependent Interface is defined in Clause 98.4.

SuggestedRemedy

After "(GMII).", add "The optional Technology Dependent Interface is used for Auto-Negotiation and is described in 98.4." or something similar.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
After "(GMII).", add "The optional Technology Dependent Interface is used for Auto-Negotiation and is described in 98.4."

Cl **146**	SC **146.3.2**	P **116**	L **16**	# 91

Graber, Steffen Pepperl+Fuchs GmbH

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

tx_mode = SEND_N * TX_EN * !TX_ER

SuggestedRemedy

tx_mode = SEND_N * !TX_EN * !TX_ER (TX_EN needs to be negated as in Draft D2.1 the condition was TX_EN = FALSE)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	SC **146.3.3.1.4**	P **120**	L **1**	# 35

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *Editorial*

Within state diagram 146-5 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

To align with the rest of 802.3, please omit the backets within the conditions in line 33, 37, 49, and 51.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Use of brackets for clarity differs throughout 802.3. the brackets as they are add clarity.

Cl **146**	SC **146.3.3.2.5**	P **123**	L **37**	# 225

Kim, Yong NIO

Comment Type **E** *Comment Status* **D** *Editorial*

"The same ternary symbol.". The word "same" is ambiguous as a part of the first sentence. Where it was before (last sentence in the same paragraph), it was not ambiguous. Please fix it.

SuggestedRemedy

Just deleting "same" may work, but you be the judge.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The same ternary symbol encoding is used while in SEND_I and SEND_N." to "Both SEND_I and SEND_N use the following ternary symbol encoding."

Cl **146**	SC **146.3.3.2.5**	P **124**	L **13**	# 113

Graber, Steffen Pepperl+Fuchs GmbH

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

In table 146-1, column Sdn[3:0] bit patterns (0100, 1000, 1001, and 1100) contain spaces.

SuggestedRemedy

Please remove spaces.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.3.3.2.5**

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Cl **146**   *SC* **146.3.4.1**   *P* **125**   *L* **27**   # 114

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *PCS*

Decoding the idle data stream has to be done without checking the disparity (in principle the state diagram reflects this, as there is no disparity error checking during idle), but it can make sense to additionally provide this information in the explanatory text to make this clear.

SuggestedRemedy

During reception of the idle data stream no validation of the received symbol triplets Rx(subscript)n against the current rx_disparity is done.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
The state diagram describes the behavior, there is no contradiction.
Comment is out of scope (no changed text or functionality)

Cl **146**   *SC* **146.3.4.1.1**   *P* **126**   *L* **48**   # 112

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *PCS*

Definition Sr(subscript)n[3:0] for received scrambled data stream is missing (this was originally there but got lost changing Srn[3:0] to RXD[3:0] during first WG ballot phase). In 146.3.4.1.2 Srn is used in the valid_idle function definition, but never defined in the variables section.

SuggestedRemedy

Add the following definition to the variables section (146.3.4.1.1): Sr(subscript)n[3:0] - Output from 4B3T decoder to descrambler.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**   *SC* **146.3.4.1.2**   *P* **127**   *L* **4**   # 115

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *State Diagram*

rem_rcvr_status function description is missing.

SuggestedRemedy

rem_rcvr_status - The rem_rcvr_status function provides reliable detection of the received loc_rcvr_status information from the remote PHY within the IDLE data stream. Values: TRUE or FALSE

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
146.3.4.1.2 contains the variables for the PCS receive state diagram. There is no function "rem_rcvr_status" in the PCS receive state diagram. Rem_rcvr_status is defined in 146.4.4.1 where it is used in the PMA PHY control state diagram.

Cl **146**   *SC* **146.3.4.1.3**   *P* **128**   *L* **2**   # 36

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

Within state diagram 146-8 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

Apply the following changes to state diagram in Figure 146-8: remove all round ("( )") brackets of the transition conditions within Figure 146-8. Convert all squared brackets of the transition conditions within Figure 146-8 to round brackets.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Use of brackets in 802.3 is inconsistent and based on clarity. Square brackets are used to add clarity where brackets are nested.

Cl **146**   *SC* **146.3.4.1.3**   *P* **129**   *L* **12**   # 37

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

Within state diagram 146-9 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

Please remove all round ("( )") brackets of the transition conditions within Figure 146-9.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Bracket usage adds clarity here.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**   Page 32 of 86
SC **146.3.4.1.3**   1/4/2019 8:18:32 AM

Cl **146** *SC* **146.3.4.1.3** *P* **130** *L* **22** # 38
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *Editorial*

Within state diagram 146-10 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

Please omit the brackets around (link_status = FAIL)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
PROPOSED REJECT.
Bracket usage adds clarity here.

Cl **146** *SC* **146.3.4.2** *P* **130** *L* **37** # 290
Jones, Peter Cisco Systems

Comment Type **E** *Comment Status* **D** *PCS*

The text says
"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.".
I don't think that states are "entered" not "acquired". The descrambler has "status" and "synchronization" (146.2.8 PMA_SCRSTATUS.request) , not a state

SuggestedRemedy

I think this is referring to synchronization of the descrambler. Change sentence to "PCS Receive generates the sequence of symbols, and indicates synchronization of the descrambler by setting scr_status to OK. The descrambler can synchronize during PHY training."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "Descrambler state can be acquired during the PHY control SM training states." to "The descrambler can acquire synchronization during PHY training."

(the state refered to is the contents of the descrambler LFSR - a simple state machine. However, saying it acquires synchronization is more correct and avoids confusion with the PHY control state diagram states).

Cl **146** *SC* **146.3.4.2** *P* **130** *L* **38** # 226
Kim, Yong NIO

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

".control SM.training". I presume SM stands for state machine.   Preferred phrase is "state diagram".

SuggestedRemedy

Please do careful global search and replace all appropirate SM with "state diagram"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.4.2** *P* **130** *L* **51** # 162
Griffiths, Scott Rockwell Automation

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

[EZ] Missing punctuation

SuggestedRemedy

Add a period after FALSE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.5** *P* **131** *L* **37** # 227
Kim, Yong NIO

Comment Type **T** *Comment Status* **D** *PCS*

"When PCS loopback mode is pre.. Polynomial should be matched.descrambled at the MII". Is very very implicit way of saying that either TX or RX should have both scramblers if loopback is supported AND implementations choose to do internal loopback after the ternary symbol coding -- which is NOT required.   The previous text without this long sentence was more correct and friendly.   If this text is added, THEN you should add more text that incates that"IF you choose to do loopback after ternary symbol coding... " and such.   I don't see any benefits to these added text.

SuggestedRemedy

Please consider the suggestion.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Text was added in response to comment 341 to d2p1 to clarify that the scramblers are in a different mode than normal operation in the case of loopback. The existing wording is consistent with 802.3 style, and the proposed wording would put be in conflict with it.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general *Cl* **146** Page 33 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn *SC* **146.3.5** 1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **146**	*SC* **146.3.5**	*P* **131**	*L* **37**	# 163

Griffiths, Scott Rockwell Automation

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

[EZ] Extra space before comma

SuggestedRemedy

Remove space in "matched ,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomplished by comment 92, resolution to comment 92 is:
PROPOSED ACCEPT.
. should be matched, e.g., the . (remove space before comma)

Cl **146**	*SC* **146.3.5**	*P* **131**	*L* **37**	# 92

Graber, Steffen Pepperl+Fuchs GmbH

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

. should be matched , e.g., the .

SuggestedRemedy

. should be matched, e.g., the . (remove space before comma)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.4**	*P* **132**	*L* **28**	# 39

Graber, Steffen Pepperl+Fuchs GmbH

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

"rx_lpi_active" text is a remaining part from before redrawing some lines within the diagram and needs to be removed.

SuggestedRemedy

Remove text "rx_lpi_active" in line 28 of Figure 146-11.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.4.3**	*P* **133**	*L* **32**	# 278

Kim, Yong NIO

Comment Type **TR** *Comment Status* **D** *PMA*

Full-duplex operation over one pair should have echo-cancellation (cancel TX from RX) onto/from media. I cannot find any reference to this function. 100BASE-T1 std, in 96.4.3 has text of "PMA Receive has Signal Equalization and Echo Cancellation sub-functions. These sub-functions are used to determine the receiver performance and generate loc_rcvr_status..."

SuggestedRemedy

Please provide a reference to echo cancellation function. And it would be good to have a reference to that function in CL 146.4.3 introductory paragraph (not there now).

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Comment is out of scope (on unchanged text) and does not change requirements or address a problem, only adds informative tutorial text on receiver design. Commenter is invited to resubmit comment on initial sponsor ballot.

Cl **146**	*SC* **146.4.4**	*P* **134**	*L* **41**	# 291

Jones, Peter Cisco Systems

Comment Type **E** *Comment Status* **D** *Editorial*

Text says "the link_fail_inhibit timer will be considered failed".
Timers don't fail but they do expire.

SuggestedRemedy

Change "the link_fail_inhibit timer will be considered failed" to "the link_fail_inhibit timer will be considered expired".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.4.4**

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Cl **146**	*SC* **146.4.4**	*P* **134**	*L* **134**	# 228

Kim, Yong NIO

Comment Type **TR** *Comment Status* **D** *Training*

"If the time to reach link_status = OK exceeds 3030 ms, and Auto-Negotiation is present and enabled, the
link_fail_inhibit timer will be considered failed by the Auto-Negotiation Arbitration state diagram" is a bit awkward and inconsistent with CL98.5.2 pg 78 line 40 that says 3030~3090 ms.   The previous statement "The time to reach link_status=ok shall be less than 3030 ms" was clear but not an appropriate "shall"

SuggestedRemedy

Please fix 3030 ms vs 3030~3090 ms (98.5.2).   Also consider rephrasing referenced text in 146.4.4 to be more clear.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change 'will be considered" to "may be considered" at P139 L41.
Add new sentence following (see Figure 98-7). "If the time to reach link_status = OK exceeds 3090 ms, the link _fail_inhibit_timer in the Auto-Negotiation Arbitration state diagram will expire."

Cl **146**	*SC* **146.4.4.2**	*P* **136**	*L* **15**	# 166

Griffiths, Scott Rockwell Automation

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

[EZ] Extra punctuation

SuggestedRemedy

Remove the second period after detected.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.4.4.2**	*P* **136**	*L* **23**	# 93

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *EEE*

20 500 μs +/- 50 μs

SuggestedRemedy

6150 μs +/- 150 μs (if the previous comment related to EEE quiet timing is accepted, then also the timer value for the quiet time here needs to be changed).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.4.4.2**	*P* **136**	*L* **43**	# 229

Kim, Yong NIO

Comment Type **E** *Comment Status* **D** *PMA*

delete "..for some time..". Not needed.   Also consider deleting the last sentence "This allows the PHYs to attempt to recover the link beofre a full retrain". This is not a necessary text, and adds lilttle.

SuggestedRemedy

Please consdier suggestions.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete "for some time".
Retain last sentence as this conveys the reason for delaying the dropped link, and is the main reason for the note. Otherwise, the entire note might as well be deleted.

Cl **146**	*SC* **146.4.4.3**	*P* **137**	*L* **2**	# 40

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *Editorial*

Within state diagram 146-14 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

Apply the following changes to state diagram in Figure 146-14: remove all round ("( )") brackets of the transition conditions within Figure 146-14. Convert squared brackets in lines 19 and 21 to round brackets. Convert the inner squared brackets in the equation in lines 40 and 41 to round brackets, keep the outer squared brackets.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Use of brackets in 802.3 is inconsistent and based on clarity. Square brackets are used to add clarity where brackets are nested. Round brackets add clarity here, and order of operations is not specified in 21.5.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.4.4.3**

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Cl **146**   *SC* **146.4.4.3**   *P* **138**   *L* **7**   # 41

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

Within state diagram 146-15 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

Please remove all round ("( )") brackets of the transition conditions within Figure 146-15.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Use of brackets in 802.3 is inconsistent and based on clarity. Brackets add clarity here, and order of operations is not specified in 21.5.

Cl **146**   *SC* **146.4.5.2**   *P* **139**   *L* **22**   # 42

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

Within state diagram 146-16 different styles, when to use brackets, are used. Looking into other 802.3 Clauses, in most cases, where there is no explicit ordering of the logic equation required, the brackets are omitted.

SuggestedRemedy

Change (link_control = DISABLE) to link_control = DISABLE, change (tx_mode = SEND_Z) * (!loc_lpi_req) to tx_mode = SEND_Z * !loc_lpi_req

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Use of brackets in 802.3 is inconsistent and based on clarity. Brackets add clarity here, and order of operations is not specified in 21.5.

Cl **146**   *SC* **146.5.3**   *P* **141**   *L* **5**   # 43

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

Transmitter load: 100 O

SuggestedRemedy

Please align text horizontally with resistor and remove ":".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete "Transmitter load: " (leave 100 ohms)
Align label with center of resistor.
(these changes mirror the same figure in other PHY clauses)

Cl **146**   *SC* **146.5.3**   *P* **141**   *L* **19**   # 94

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *Editorial*

A new line between the figure 146-17 and the descriptive text of the figure is missing.

SuggestedRemedy

Please add a new line before the descriptive text of Figure 146-17.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Comment is out of scope of recirculation (no changes to this text)
Figure is clear. There is no new line.

Cl **146**   *SC* **146.5.4.1**   *P* **141**   *L* **48**   # 167

Griffiths, Scott   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PMA Electrical*

On page 141, line 49, the transmitter output voltage is limited to 5% of the nominal peak-to-peak value. However, on line 2 of page 142, the signal limits appear to be 10% of the nominal peak-to-peak values.

SuggestedRemedy

Choose either a 5% or 10% tolerance in the peak-to-peak transmit level and harmonize the text.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(this is a case of a duplicate shall - the requirements are the output voltage in test mode 1 (P141 L49) and test mode 2 (the droop test). This results in the worst-case extremes that are on P142 L2, which should be a note.)

Change "When measured with a 100 Ohm ± 0.1% termination, the transmit differential signal at the MDI shall be less than 2.64 Vpp for the 2.4 Vpp operating mode and 1.10 Vpp for the 1.0 Vpp operating mode including the signal droop. This limit applies to all transmit modes, including SEND_I and SEND_N modes."
TO: "NOTE - In all transmit modes, including SEND_I and SEND_N, when measured with a 100 Ohm ± 0.1% termination, the transmit differential signal at the MDI is less than 2.64 Vpp for the 2.4 Vpp operating mode and 1.10 Vpp for the 1.0 Vpp operating mode including the signal droop."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **146**   Page 36 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **146.5.4.1**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **146**   *SC* **146.5.4.1**   *P* **142**   *L* **7**   # 230
Kim, Yong   NIO

Comment Type **T**   *Comment Status* **D**   *Management*
This comment is against non-changed text from D2.1-> D2.2. The shall in "If MDIO is not implemented, a similar functionality shall be.". Is not testable.

SuggestedRemedy
If you agree this cannot be tested, change shall to some other word and change PICS as approriate.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
The PICS may be satisfied by observing the implementation, and is set locally to the PHY, not necessarily through the MDIO interface. While it is often not stated, it is assumed in many 802.3 clauses that if the optional MDIO is not implemented, the control functionality (e.g., resets, default settings, etc.) are present. Clause 115 (at 115.11) has similar language which adds clarity by removing the assumption on what functionality must be provided for dynamic variables or is there simply a static default for management variables if the optional MDIO is not implemented.

Cl **146**   *SC* **146.5.4.3**   *P* **142**   *L* **21**   # 52
Graber, Steffen   Pepperl+Fuchs GmbH

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

SuggestedRemedy
transmitter (add a "t")

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

Cl **146**   *SC* **146.5.4.5**   *P* **144**   *L* **29**   # 44
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *EEE*
The short term transmit clock tolerance for EEE is missing.

SuggestedRemedy
For a MASTER PHY, when the transmitter is in the LPI transmit mode, the transmitter clock short-term rate of frequency variation shall be less than 0.1 ppm/second. The short-term frequency variation limit shall also apply when switching to and from the LPI mode.

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

Cl **146**   *SC* **146.5.4.5**   *P* **144**   *L* **29**   # 168
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*
Symbol rates should use Baud.

SuggestedRemedy
Either change from discussing symbol rate to clock rate, or change MHz to MBd. This should be harmonized with PICS entry PMAE17.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Change all instances where the text says "symbol rate" to units of Baud
per 1.4.468
(note, 802.3 is all over the place on this, but it seems to be the more recent trend)

Cl **146**   *SC* **146.5.5.2**   *P* **144**   *L* **44**   # 169
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*
Symbol rates should use Baud.

SuggestedRemedy
Either change from discussing symbol rate to clock rate, or change MHz to MBd. This should be harmonized with PICS entry PMAE20.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by comment 168. Resolution to comment 168 is:
PROPOSED ACCEPT IN PRINCIPLE.
Change all instances where the text says "symbol rate" to units of Baud
per 1.4.468
(note, 802.3 is all over the place on this, but it seems to be the more recent trend)

Cl **146**   *SC* **146.5.6**   *P* **145**   *L* **28**   # 53
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
. should be matched , e.g., the .

SuggestedRemedy
. should be matched, e.g., the . (remove space before comma).

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **146**   Page 37 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **146.5.6**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **146**   *SC* **146.5.6**   *P* **145**   *L* **29**   # 171
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
[EZ] Extra space before comma

SuggestedRemedy
Remove space in "matched ,"

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Implemented by comment 63, Resolution to comment 63 is:
PROPOSED ACCEPT.
. should be matched, e.g., the . (remove space before comma).

Cl **146**   *SC* **146.7.2.2**   *P* **152**   *L* **15**   # 103
Shariff, Masood   CommScope

Comment Type **ER**   *Comment Status* **D**   *Link Segment*
PSANEXT loss should include multiple disturber link segments

SuggestedRemedy
Change "and the disturbing
10BASE-T1L link segment" to " and the disturbing10BASE-T1L link segments"

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Replace:The power sum ANEXT loss between a disturbed 10BASE-T1L link segment and the disturbing
10BASE-T1L link segment shall meet the values determined using Equation (146-14).

With:The power sum ANEXT loss between a disturbed 10BASE-T1L link segment and other disturbing
10BASE-T1L link segments shall meet the values determined using Equation (146-14).

Cl **146**   *SC* **146.7.2.3**   *P* **152**   *L* **30**   # 105
Shariff, Masood   CommScope

Comment Type **ER**   *Comment Status* **D**   *Link Segment*
Redundant and confusing Note. Definition of PSAFEXT is already clear from previous sentence starting on line 28 "To ensure the total alien FEXT coupled into a 10BASE-T1L link segment, multiple disturber AFEXT is specified as the power sum of the individual alien FEXT disturbers." ACRF and PSAACR-F are not defined or used anywhere in this standard

SuggestedRemedy
Delete"Note that the MDAFEXT is specified as the power sum of the individual alien FEXT disturbers (PSAFEXT) and not individual alien ACRF disturbers (PSAACR-F)."

Proposed Response   *Response Status* **W**
PROPOSED REJECT.

The sentence alerts the users that unlike other BASE-T standards 802.3cg specifies the power sum of the individual
alien FEXT disturbers (PSAFEXT) and not individual alien ACRF disturbers (PSAACR-F).

Cl **146**   *SC* **146.7.2.3**   *P* **152**   *L* **43**   # 104
Shariff, Masood   CommScope

Comment Type **ER**   *Comment Status* **D**   *Link Segment*
PSAFEXT loss should include multiple disturber link segments

SuggestedRemedy
Change "and the disturbing
10BASE-T1L link segment" to " and the disturbing10BASE-T1L link segments"

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE. Replace: The power sum AFEXT between a disturbed 10BASE-T1L link segment and the disturbing 10BASE-T1L
link segment shall meet the values determined using Equation (146-16).

With:The power sum AFEXT between a disturbed 10BASE-T1L link segment and other disturbing 10BASE-T1L
link segments shall meet the values determined using Equation (146-16).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.7.2.3**

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Cl **146**   *SC* **146.8**   *P* **154**   *L* **26**   # 97
Fritsche, Matthias   HARTING Technology

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

Figure 146-30 and figure 146-31 show the pin numbering for the MDI connectors but we don't specify the function of the pins.

SuggestedRemedy

We should add a table to define the signals at pin 1 and pin 2 of the MDI connectors as follows:
pin 1 --> BI_DA+
pin 2 --> BI_DA-
For more details take a look at the Word file with the relevant pages from CDV IEC 61076-3-12.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**   *SC* **146.8.1**   *P* **153**   *L* **3**   # 231
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *MDI*

This says "this section defines the MDI for 10BASE-T1L", but it does NOT.   MDI is a *mandatory* "shall"-stated Medium Dependant Interface for 10BASE-T1L.   Tjhis section does NOT specify MDI. It provides (abeit useful) suggestions and diagrams but no specification.   Please decide whether this project has an MDI (or set of MDIs).   And if MDI is indeeed specified, please change the CL title to include MDI (currently just ....PMA)

SuggestedRemedy

Either specify "the MDI for 10BASE-T1L" or not, and make downstream consequential changes. If not specified, then perhaps use "MDI considerations" not "MDI specifications"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
This section includes both electrical requirements and recommendations on mechanical connectors which may be used as the mechanical interface.

Change "This section defines the MDI for 10BASE-T1L" to "This section describes mechanical connectors which may be used at the MDI, and specifies electrical parameters, including fault tolerance, at the MDI."

Cl **146**   *SC* **146.8.1**   *P* **153**   *L* **7**   # 320
Horrmeyer, Bernd   Phoenix Contact

Comment Type **T**   *Comment Status* **D**   *Late*

A connector is: "device providing connection and disconnection to a suitable mating component". See IEV 581-26-01. A lot of devices will not have a MDI-connector. They will use another kind of interface.

SuggestedRemedy

The mechanical interface to the balanced cabling is a 3-pin connector (BI_DA+, BI_DA-, and optional SHIELD) or alternatively a 2-pin connector with an optional additional mechanical shield connection or any other interface which conforms to the link segment specification defined in 146.7.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text is unchanged and out of scope for this recirculation. Additionally, adding "or any other interface" creates an ambiguous specification.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.8.1**

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Cl **146**	*SC* **146.8.1**	*P* **153**	*L* **14**	#	118

Maguire, Valerie   The Siemon Company

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

Light industrial, industrial, and other channel environments may be classified by using any combination of the MICE scheme, e.g. M1I2C3E1, which does not fall under M2I2C2E2 (i.e. "MICE 2") or M3I3C3E3 (i.e., "MICE 3").

SuggestedRemedy

Replace "MICE2/MICE3", "MICE2/3", and "MICE 2/3" with "non-M1I1C1E1" ("1" in subscript) in the following eight locations: page 153 - line 15, page 153 - line 18 (2 occurrences), page 153 - line 19, page 198 - line 52, page 199 - line 1 (2 occurrences), and page 199 - line 2

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by comment 116. Resolution of comment 116 was:
Replace 3rd paragraph of 146.8.1 as shown to change "MICE 1" and "MICE1" to "commercial building" and "MICE2/MICE3" to "light industrial and industrial", and reword 3rd and 4th sentences as shown to eliminate references to MICE, improve readability, and reference pinout table added by other comments.
(See comment resolution diminico_3cg_01_0118.pdf, slides 13 & 14)

3rd paragraph to read:
"Connectors meeting the requirements of IEC 63171-1 (commercial building environments) or IEC 61076-3-125 (light industrial and industrial environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI jack connector on the PHY. The IEC 63171-1 plug and jack are depicted (for informational use only) in Figure 146-26 and Figure 146-27 respectively and the mating interface is depicted in Figure 146-30. The IEC 61076-3-125 plug and jack are depicted (for informational use only) in Figure 146-28 and Figure 146-29 respectively and the mating interface is depicted in Figure 146-31. The assignment of PMA signals to connector contacts for PHYs are given in Table xx."

Also change 3rd paragraph of 147.9.1, similarly, to read:
"Connectors meeting the requirements of IEC 63171-1 (commercial building environments) or IEC 61076-3-125 (light industrial and industrial environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI jack connector on the PHY. The IEC 63171-1 plug and jack are depicted (for informational use only) in Figure 147-21 and Figure 147-22 respectively and the mating interface is depicted in Figure 147-25. The IEC 61076-3-125 plug and jack are depicted (for informational use only) in Figure 147-23 and Figure 147-24 respectively and the mating interface is depicted in Figure 147-26. The assignment of PMA signals to connector contacts for PHYs are given in Table xx."

Cl **146**	*SC* **146.8.1**	*P* **153**	*L* **14**	#	295

Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*

Connecting a MICE 1 system to a MICE 2 system requires a specialized cable or adaptor. This is a barrier to broad SPE adoption.

SuggestedRemedy

Enable MICE 2 support in IEC 63171-1 connector.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment#293. Resolution to comment #293 is: Proposed Accept in principle. Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Cl **146**	*SC* **146.8.1**	*P* **153**	*L* **14**	#	292

Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*

IEC 63171-1 connector does not support 18AWG. 18AWG is required for both the building and industrial use cases.

SuggestedRemedy

Add editor's note re IEC 63171-1 lack of 18AWG support.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.8.1**

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Cl **146**   *SC* **146.8.1**   *P* **153**   *L* **14**   # 116
Maguire, Valerie   The Siemon Company

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

The criteria for the MICE classification are based on the nomenclature MxIxCxEx., where "x" in subscript can equal 1, 2 or 3, based on the severity of the environment.

SuggestedRemedy

Replace "MICE 1" and "MICE 1" with "M1I1C1E1" ("1" in subscript) in the following eight locations: page 153 - line 14, page 153 - line 17 (2 occurrences), page 153 - line 19, page 198 - line 51, page 198 - line 54 (2 occurrences), and page 199 - line 2

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace 3rd paragraph of 146.8.1 as shown to change "MICE 1" and "MICE1" to "commercial building" and "MICE2/MICE3" to "light industrial and industrial", and reword 3rd and 4th sentences as shown to eliminate references to MICE, improve readability, and reference pinout table added by other comments.
(See comment resolution diminico_3cg_01_0118.pdf, slides 13 & 14)

3rd paragraph of 146.8.1 to read:
"Connectors meeting the requirements of IEC 63171-1 (commercial building environments) or IEC 61076-3-125 (light industrial and industrial environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI jack connector on the PHY. The IEC 63171-1 plug and jack are depicted (for informational use only) in Figure 146-26 and Figure 146-27 respectively and the mating interface is depicted in Figure 146-30. The IEC 61076-3-125 plug and jack are depicted (for informational use only) in Figure 146-28 and Figure 146-29 respectively and the mating interface is depicted in Figure 146-31. The assignment of PMA signals to connector contacts for PHYs are given in Table xx."

Also change 3rd paragraph of 147.9.1, similarly, to read:
"Connectors meeting the requirements of IEC 63171-1 (commercial building environments) or IEC 61076-3-125 (light industrial and industrial environments) may be used as the mechanical interface to the balanced cabling. The plug connector is used on the balanced cabling and the MDI jack connector on the PHY. The IEC 63171-1 plug and jack are depicted (for informational use only) in Figure 147-21 and Figure 147-22 respectively and the mating interface is depicted in Figure 147-25. The IEC 61076-3-125 plug and jack are depicted (for informational use only) in Figure 147-23 and Figure 147-24 respectively and the mating interface is depicted in Figure 147-26. The assignment of PMA signals to connector contacts for PHYs are given in Table xx."

Cl **146**   *SC* **146.8.1**   *P* **153**   *L* **14**   # 293
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*

Many systems currently being shipped use the same mechanical interface for both MICE 1 and MICE 2.
IEC 63171-1 connector does not support MICE 2.
Without this support, 10SPE adoption with be significantly hindered.

SuggestedRemedy

Add editor's note re IEC 63171-1 lack of MICE 2 support.
Send liaisons to ISO/IEC and TIA TR-42 requesting support for MICE 2 in the IEC 63171-1 connector.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Cl **146**   *SC* **146.8.1**   *P* **153**   *L* **14**   # 294
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*

Many MICE 2 systems currently being shipped make use of the ability to "stack" the faceplate connectors (e.g., 2x4 for 8 ports). The current MICE2/3 connector (IEC 61076-3-125) connector does not support this.
This is a barrier to broad SPE adoption.

SuggestedRemedy

Enable MICE 2 support in IEC 63171-1 connector.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment#293. Resolution to comment #293 is: Proposed Accept in principle. Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.8.1**

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Cl **146**　　*SC* **146.8.1**　　　　*P* **153**　　*L* **18**　　　# 54
Graber, Steffen　　　　　　　　Pepperl+Fuchs GmbH

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

The assignment of PMA signals to connector contacts for PHYs is shown in Figure 146-30 (MICE1) and Figure 146-31 (MICE2/3). This is not really true, as just pin numer "1" or pin numbers 1 and 2 are given in the drawings and not the PMA signals.

SuggestedRemedy

Add the PMA signals to the drawings (e.g. Pin 1 - BI_DA+ and Pin 2 - BI_DA-) or add an additional table showing, which pin is which PMA signal. Add also Pin 2 marking to Figure 146-30. If this comment is accepted, then the same changes should also be applied to 147.9.1.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add table to give assignment of PMA signals to connector contacts here and 147.9.1.

Cl **146**　　*SC* **146.8.1**　　　　*P* **154**　　*L* **1**　　　# 96
Fritsche, Matthias　　　　　　　HARTING Technology

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

The figures 146-28 and 146-29 show the IP20 version of the "Industrial style" MDI connector according to IEC 61076-3-125. The information about the waterproof IP65/67 "Industrial style" SPE MDI connector versions are missing and have to be added.

SuggestedRemedy

Please insert the other M2I2C2E2 and M3I3C3E3 connector versions and add the table "Connector styles" from IEC 61076-3-125. For more details take a look at the Word file with the relevant pages from CDV IEC 61076-3-12.

Proposed Response　　　*Response Status* **W**

PROPOSED REJECT.
The purpose of the figures in IEEE Std 802.3 is informational on the configuration of the electrical mating interfaces and pinout, not as a substitute for the IEC specification or a definitive description of the environmental housings. Showing all the connector styles would be inappropriate and potentially cause confusion with the IEC specification, which is supposed to be definitive.

Cl **146**　　*SC* **146.8.1**　　　　*P* **154**　　*L* **13**　　　# 321
Horrmeyer, Bernd　　　　　　　Phoenix Contact

Comment Type **T**　　*Comment Status* **D**　　　　　　　　*Late*

Figure 146-28 does not comply to any variant described in IEC 61076-3-125 and does not fulfill MICE2/3 requirements

SuggestedRemedy

Change figure to one of the existing variants described in IEC 61076-3-125

Proposed Response　　　*Response Status* **W**

PROPOSED REJECT.
Commenter fails to provide sufficient information for remedy. Version shown is the IP20 version shown in CD draft of IEC 61076-3-125 circulated 10/17/2017.
See also comment 96. Purpose of figure is informational on the electrical mating configuration and pinout of the connector, not as the definitive specification which is in the IEC document.

Cl **146**　　*SC* **146.8.1**　　　　*P* **154**　　*L* **14**　　　# 317
Horrmeyer, Bernd　　　　　　　Phoenix Contact

Comment Type **T**　　*Comment Status* **D**　　　　　　　　*Late*

Accordingt to 104.1.3, T1L is compatible with PODL Type E. Therefore, table 104.1 has to be fulfilled

SuggestedRemedy

Make shure, that 1360mA@60C is covered by the MDI-connector/interface. Only 1A is mentioned in IEC 63171-1, so update it or delete it.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See 146.8.4 MDI DC power voltage tolerance. 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.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.8.1**

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Cl **146** *SC* **146.8.1** *P* **154** *L* **23** # 314
Horrmeyer, Bernd Phoenix Contact

Comment Type **T** *Comment Status* **D** *Late*
Figure 146-29 does not comply to any variant described in IEC 61076-3-125 and does not fulfill MICE2/3 requirements

SuggestedRemedy
Change figure to one of the existing variants described in IEC 61076-3-125

Proposed Response *Response Status* **W**
PROPOSED REJECT.
Commenter fails to provide sufficient information for remedy. Version shown is the IP20 version shown in CDV draft of IEC 61076-3-125.
See also comment 96. Purpose of figure is informational on the electrical mating configuration and pinout of the connector, not as the definitive specification which is in the IEC document.

Cl **146** *SC* **146.8.1** *P* **154** *L* **30** # 55
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *Editorial*
Depending on the screen resolution and magnifying value the left line of Figure 146-30 is not visible in the PDF.

SuggestedRemedy
Please use thicker lines in Figure 146-30.

Proposed Response *Response Status* **W**
PROPOSED REJECT.
Lines appear at many resolutions and zooms. Commenter's reader may be the issue.
Figures are still in flux, commenter is welcome to resubmit during sponsor ballot if there is still an issue.

Cl **146** *SC* **146.8.1** *P* **154** *L* **37** # 106
Shariff, Masood CommScope

Comment Type **ER** *Comment Status* **D** *MDI*
Missing PIN 2 label

SuggestedRemedy
Label PIN 2 in Figure 146-30 for completeness and consitency with Figure 146-31

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

Cl **146** *SC* **146.8.1** *P* **154** *L* **37** # 107
Shariff, Masood CommScope

Comment Type **ER** *Comment Status* **D** *MDI*
Add polarity information to figure Figure 146-30

SuggestedRemedy
PIN SIGNAL POWER
1 BI_DA+ +
2 BI_DA- -

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Resolved by comment#54
Resolution to comment #54 is:
Accept in principle: Add table to give assignment of PMA signals to connector contacts here and 147.9.1.

Cl **146** *SC* **146.8.1** *P* **154** *L* **53** # 108
Shariff, Masood CommScope

Comment Type **ER** *Comment Status* **D** *MDI*
Add polarity information to figure Figure 146-31

SuggestedRemedy
PIN SIGNAL POWER
1 BI_DA+ +
2 BI_DA- -

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Resolved by comment#54. Resolution to comment #54 is:
Accept in principle: Add table to give assignment of PMA signals to connector contacts here and 147.9.1.

Cl **146** *SC* **146.8.3** *P* **155** *L* **23** # 172
Griffiths, Scott Rockwell Automation

Comment Type **E** *Comment Status* **D** *EZ*
[EZ] Font is too small

SuggestedRemedy
Increase size of the font for "where f is the frequency in MHz." to match the font size for normal tex in the document.

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.8.3**

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Cl **146**	*SC* **146.8.4**	*P* **155**	*L* **26**	# 318

Horrmeyer, Bernd   Phoenix Contact

Comment Type **T**   *Comment Status* **D**   *Late*

Damage criteria for witstanding 60 V DC 1200mA is missing

SuggestedRemedy

Define the damage criteria for withstanding

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text is out of scope and unchanged.
Commenter provides insufficient information for remedy.
Text is identical to similar text (e.g., short circuits) in nearly every other BASE-T PHY clause.

Cl **146**	*SC* **146.9.1**	*P* **156**	*L* **23**	# 101

Fritsche, Matthias   HARTING Technology

Comment Type **E**   *Comment Status* **D**   *Safety*

IEC 60950-1 is replaced by IEC 62368-1

SuggestedRemedy

Change "IEC 60950-1" to "IEC 62368-1 (former IEC 60950-1)"

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text says "IEC 60950-1, IEC 62368-1 or IEC 61010-1". IEC 62368-1 is not "former IEC 60950-1" as the commenter suggests, and 60950-1 may still be used for some time.

Cl **146**	*SC* **146.11.3**	*P* **159**	*L* **18**	# 56

Graber, Steffen   Pepperl+Fuchs GmbH

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

Fast Startup Feature is no more present in 146.4.4.

SuggestedRemedy

Remove Fast Startup from PICS table.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.11.4.1.1**	*P* **159**	*L* **51**	# 173

Griffiths, Scott   Rockwell Automation

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

[EZ] PCST8 refers to a subclause that is scheduled for removal.

SuggestedRemedy

Change "146.3.3.2.3" to "146.3.3.2.4"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.11.4.2**	*P* **162**	*L* **47**	# 60

Graber, Steffen   Pepperl+Fuchs GmbH

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

Fast startup has been removed from 146.4.4.

SuggestedRemedy

Please remove PICS entry PMA6 and do a renumbering.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**	*SC* **146.11.4.2.1**	*P* **162**	*L* **45**	# 59

Graber, Steffen   Pepperl+Fuchs GmbH

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

See Figure 146-14

SuggestedRemedy

See Figure 146-14 and 146-15 (the PHY control state diagram has been split into two Figures).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.11.4.2.1**

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Cl **146**   *SC* **146.11.4.2.2**   *P* **163**   *L* **31**   # 61
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *PMA Electrical*

PMAE6 specifies for test mode 3 that the idle data are transmitted using MASTER data mode (using the side-stream scrambler polynomial of transmitter side of the MASTER PHY). Test Mode 3 in 146.5.2 does not specify, which polynomial to use.

SuggestedRemedy

It needs to be discussed with the group, what to do (not specifying the polynomial to use in 146.5.2 and the PICS like it is done in 146.5.2, or specifying to use e.g. the polynomial for the MASTER PHY transmit side in both places, like it is done in the PICS). For the PSD mask measurement itself it is not really relevant, which polynomial is being used.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add at page 140 line 37 (146.5.2, after "When test mode 2 is enabled..."):
"When test mode 3 is enabled, the 10BASE-T1L PHY shall transmit as in non-test operation and in the MASTER data mode with data set to normal Inter-Frame idle signals."

(same text as 1000BASE-T1)

Cl **146**   *SC* **146.11.4.2.2**   *P* **163**   *L* **35**   # 174
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **X**   *PMA Electrical*

[EZ] Inconsistent symbol for Ohms. Also, resister tolerance in the main text was removed; it should probably be removed here also.

SuggestedRemedy

Change 100 W to 100 \Omega; consider removing 0.1% tolerance or re-adding it to main text.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by 62. Resolution to comment 62 was:
Replace "W" with omega symbol.
Retain the tolerance.
This reference is the one place where the tolerance was to be retained.

Cl **146**   *SC* **146.11.4.2.2**   *P* **163**   *L* **35**   # 62
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *PMA Electrical*

100 W +/- 0.1%

SuggestedRemedy

100 O (the rest of the text uses the omega symbol instead of the W symbol. The tolerance has been omitted in 146.5.3, Figure 146-17)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace "W" with omega symbol.
Retain the tolerance.
This reference is the one place where the tolerance was to be retained.

Cl **146**   *SC* **146.11.4.2.2**   *P* **163**   *L* **43**   # 63
Graber, Steffen   Pepperl+Fuchs GmbH

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

0.1 %

SuggestedRemedy

0.1% (remove space before "%" symbol).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **9**   # 175
Griffiths, Scott   Rockwell Automation

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

[EZ] Droop specification does not match text.

SuggestedRemedy

Change to 10% to match text.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **146.11.4.2.2**

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Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **9**   # 64
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
Less than 20%

SuggestedRemedy
Less than 10% (due to a different measurement position in the middle of the droop test pulse, the droop has been reduced from 20% to 10% in 146.5.4.2, therefore the PICS also needs to be changed to 10%)

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by 175. Resolution to 175 was:
PROPOSED ACCEPT
Change to 10% to match text.

Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **11**   # 176
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
[EZ] Plus/minus symbol was removed from text.

SuggestedRemedy
Remove plus/minus symbol.

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

Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **11**   # 65
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
Less than +/- 10 ns symbol-to-symbol jitter when measured on test mode 1

SuggestedRemedy
Less than 10 ns symbol-to-symbol jitter when measured on test mode 1 (remove +/- as this has also been removed in 146.5.4.3).

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by 176. Resolution to 176 was:
PROPOSED ACCEPT.
Remove plus/minus symbol.

Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **14**   # 177
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
[EZ] Transmit amplitudes do not match text.

SuggestedRemedy
Change "8.8 +/- 1.0 dBm" to "8.6 +/- 1.2 dBm" and change "1.2 +/- 1.0 dBm" to "1.0 +/- 1.2 dBm"

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

Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **14**   # 66
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
8.8 ± 1.0 dBm for the 2.4 Vpp transmit amplitude, and 1.2 ± 1.0 dBm for the 1.0 Vpp transmit amplitude, when measured into a 100 O load using the test fixture shown in Figure 146-18

SuggestedRemedy
8.6 ± 1.2 dBm for the 2.4 Vpp transmit amplitude, and 1.0 ± 1.2 dBm for the 1.0 Vpp transmit amplitude, when measured into a 100 O load using the test fixture shown in Figure 146-18 (adapt the values in the PICS to the value in 146.5.4.4)

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by 177:
Change "8.8 +/- 1.0 dBm" to "8.6 +/- 1.2 dBm" and change "1.2 +/- 1.0 dBm" to "1.0 +/- 1.2 dBm"

Cl **146**   *SC* **146.11.4.2.2**   *P* **164**   *L* **47**   # 67
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
., or in MDIO register 1.2294.13, defined in is set to one

SuggestedRemedy
., or in MDIO register 1.2294.0, defined in 45.2.1.186a.6 is set to one (change register bit from 13 to 0 and add reference to Clause 45)

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

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**   Page 46 of 86
SC **146.11.4.2.2**   1/4/2019 8:18:32 AM

Cl **146**   *SC* **146.11.4.4**   *P* **165**   *L* **30**   # 58

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type   **E**   *Comment Status*   **D**   *PICS*

A new PICS entry LMF1a (and subsequent renumbering) is required for the 1.0 Vpp
operating mode. The current LFM1 requirement needs to be modified to reflect the 2.4 Vpp
operating mode.

SuggestedRemedy

Modify LMF1 Feature to: Insertion Loss (2.4 Vpp operating mode). As the 2.4 Vpp
operating mode is optional, likely the status for LFM1 has to be set to O (optional) and
there has to be a No and N/A option to be able to be ticked. Add new LMF1a: Insertion
Loss (1.0 Vpp operating mode), 146.7.1.1, See Equation (146-11), M, Yes [ ]

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **146**   *SC* **146.11.4.4**   *P* **165**   *L* **31**   # 178

Griffiths, Scott   Rockwell Automation

Comment Type   **E**   *Comment Status*   **D**   *PICS*

[EZ] LMF1 should also refer to Equation 146-11, and should indicate different equations for
the two different transmit levels.

SuggestedRemedy

Change text to "See Equation (146-10) for 2.4 Vpp transmit level or Equation (147-11) for
1.0 Vpp transmit level."

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by 58. Resolution to 58 was:
PROPOSED ACCEPT.
Modify LMF1 Feature to: Insertion Loss (2.4 Vpp operating mode). As the 2.4 Vpp
operating mode is optional, likely the status for LFM1 has to be set to O (optional) and
there has to be a No and N/A option to be able to be ticked. Add new LMF1a: Insertion
Loss (1.0 Vpp operating mode), 146.7.1.1, See Equation (146-11), M, Yes [ ]

Cl **146**   *SC* **146.11.4.5**   *P* **166**   *L* **6**   # 57

Graber, Steffen   Pepperl+Fuchs GmbH

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

ES2 is no more optional. Should be removed and integrated in ES1.

SuggestedRemedy

Delete ES2 entry and modify ES1 entry Feature column to: Conform to IEC 60950-1, IEC
62368-1, or IEC 61010-1. Remove Value/Comment Column Entry.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **146**   *SC* **146.20**   *P* **239**   *L* **17**   # 197

Kim, Yong   NIO

Comment Type   **ER**   *Comment Status*   **D**   *Editorial*

DCR used the 1st time. Customary to expand the acronym even if it is stated in acronym
section in CL1

SuggestedRemedy

pls do so. "Direct Current Resistance". Also consider deleting DCR in CL1 if this term is
purely local use in this informative annex.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace "DCR" with "direct current resistance (DCR) "

Cl **146**   *SC* **Figure 146-11**   *P* **132**   *L* **2**   # 164

Griffiths, Scott   Rockwell Automation

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

Link_control and link_status should go to the Technology Dependent Interface, not
Management. This matches what is done in Clause 97.4.

SuggestedRemedy

Modify the figure to add the Technology Dependent Interface.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **146**   *SC* **Figure 146-11**   *P* **132**   *L* **28**   # 165

Griffiths, Scott   Rockwell Automation

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

The rx_lpi_active label on line 28 is floating out in space. It can probably be removed
because another lable exists on line 13.

SuggestedRemedy

Remove floating rx_lpi_active label on line 28.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by 39.
Resolution to 39 was:
PROPOSED ACCEPT.
Remove text "rx_lpi_active" in line 28 of Figure 146-11.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **146**
SC **Figure 146-11**

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Cl **146**   *SC* **Figure 146-21**   *P* **145**   *L* **1**   # 170
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *PMA Electrical*

The text is very clear that the noise should be injected at the MDI, but the figure is a little misleading because it appears that the injection point is not at the MDI.

SuggestedRemedy

Change the figure so that the noise source attaches at the MDI.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
The figure indicates that the noise may be injected within 0.5m of the MDI. In practice, some length of cabling is needed, and the noise is calibrated to the noise level at the MDI.

Cl **147**   *SC* **147**   *P* **167**   *L* **2**   # 179
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*

[EZ] Add comma after "sublayer" to match T1L title.

SuggestedRemedy

Add comma after "sublayer".

Proposed Response   *Response Status* **W**

PROPOSE ACCEPT IN PRINCIPLE
Title is consistent with 802.3, it is the title to clause 146 which was incorrectly changed to add a comma on draft 2.2. Delete comma after "Sublayer" at:
- page 104/1-3 (clause title for 146)
- page 158/1-3 (sub-clause title for 146.11)
- page 158/7-9
- page 158/36-38
- page 159/25-26 (sub-clause title for 146.11.4)

Cl **147**   *SC* **147.1**   *P* **167**   *L* **12**   # 210
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Big Ticket Item - CSD*

Really a CSD issue: Among the10BASE-T1S three mode of operation -- mandatory - half-duplex P2P, optional - half-duplex P2MP, optional - full-duplex P2P, one could argue the mandatory mode of operation, thus only one required to claim conformance, has the least broad market potential.   Just as a reminder -- half duplex P2P broad market, typically associated with star-wired multi-port repeater has been rejected by rejecting operation with CL9 repeaters.

SuggestedRemedy

Consider deleting the P2P half-duplex mandatory and upgrade one of the other modes to mandatory, OR justify why P2P half-duplex still has broad market potential claied in CSD. OR, the intent is for P2P half-duplex to be mandatory, and at least one of the two remaining modes mandatorily implemented, then correct the text and objectivies as appropirate (and CSD if appropriate). [Remember each of these "mode" is a new PHY.]. By doing mandatory to be 1 + 2 or 1 + 3 but not 1 alone, you may also avoid broad market potential challenge on 1 only

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Procedural: if this comment gets accepted, #246 is a TFTD
Commenter is incorrect, as multiple vendors and multiple suppliers agreed on an objective for this. The Criteria for Standards Development (e.g., broad market potential) apply to the entire standard:
====
Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:
a) Broad sets of applicability.
B) Multiple vendors and numerous users.
====
As written (and commonly) they do not mention objective by objective, or else they would have to be modified every time an objective is changed. The objectives are chosen to fit within the broader CSDs, by the applicability and the multiple interest groups. The existing 802.3cg broad market potential speaks to 10 Mb/s single-pair Ethernet in industrial, automotive, and intra-system applications, and the number and breadth of individuals and companies which have expressed interest in the standard. These have voted to approve adding the objective for P2P.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.1**

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Cl **147**   *SC* **147.1**   *P* **167**   *L* **12**   # 297

Jones, Peter   Cisco Systems

Comment Type **E**   *Comment Status* **D**   *Editorial*

Text says "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: ...".
Saying these are "mutually exclusive" gives the wrong impression. These are just different modes.

SuggestedRemedy

Change "" and, additionally, there are two mutually exclusive optional operating modes: "
to
"and, there are two additional optional operating modes: ...".""

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text clearly states that mutual exclusivity refers to operating mode.
Commenter did not elaborate on what the wrong impression is believed to be.

Cl **147**   *SC* **147.1**   *P* **167**   *L* **13**   # 68

Graber, Steffen   Pepperl+Fuchs GmbH

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

. can operate a half-duplex PHY .

SuggestedRemedy

. can operate as a half-duplex PHY . (add "as")

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**   *SC* **147.1**   *P* **167**   *L* **17**   # 207

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Mixing Segment*

". multiple link partners connected to a mixing segment." makes little sense -- I believe this is technically incorrect. Link parter refers to P2P link partner (the statement is duplex agnostic)

SuggestedRemedy

suggesting use of "..multiple nodes connected." or if "partner" idea has some other meaning that has has to be conveyed, do so explicitly,

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "multiple link partners connected to a mixing segment" at page 167/16-17 to
"multiple stations connected to a mixing segment"

Cl **147**   *SC* **147.1**   *P* **167**   *L* **17**   # 206

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Big Ticket Item - Multidrop*

Only place the "multidrop mode" is defined is in 147.1 and says "a half duplex shared-medium mode, referred to as multidrop mode, capable of operating with multiple link partners connected to a mixing segment" I know this term has been in use for a long time in the .3cg draft development. But I don't see any benefit to introducing a new term. Traditionally we had mixing and link segments, and we have half-duplex point to multi-point (P2MP), and full duplex point to point (P2P) operations.   I do not see any reason to introduce a new term that does not seem to have sufficent difference from traditional terms in function. Even in CL147 spec -- see 147.3.3.2, duplex_mode was sufficient.

SuggestedRemedy

Please consider careful search and replacement of "multidrop" "and multidrop over mixing segment" with point to multipoint (P2MP), or in many cases just "half-duplex", or "half-duplex over mixing segment". I don't see how it is reader-friendly to have so many terms to refer to the same thing. Painful now, but we have to live with the specified text [almost] forever.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Both "out of scope" and "commenter may be wrong". To the latter: P2MP is different than half duplex multidrop, as P2MP involves a broadcast message from one point to many. Multidrop involves a shared medium. Also note that clause 147 also operates peer-to-peer multidrop when clause 148 (PLCA) is not present or is not enabled.

Cl **147**   *SC* **147.1**   *P* **167**   *L* **26**   # 180

Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*

[EZ] Move "10BASE-T1S does not define an AUI" to the end of line 10. This placement seems to make more sense, and matches T1L.

SuggestedRemedy

Move "10BASE-T1S does not define an AUI" to the end of line 10.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Comment is out of scope (text is unchanged from previous draft) and proposed change does not fix a problem with the specification.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 49 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.1**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**   *SC* **147.1.2**   *P* **167**   *L* **39**   # 233
Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *Editorial*

Wordy. ""All 10BASE-T1S.. In reach." paragraph. D2.1 was better but was not technically correct.

SuggestedRemedy

Please reword. How about, " All 10BASE-T1S PHYs operate in half-duplex, and may operate in full-duplex, on   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.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Current text was introduced during last comment resolution cycle (d2.1->d2.2) and it does reflect the will of the group under consensus.
Moreover text is not technically incorrect (no problem is being fixed).

Cl **147**   *SC* **147.1.2**   *P* **167**   *L* **39**   # 232
Kim, Yong   NIO

Comment Type **T**   *Comment Status* **D**   *Editorial*

"..can operate.. Should just be "..operate.." by definition. So this is just a statement of fact, not capability

SuggestedRemedy

Please make the change.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
The word "can" does express capability/possibility and intends to do so.
Current text was introduced during last comment resolution cycle (d2.1->d2.2) and it does reflect the will of the group under consensus.

Cl **147**   *SC* **147.1.2**   *P* **167**   *L* **53**   # 234
Kim, Yong   NIO

Comment Type **T**   *Comment Status* **D**   *PCS*

"4B/5B encoding is used to further improve EMC performance and to signal among the connected PHYs". Yopu don't need 4B/5B [in order] to signal among the connected PHYs" Changed the meaning from D2.1 and made it less correct.

SuggestedRemedy

Please go back to D2.1 wording, which is awkward but more correct.   Or consider changing to something like this: <PCS transmit data> is encoded in 4B/5B, then scrambled using 17 bit self-synchronizing scramber, and then encoded with Differential Manchester Encodeing (DME).   And drop all the rationale for chosing DME and scrambler.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Out of scope (text has not changed during last comment resolution cycle).
Moreover comment is wrong, as the text does not say 4B/5B is the only way to signal among PHYs, but it says it is the chosen solution.

Cl **147**   *SC* **147.1.3.1**   *P* **168**   *L* **40**   # 235
Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *Editorial*

It would be good to say, "The conventions of 21.5 are adopted, with the folliowing extensions." and replace the existing first sentence with it.   The value of doing this is that a reader is informed that all stated conventions are common, and additoinal IF-THEN-ELSE-END was added in this clause.

SuggestedRemedy

Please consider the suggestion.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The notation used in the state diagrams follows the conventions of 21.5. Some ."
to "The conventions of 21.5 are adopted with the extension that some ."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.1.3.1**

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Cl **147**   *SC* **147.2**   *P* **169**   *L* **42**   # 181

Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*

It might be appropriate to note here that the Technology Dependent Interface is defined in Clause 98.4.

SuggestedRemedy

After "Clause 22.", add "The optional Technology Dependent Interface is used for Auto-Negotiation and is described in 98.4." or something similar.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Comment is out of scope (text is unchanged from previous draft) and proposed change does not fix a problem with the specification.

Cl **147**   *SC* **147.2**   *P* **170**   *L* **1**   # 127

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   *PMA*

Description for the PMA_UNITDATA.indication and PMA_UNITDATA.request primitives are missing.

SuggestedRemedy

Insert the following subclauses at indicated location:

"147.2.1 PMA_UNITDATA.indication
This primitive defines the transfer of one 5B symbol in the form of the rx_sym parameter from the PMA to the PCS.

147.2.1.1 Semantics of the primitive
PMA_UNITDATA.indication (rx_sym)
During reception, the PMA_UNITDATA.indication conveys to the PCS, via the parameter rx_sym,
the value of the 5B symbol detected on the MDI during each cycle of the recovered clock.

147.2.1.2 When generated
The PMA generates PMA_UNITDATA.indication (rx_sym) messages synchronously for every 5B
symbol received at the MDI. The nominal rate of the PMA_UNITDATA.indication primitive is 2.5 MHz, as governed by the recovered clock.

147.2.1.3 Effect of receipt
The effect of receipt of this primitive is unspecified.

147.2.2 PMA_UNITDATA.request
This primitive defines the transfer of one symbol in the form of the tx_sym parameter from the PCS to the PMA.
The symbol is obtained in the PCS Transmit function using the encoding rules defined in 147.3.2 to represent 4B/5B encoded MII data or special out of band signaling.

147.2.2.1 Semantics of the primitive
PMA_UNITDATA.request (tx_sym)
During transmission, the PMA_UNITDATA.request simultaneously conveys to the PMA, via the parameter tx_sym, the value of the symbol to be sent over the MDI.
The tx_sym parameter is one of the allowed 5B codes specified in table 147-1.

147.2.2.2 When generated
The PCS generates PMA_UNITDATA.request (tx_sym) synchronously with every PCS transmit clock cycle.

147.2.2.3 Effect of receipt
Upon receipt of this primitive the PMA transmits on the MDI the signals corresponding to the indicated 5B symbol after processing it with DME following the rules in 147.4."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.2**

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

Cl **147**   *SC* **147.2.2**   *P* **170**   *L* **25**   # 182

Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
   [EZ] Change "the Auto-Negotiation" to "Auto-Negotiation" or "the Auto-Negotiation function"

SuggestedRemedy
   Change "the Auto-Negotiation" to "Auto-Negotiation" or "the Auto-Negotiation function"

Proposed Response   *Response Status* **W**
   PROPOSED ACCEPT IN PRINCIPLE.
   Change "the Auto-Negotiation" to "Auto-Negotiation"

Cl **147**   *SC* **147.2.2.2**   *P* **170**   *L* **36**   # 69

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EZ*
   When generation

SuggestedRemedy
   When generated

Proposed Response   *Response Status* **W**
   PROPOSED ACCEPT IN PRINCIPLE.
   Change the title of sub-clause 147.2.2. from "When generation" to "When generated"
   Note: also resolves #183

Cl **147**   *SC* **147.2.2.2**   *P* **170**   *L* **36**   # 183

Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*
   [EZ] Change "When generation" to "When generated"

SuggestedRemedy
   Change "When generation" to "When generated"

Proposed Response   *Response Status* **W**
   PROPOSED ACCEPT IN PRINCIPLE.
   Already dealt with by #69, which is as follows:
   ====
   PROPOSED ACCEPT IN PRINCIPLE.
   Change the title of sub-clause 147.2.2. from "When generation" to "When generated"
   Note: also resolves #183
   ====

Cl **147**   *SC* **147.2.4**   *P* **171**   *L* **12**   # 298

Jones, Peter   Cisco Systems

Comment Type **E**   *Comment Status* **D**   *PCS*
   The text for PCS_STATUS.indication says "This primitive is generated by the PMA to
   retrieve the status of the PCS."
   Indications indicate, they don't retrieve from another layer.

SuggestedRemedy
   Change "This primitive is generated by the PMA to retrieve the status of the PCS." to
   "This primitive is generated by the PCS to convey PCS status."

Proposed Response   *Response Status* **W**
   PROPOSED REJECT.
   ".indications" don't just indicate (and ".requests" don't just request). Whether a primitive is
   an indication or request depends on whether it is going up or down the layer stack. See
   IEEE Std 802.3-2018 sub-clause "1.2.2.1 Classification of service primitives":
   ====
   Primitives are of two generic types:
   A) REQUEST. The request primitive is passed from layer N to layer N-1 to request that a
   service be initiated.
   B) INDICATION. The indication primitive is passed from layer N-1 to layer N to indicate an
   internal layer N-1 event that is significant to layer N. This event may be logically related to
   a remote service request, or may be caused by an event internal to layer N-1.
   ====

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 52 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.2.4**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**	*SC* **147.2.4.1**	*P* **171**	*L* **19**	#	236

Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   *PCS*

FALSE and TRUE values are not friendly. FAIL and OK would be better. WAITING and CONNECTED, perhaps.

SuggestedRemedy

Pick better value names than FALSE and TRUE.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
1. Change "TRUE" to "OK" at page 171/19
2. Change "FALSE" to "NOT_OK" at page 171/20
3. Change "The pcs_status is reported as TRUE when" at page 186/47 to "The pcs_status is reported as OK when"
4. Change "The pcs_status is reported as FALSE" at page 187/1 to "The pcs_status is reported as NOT_OK"
5. Change "Values: TRUE or FALSE" at page 187/40 to "Values: OK or NOT_OK"
6. Change "Counter of HB when pcs_status is TRUE." at page 187/52 to "Counter of HB when pcs_status is OK."
7. Change "pcs_status <= FALSE" at page 187/8-9 to "pcs_status <= NOT_OK"
8. Change "pcs_status <= TRUE" at page 187/25-26 to "pcs_status <= OK"
9. Change "Counter of HB when pcs_status is FALSE" at page 188/2 to "Counter of HB when pcs_status is NOT_OK"
10. Change "Number of HB required to signal pcs_status = TRUE" at page 188/18 to "Number of HB required to signal pcs_status = OK"
11. Change "Number of HB required to signal pcs_status = FALSE" at page 188/22 to "Number of HB required to signal pcs_status = NOT_OK"
12. Change "pcs_status *" at page 191/18 to "pcs_status = OK *"
13. Change "!pcs_status +" at page 191/24 to "pcs_status = NOT_OK +"
14. Change "PCS_STATUS.indication
primitive shall convey FALSE" at page 184/11-12 to "PCS_STATUS.indication
primitive shall convey NOT_OK"
Editorial license to find and fix any additional occurrences as necessary

---

Cl **147**	*SC* **147.3**	*P* **171**	*L* **1**	#	120

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **TR**   *Comment Status* **D**   *PCS*

[BURSTESD] As explained in beruto_3cg_burst_mode_fixes_revB, when a COMMIT request is not followed by data, it shall be closed by an ESD ESDOK sequence to avoid a bogus false carrier indication from PCS

SuggestedRemedy

Carry on the changes in beruto_3cg_burst_mode_fixes_revB from slide 5 to slide 7

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Presentation to be given
Carry out the changes in beruto_3cg_burst_mode_fixes_revC (or newer)

Cl **147**	*SC* **147.3..8.3**	*P* **188**	*L* **33**	#	247

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *PCS*

"In compliance" does not read well - at least to me. .3 stated it in a different way. "In comploamce to 148.4.4.2.1, when PLCA RS operations are supported and enabled, the PHY shall notify
the RS of a received BEACON indication by the means of MII interface as specified in 22.2.2.8."

SuggestedRemedy

Suggest rewording to "When PLCA RS operations are supported and enabled, the PHY shall notify the RS of a received BEACON indication (148.4.4.2.1) by the means of MII interface as specified in 22.2.2.8." and do that to 147.3.8.4 also.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Out of scope (text has not changed during last comment resolution cycle).
Moreover text is not technically incorrect (no problem is being fixed).

Cl **147**	*SC* **147.3.1**	*P* **171**	*L* **41**	#	184

Griffiths, Scott   Rockwell Automation

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

[EZ] Change "PCS reset" to "PCS Reset"

SuggestedRemedy

Change "PCS reset" to "PCS Reset"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 53 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.1**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147** *SC* **147.3.1** *P* **171** *L* **43** # 185
Griffiths, Scott Rockwell Automation

Comment Type **E** *Comment Status* **D** *EZ*
[EZ] Change "pcs_reset =OFF" to "pcs_reset = OFF"

SuggestedRemedy
Change "pcs_reset =OFF" to "pcs_reset = OFF"

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

Cl **147** *SC* **147.3.1** *P* **171** *L* **43** # 70
Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *EZ*
pcs_reset =OFF

SuggestedRemedy
pcs_reset = OFF (add space before OFF)

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
There are 2 places to carry out this change:
- 171/43 (EOL)
- 171/48-49 (over line-break)

Cl **147** *SC* **147.3.2.1** *P* **174** *L* **1** # 26
Huszak, Gergely Kone

Comment Type **E** *Comment Status* **D** *Editorial*
Calling our 5B symbols by their name, plus by their literal value/content is not only redundant, but also creates space for error. These mappings are already there, unambiguously, in "Table 147-1-4B/5B Encoding"

SuggestedRemedy
Remove " (binary vector of 1,1,1,1,1)"

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Replace "(binary vector of 1,1,1,1,1)" with "(see Table 147-1)"

Cl **147** *SC* **147.3.2.1** *P* **174** *L* **2** # 129
Beruto, Piergiorgio Canova Tech Srl

Comment Type **T** *Comment Status* **D** *PCS*
The following text does not cover the full-duplex case: "SILENCE represents an indication for the PMA to change the output to a high impedance state, according to 147.4.2."

However the references subclause 147.4.2 properly distinguish the HD and FD cases

SuggestedRemedy
Replace the quoted sentence with: "SILENCE represents an indication for the PMA to change the output according to 147.4.2."

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

Cl **147** *SC* **147.3.2.1** *P* **174** *L* **11** # 125
Beruto, Piergiorgio Canova Tech Srl

Comment Type **E** *Comment Status* **D** *PCS*
tx_sym variable is not initialized on reset

SuggestedRemedy
if comment marked as [BURSTESD] is accepted, no action is needed. Otherwise add "tx_sym <= SILENCE" in SILENT state.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #120.
Proposed resolution of #120 is:
>>>>
PROPOSED ACCEPT.
Carry on the changes in beruto_3cg_burst_mode_fixes_revB from slide 5 to slide 7
<<<<

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.3.2.1**

Page 54 of 86
1/4/2019 8:18:32 AM

Cl **147**	*SC* **147.3.2.2**	*P* **176**	*L* **22**	# 237

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PCS*

Based on my reading, tx_cmd encoding has been changed to be implemented regardless of PLCA RS layer option. Unnessary specifications.

SuggestedRemedy

Reverse the change and make any corrections WRT to T and I.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter provides insufficient information for remedy. Referenced line contains only a change in the state name. Subsequent text is new, referrring to the heartbeat, but the commenter does not refer to this in his comment.

Cl **147**	*SC* **147.3.2.2**	*P* **176**	*L* **25**	# 238

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *PCS*

Following the reference 147.3.8.1.1 sends me back to 147.3.2.2

SuggestedRemedy

Would you break the reference loop and state how hb_cmd variable is used with this?

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "hb_cmd variable, defined in 147.3.8.1.1." at page 176/24-25 to "hb_cmd variable generated by the state diagram in Figure 147-10."

Cl **147**	*SC* **147.3.2.2**	*P* **176**	*L* **47**	# 194

Griffiths, Scott   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *AutoNeg*

[T1S PMA SERVICE PRIMATIVES] Rename link_control to link_status. Also, this variable is generated by the PMA, not management.

SuggestedRemedy

Modify the variable name to link_status and change the first sentence of the descripion to "This variable is generated by the PMA."

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
This is indeed link_control and not link_status, generated by the management, and it works (= is specified) as intended.
Note: Same resolution applies to #193, #194, and #195.

Cl **147**	*SC* **147.3.2.4**	*P* **178**	*L* **23**	# 239

Kim, Yong   NIO

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

txcnt is not used anywhere. At least Acrobat search function could not find it. Forward or backward. If not used, delete.

SuggestedRemedy

Delete or find the error and fix it.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete the content of "147.3.2.4 Counters" and replace it with the editor's note found under "147.5.4.5 Transmit clock frequency" that states the following:
====
Editor's Note (to be removed prior to publication):
This clause has been deleted, and will be removed with renumbering at draft 3.0.
====

Cl **147**	*SC* **147.3.3.1**	*P* **179**	*L* **38**	# 126

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **T**   *Comment Status* **D**   *PCS*

As explained in 22.2.2.10 the false carrier indication should be optional

SuggestedRemedy

Add the following paragraph after "preamble transmitted by the MAC.":

"Signaling of a false carrier indication on the MII, as depicted in the FALSE_CARRIER state in Figure 147-7, is optional"

Proposed Response   *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 55 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.3.1**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**	*SC* **147.3.3.2**	*P* **179**	*L* **50**	#	241

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PCS*

"If Multidrop mode MDIO register bit 1.2297.10 is set to one and multidrop mode is supported according to bit 1.2298.10 then duplex_mode is set to DUPLEX_HALF" does not cover the case of half-duplex and P2P -- the mandatory operation.

SuggestedRemedy

Please add text to include P2P half, or exclude. 2 out of three modes are covered at present.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter is incorrect, as all cases are covered in the full paragraph. "If Multidrop mode MDIO register bit 1.2297.10 is set to one and multidrop mode is supported according to bit 1.2298.10 then duplex_mode is set to DUPLEX_HALF." (commenter's quoted text - says multidrop mode supported and enabled sets duplex mode to DUPLEX_HALF). Text then continues, "Else, if Auto-Negotiation is enabled then duplex_mode is set by the priority resolution defined in 98B.4." - this covers point to point and half-duplex when Auto-Negotiation is active. Then it continues and covers all other cases - "Otherwise, this variable is set by MDIO register bit 3.2291.8. If MDIO is not implemented, duplex_mode is set by the means of an equivalent interface."

Cl **147**	*SC* **147.3.3.2**	*P* **180**	*L* **2**	#	130

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   *Editorial*

"by the means of an equivalent interface" sounds too constrained and it's not in line with similar text across the clause.

SuggestedRemedy

Replace "by the means of an equivalent interface" with "by equivalent means".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.3.2**	*P* **180**	*L* **18**	#	240

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *Editorial*

SILENCE is not a variable. Either constant or value.

SuggestedRemedy

Please correct.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
1. Introduce a new sub-clause 147.3.2.3 Constants" and move the definitions of SYNC, SSD, ESD, ESDERR, ESDOK, SILENCE and ESDJAB at pages pages 176/52-177/15 to it.
2. Introduce a new sub-clause 147.3.3.3 Constants" and move the definition of SILENCE at page 180/17-18 to it.
Editorial license to similarly create Constants sections on other state diagrams and move defined symbols there in ALL clauses: editors are to scrub all clauses.

Cl **147**	*SC* **147.3.3.5**	*P* **182**	*L* **11**	#	128

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **T**   *Comment Status* **D**   *PCS*

The ELSE statement in the recirculating arc of the DATA state is not precise because it is supposed to wait for RSCD before updating pcs_rxd

SuggestedRemedy

Change "ELSE" with "
RSCD *
!(RXn-3 = ESD * RXn-2 = ESDOK) *
!(RXn-2 = ESD * RXn-1 != ESDOK) *
RXn-3 != SILENCE
"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.5**	*P* **183**	*L* **21**	#	187

Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *PCS*

A requirement indicates "shall" shall be used.

SuggestedRemedy

Change "have to" to "shall"

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text is correct as is. The "shall" statements follow in the text. Putting an additional "shall" here would create a duplicate shall.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**   Page 56 of 86
SC **147.3.5**   1/4/2019 8:18:32 AM

Cl **147**   *SC* **147.3.5**   *P* **183**   *L* **21**   # 242
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   PCS

"The method for detecting a collision is implementation dependent but the following requirements have to be
fulfilled:" is grossly insufficient. Collision detection method must be specified and reliability of collision detection must be validated.

SuggestedRemedy

Without collision detection specification, this draft is grossly incomplete.   I expect technically complete draft to include specifications on collision detect.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter provides insufficient information for remedy. The standard specifies behavior, not implementation, and behavioral requirements for the collision detection are provided. Similarly, the standard does not specify how to equalize the received signal or how to cancel echoes, but states the transmitter electrical parameters, link segment transmission parameters, and receiver behavior (e.g., frame loss ratio and noise level tests) necessary for the implementation to meet.

Cl **147**   *SC* **147.3.5**   *P* **183**   *L* **25**   # 188
Griffiths, Scott   Rockwell Automation

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

[EZ] Change "in presence of" to "in the presence of"

SuggestedRemedy

Change "in presence of" to "in the presence of"

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

Cl **147**   *SC* **147.3.5**   *P* **183**   *L* **26**   # 243
Kim, Yong   NIO

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

"The PHY shall assert CRS in presence of a signal resulting from a collision between two or more stations." combined with a) WRT col, mandates a behavior that cannot be conformance tested.   Assert CRS before COL, after COL, how long after collision condition on the medium, and when to deassert, by when? Could it deassert 256 bit time later?

SuggestedRemedy

this specifciation is grossly incomplete. Please complete it.   I expect technically complete draft to include specifications on carrier sense from collision.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
CRS is already specified in C 22.2.2.11 - It is asserted before or coincidently with COL and de-asserted after or coincidently with COL. See figure 22-11.
COL is defined in 22.2.2.12 to be asserted for the duration of the collision on the line. Its assertion shall occur within one slotTime as specified in Clause 4 to avoid a late collision error. See e.g. Figure 4-5.

Cl **147**   *SC* **147.3.6**   *P* **183**   *L* **30**   # 244
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   PCS

"When operating in half-duplex mode, the 10BASE-T1S PHY shall sense when the media is busy and convey
this information to the MAC asserting the signal CRS on the MII as specified in 22.2.2.11."
is grossly insuffcient for CSMA/CD to work.   How, when, and condition, signal assert and deassert time, etc should all be specified.

SuggestedRemedy

this specifciation is grossly incomplete. Please complete it.   I expect technically complete draft to include specifications on carrier sense beahvior.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "the 10BASE-T1S PHY shall sense when the media is busy and convey this information to the MAC asserting the signal CRS on the MII" at 183/30-32 to "the 10BASE-T1S PHY senses when the media is busy and conveys this information to the MAC by asserting the signal CRS on the MII" to remove the duplicate "shall" (the real "shall"s are under the bullet points small A and B 183/34-36)

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 57 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.6**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**   *SC* **147.3.6**   *P* **183**   *L* **31**   # 189

Griffiths, Scott   Rockwell Automation

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

[EZ] Change "MAC asserting" to "MAC by asserting"

SuggestedRemedy

Change "MAC asserting" to "MAC by asserting"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**   *SC* **147.3.7**   *P* **184**   *L* **1**   # 190

Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*

I find the current organization of sections 147.3.7 and 147.3.8 to be misleading. The single line in 147.3.7 indicates that the entire contents of 147.3.8 only applies to PLCA. However, the heartbeat functionality does not apply to PLCA and mixing segments because they are prohibited from using Auto-Negotiation (see 147.1.1). But 147.3.8 says: "If Clause 98 Auto-Negotiation functions are implemented... Otherwise all of the HB functions shall be disabled."

SuggestedRemedy

Move the Heartbeat content (147.3.8, 147.3.8.1, 147.3.8.2) earlier, to section 147.3.7, and rename this section so that it indicates it is for heartbeat. Rename 147.3.8 "Optional support for PLCA Reconciliation Sublayer PCS status generation" or something similar. Keep the BEACON and COMMIT subsections here.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Move all text at page 188/31-48 (effectively the headers and content of sub-clauses "147.3.8.3 Generation of BEACON indication" and "147.3.8.4 Generation of COMMIT indication") before sub-clause "147.3.8 Optional support for PCS status generation", turning those into "147.3.7.1 Generation of BEACON indication" and "147.3.7.2 Generation of COMMIT indication"

Cl **147**   *SC* **147.3.7**   *P* **184**   *L* **3**   # 327

Brandt, David   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *PCS*

Sub-clause states that it enumerates Clause 147 option for PLCA, but nothing is defined.

PICS tells what applies.

SuggestedRemedy

Change from: "the following applies"

To: "147.3.8.3 and 147.3.8.4 apply"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #190, which clarifies what 147.3.7 was supposed to be.
Proposed resolution of #190 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Move all text at page 188/31-48 (effectively the headers and content of sub-clauses "147.3.8.3 Generation of BEACON indication" and "147.3.8.4 Generation of COMMIT indication") before sub-clause "147.3.8 Optional support for PCS status generation", turning those into "147.3.7.1 Generation of BEACON indication" and "147.3.7.2 Generation of COMMIT indication"
<<<<

Cl **147**   *SC* **147.3.7**   *P* **184**   *L* **5**   # 209

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Editorial*

Optional support for RS layer, separatated from the PHY via xMII and PCS does not seem to have any existing interface to convery message primitives referred to here. Please describe HOW it is conveyed from PHY to RS.

SuggestedRemedy

Please point out the message passing interface that conveys these additional and optional messages between PHY and RS -- in which case, this comment will be withdrawn. Or describe how these messages are converyed.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace content of 147.3.7 by the editor's note under "147.5.4.5 Transmit clock frequency" that says "Editor's Note (to be removed prior to publication): This clause has been deleted, and will be removed with renumbering at draft 3.0."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 58 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.7**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**	*SC* **147.3.8**	*P* **184**	*L* **5**	# 208

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *Editorial*

Clause level for this shouild be 4, such that it is sub-section of current 147.3.7

SuggestedRemedy

do so.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #190.
Proposed resolution of #190 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Move all text at page 188/31-48 (effectively the headers and content of sub-clauses "147.3.8.3 Generation of BEACON indication" and "147.3.8.4 Generation of COMMIT indication") before sub-clause "147.3.8 Optional support for PCS status generation", turning those into "147.3.7.1 Generation of BEACON indication" and "147.3.7.2 Generation of COMMIT indication"
<<<<

Cl **147**	*SC* **147.3.8**	*P* **184**	*L* **7**	# 245

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PCS*

Reading into "Heart-beat (HB)" -- the funciton REQUIRES support of BEACON, etc, in PLCA option in RS, to work properly.   This means PLCA option is NOT an option if Augo-neg is implemented and enabled.

SuggestedRemedy

Please clarify whether PLCA RS layer is an option or mandatory. The current draft says optional in most places.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The HB generation is disabled when the PHY is configured for operation over a mixing-segment network or a PLCA BEACON indication is detected on the line." at 184/17-18 to "The HB generation is disabled when the PHY is configured for operation over a mixing-segment network or, when optional PLCA operations are supported and enabled, when a PLCA BEACON indication is detected on the line."
Note: Other references to BEACON or COMMIT refer to specified behavior in 147.3.8.3 or 147.3.8.4 which specifically says these only occur when optional PLCA is supported and enabled.

Cl **147**	*SC* **147.3.8**	*P* **184**	*L* **7**	# 246

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PCS*

Related to my other comment WRT half-duplex P2P mode WITHOUT repeater support makes little sense WRT broadmarket potential and suggest deleting that mode, and if that is considered positively, then consider replacing H-B with active idle for full-duplex P2P mode and have it align with 10BASE-T1L. H-B is being added in D2.2 in support of a mode that makes little market sense.

SuggestedRemedy

Please conditionally (delete P2P HD) consider this suggestion (replacement of HB)

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Procedural: comment needs actual processing iff #210 is accepted:
- If #210 is accepted, this is a TFTD
- If #210 is rejected/withdrawn, the resolution of #210 applies here as well, which is as follows:
{{{{
PROPOSED REJECT.
Commenter is incorrect, as multiple vendors and multiple suppliers agreed on an objective for this. The Criteria for Standards Development (e.g., broad market potential) apply to the entire standard:
====
Each proposed IEEE 802 LMSC standard shall have broad market potential. At a minimum, address the following areas:
a) Broad sets of applicability.
B) Multiple vendors and numerous users.
====
As written (and commonly) they do not mention objective by objective, or else they would have to be modified every time an objective is changed. The objectives are chosen to fit within the broader CSDs, by the applicability and the multiple interest groups. The existing 802.3cg broad market potential speaks to 10 Mb/s single-pair Ethernet in industrial, automotive, and intra-system applications, and the number and breadth of individuals and companies which have expressed interest in the standard. These have voted to approve adding the objective for P2P.
}}}}

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 59 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.8**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**   *SC* **147.3.8.1**   *P* **186**   *L* **1**   # 299

Jones, Peter   Cisco Systems

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

missing clause header for state machines

SuggestedRemedy

Add clause "147.3.8.1.2 State diagrams"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add sub-clause header "147.3.8.1.3 State diagrams", after end of sub-clause "147.3.8.1.2
Timer" to page 185/24, and anchor Figure 147-10 there.

Cl **147**   *SC* **147.3.8.1**   *P* **186**   *L* **2**   # 300

Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *PCS*

Entry conditions to INIT state should be AN enabled and link is bad or multidrop disabled
(see 147.3.9 Optional support for PCS status generation)
Also - sense seems to be wrong, HB only used when AN enabled, link not good and not
multidrop (not really required since AN not supported on multidrop)

SuggestedRemedy

Change INIT entry condition to "pcs_reset * mr_autoneg_enable * !an_link_good"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Insert new text to the end of sub-clause 147.3.8.1 (page 184/24):
====
Heartbeat is only sent when the PHY is not in the multidrop mode and Auto-Negotiation
has achieved a good link. When in the multidrop mode, or when Auto-Negotiation is either
not enabled or has not achieved a good link, the Heartbeat transmit state diagram is held
in the INIT state, and heartbeat is not sent.<EOL>
When the PHY is not in multidrop mode, if a BEACON is received either over the MII (for
transmission) or from the line, i.e., due to a misconfiguration either at the local node or
another node on the medium, the Heartbeat transmit state diagram disables heartbeat until
a PCS Reset is asserted, multidrop mode is enabled, or Auto-Negotiation is either
disabled or stops reporting a good link.
====

Cl **147**   *SC* **147.3.8.1**   *P* **186**   *L* **4**   # 329

Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PCS*

147.3.8 indicates: "If Clause 98 Auto-Negotiation functions are implemented and enabled
... Otherwise all of the HB functions shall be disabled."

SuggestedRemedy

Add "+ !mr_autoneg_enable" to equation for entering state DISABLE_HB, and remove it
from equation to enter state INIT.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #300.
Proposed resolution of #300 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Insert new text to the end of sub-clause 147.3.8.1 (page 184/24):
====
Heartbeat is only sent when the PHY is not in the multidrop mode and Auto-Negotiation
has achieved a good link. When in the multidrop mode, or when Auto-Negotiation is either
not enabled or has not achieved a good link, the Heartbeat transmit state diagram is held
in the INIT state, and heartbeat is not sent.<EOL>
When the PHY is not in multidrop mode, if a BEACON is received either over the MII (for
transmission) or from the line, i.e., due to a misconfiguration either at the local node or
another node on the medium, the Heartbeat transmit state diagram disables heartbeat until
a PCS Reset is asserted, multidrop mode is enabled, or Auto-Negotiation is either
disabled or stops reporting a good link.
====
<<<<

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 60 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.8.1**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**	*SC* **147.3.8.1**	*P* **186**	*L* **5**	#	301

Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *PCS*

Entry condition to DISABLE_HP state should be AN disable or an_link_good or multidrop
enabled (see 147.3.9 Optional support for PCS status generation))
Also - sense seems to be wrong, HB only used when AN enabled, link not good and not
multidrop (not really required since AN not supported on multidrop)

SuggestedRemedy

Change DISABLE_HP entry condition to "!pcs_reset + !mr_autoneg_enable +
an_link_good + multidrop * (rx_cmd = BEACON + tx_cmd = BEACON)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #300.
Proposed resolution of #300 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Insert new text to the end of sub-clause 147.3.8.1 (page 184/24):
====
Heartbeat is only sent when the PHY is not in the multidrop mode and Auto-Negotiation
has achieved a good link. When in the multidrop mode, or when Auto-Negotiation is either
not enabled or has not achieved a good link, the Heartbeat transmit state diagram is held
in the INIT state, and heartbeat is not sent.<EOL>
When the PHY is not in multidrop mode, if a BEACON is received either over the MII (for
transmission) or from the line, i.e., due to a misconfiguration either at the local node or
another node on the medium, the Heartbeat transmit state diagram disables heartbeat until
a PCS Reset is asserted, multidrop mode is enabled, or Auto-Negotiation is either
disabled or stops reporting a good link.
====
<<<<

Cl **147**	*SC* **147.3.8.1**	*P* **186**	*L* **10**	#	328

Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *PCS*

147.3.8 indicates: "The HB generation is disabled when the PHY is configured for
operation over a mixing-segment network or
a PLCA BEACON indication is detected on the line."

Figure 147-10, DISABLE_HB is only entered on BEACON detection, and not on detection
of mixing-segment.

SuggestedRemedy

Add "+ multidrop" to equation for entering state DISABLE_HB.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #300.
Proposed resolution of #300 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Insert new text to the end of sub-clause 147.3.8.1 (page 184/24):
====
Heartbeat is only sent when the PHY is not in the multidrop mode and Auto-Negotiation
has achieved a good link. When in the multidrop mode, or when Auto-Negotiation is either
not enabled or has not achieved a good link, the Heartbeat transmit state diagram is held
in the INIT state, and heartbeat is not sent.<EOL>
When the PHY is not in multidrop mode, if a BEACON is received either over the MII (for
transmission) or from the line, i.e., due to a misconfiguration either at the local node or
another node on the medium, the Heartbeat transmit state diagram disables heartbeat until
a PCS Reset is asserted, multidrop mode is enabled, or Auto-Negotiation is either
disabled or stops reporting a good link.
====
<<<<

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**   Page 61 of 86
SC **147.3.8.1**   1/4/2019 8:18:32 AM

Cl **147**	*SC* **147.3.8.1**	*P* **186**	*L* **30**	# 331

Brandt, David — Rockwell Automation

Comment Type **T** — *Comment Status* **D** — *Editorial*

Variable hb_cmd is set to HEARTBEAT in the rightmost TWAIT_TX, and it is never set to NONE again, resulting in continuous slave HEARTBEATs once the first master HEARTBEAT is heard.

SuggestedRemedy

Set exit condition from rightmost TWAIT_TX to go to WAIT_HB.

Proposed Response — *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the arrow going from "TWAIT_TX" on the right-side to "WAIT_RX" to go to "WAIT_HB" instead.
Note: this is an editorial mistake (implementation of d2.1 comments) that is being fixed (see http://www.ieee802.org/3/cg/public/Nov2018/Clause%20147%20-%20Link%20Status%20for%20AN_changesonly.pdf for more details)

Cl **147**	*SC* **147.3.8.1**	*P* **186**	*L* **36**	# 330

Brandt, David — Rockwell Automation

Comment Type **T** — *Comment Status* **D** — *Editorial*

Two states have the same name TWAIT_TX.

SuggestedRemedy

Rename the left state as TWAIT_TX1 and the right state as TWAIT_TX2.

Proposed Response — *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
- Rename the left state from "TWAIT_TX" to "WAIT_TX"
- Rename the right state from "TWAIT_TX" to "REPLY_HB"
Note: these are editorial mistakes (implementation of d2.1 comments) that are being fixed (see http://www.ieee802.org/3/cg/public/Nov2018/Clause%20147%20-%20Link%20Status%20for%20AN_changesonly.pdf for more details)

Cl **147**	*SC* **147.3.8.1**	*P* **186**	*L* **37**	# 332

Brandt, David — Rockwell Automation

Comment Type **T** — *Comment Status* **D** — *Big Ticket Item - Multidrop*

Slave spaces HEARTBEATs too close together.

SuggestedRemedy

Change rightmost state TWAIT_TX to use hb_timer, both inside the state and for the exit condition.

Proposed Response — *Response Status* **W**

PROPOSED REJECT.
Doing what the commenter suggests would cause the PHY to send an HB 50ms long.
Likely that is not the intention, however the commenter did not provide enough rationale to understand what he's trying to fix nor enough remedy.
Clarification: the idea behind this State Diagram is that the slave after detecting any valid RX (packet of HB from master) waits a short time (hb_send_timer) then sends an HB in turn of duration hb_send_timer.
Please note also that the State Diagram is affected by editorial errors with respect to the approved text in draft 2.2. See resolution of comments #330 and #331.,

---

Cl **147**	*SC* **147.3.8.1.1**	*P* **184**	*L* **28**	# 71

Graber, Steffen — Pepperl+Fuchs GmbH

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

See 147.3.2.2

SuggestedRemedy

See 147.3.2.2. (add a dot to be aligned with the following definitions in the same Clause), see also page 187, line 36.

Proposed Response — *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.8.1.1**	*P* **184**	*L* **35**	# 72

Graber, Steffen — Pepperl+Fuchs GmbH

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

1.2279.10

SuggestedRemedy

1.2297.10 (this is the 10BASE-T1S PMA control register)

Proposed Response — *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.3.8.1.1**

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Cl **147**	*SC* **147.3.8.2.1**	*P* **187**	*L* **52**	#	335

Brandt, David   Rockwell Automation

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

Variable cnt_l does not count HB, but counts number of times that link_hold_timer expires without HB or received packet.

SuggestedRemedy

Change from: "Counter of HB"
To: "Count of link_hold_timer expiration periods without HB or receive packet"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.8.2.1**	*P* **187**	*L* **53**	#	339

Brandt, David   Rockwell Automation

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

Variables cnt_l and cnt_h are constrained in value by ACTIVE_CNT and INACTIVE_CNT.

SuggestedRemedy

Change cnt_l from: "Values: integer number between 0 and ACTIVE_CNT".

Change cnt_h from: "Values: integer number between 0 and INACTIVE_CNT".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.8.2.1**	*P* **188**	*L* **2**	#	333

Brandt, David   Rockwell Automation

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

Variable cnt_h increments with both HB and receive packets.

SuggestedRemedy

Change from: "Counter of HB"
To: "Counter of HBs and receive packets"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.8.2.2**	*P* **187**	*L* **8**	#	340

Brandt, David   Rockwell Automation

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

Variable cnt_l can never exceed INACTIVE_CNT. Variable cnt_h can never exceed ACTIVE_CNT.

SuggestedRemedy

Change exit condition of COUNT_UP and COUNT_DOWN to be equal and not greater than or equal.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.8.2.2**	*P* **188**	*L* **17**	#	334

Brandt, David   Rockwell Automation

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

Variable ACTIVE_CNT sets threshold for both HB and receive packets.

SuggestedRemedy

Change from: "Number of HB"
To: "Number of combined HBs and receive packets"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**	*SC* **147.3.8.2.2**	*P* **188**	*L* **20**	#	338

Brandt, David   Rockwell Automation

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

Both ACTIVE_CNT and INACTIVE_CNT show a value that should have both a limit and a default.

SuggestedRemedy

Change both ACTIVE_CNT and INACTIVE_CNT show: "Value: integer number between 0 and 7." and add "Default value: 2" for ACTIVE_CNT and "Default value: 5" for INACTIVE_CNT".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.3.8.2.2**

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Cl **147**   *SC* **147.3.8.2.2**   *P* **188**   *L* **22**   # 336

Brandt, David   Rockwell Automation

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

Variable INACTIVE_CNT does set threshold for count of HBs, but sets threshold for number of times that link_hold_timer expires without HB or received packet.

SuggestedRemedy

Change from: "Number of HB"
To: "Number of link_hold_timer expirations without HB or receive packets"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**   *SC* **147.3.8.2.3**   *P* **188**   *L* **28**   # 337

Brandt, David   Rockwell Automation

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

Description of Link_hold_timer is inaccurate compared to state diagram.

SuggestedRemedy

Change from: "Time after which the count of HB is updated."
To: "Timer used to check inactivity."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **147**   *SC* **147.3.8.3**   *P* **188**   *L* **33**   # 248

Kim, Yong   NIO

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

"In compliance to 148.4.4.2.1, when PLCA RS operations are supported and enabled, the PHY shall notify the RS of a received BEACON indication by the means of MII interface as specified in 22.2.2.8." This could be read that 10BASE-T1S PHY support of PLCA related signals are NOT optional.   If this is the intent, PLEASE explicitly state it (probably somewhere near 147.1) If not, then adjust the text to reflect optional nature of PLCA RS support.

SuggestedRemedy

Please consider and do one of the two choices.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "when PLCA RS operations are supported and enabled" to "when optional PLCA operations are supported and enabled"
Note: same resolution applies to #249 as well

Cl **147**   *SC* **147.3.8.4**   *P* **188**   *L* **42**   # 249

Kim, Yong   NIO

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

"In compliance to 148.4.4.2.2, when PLCA RS operations are supported and enabled, the PHY shall notify the RS of a received COMMIT indication by the means of MII interface as specified in 22.2.2.8." This could be read that 10BASE-T1S PHY support of PLCA related signals are NOT optinoal.   If this is the intent, PLEASE explicltluy state it (probably somewhere near 147.1) If not, then adjust the text to reflect optional nature of PLCA RS support.

SuggestedRemedy

Please consider and do one of the two choices.   Could be considered together with my comment to 147.3.8.3

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "when PLCA RS operations are supported and enabled" to "when optional PLCA operations are supported and enabled"
Note: same resolution applies to #248 as well

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 64 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.3.8.4**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**   *SC* **147.3.9.1**   *P* **187**   *L* **2**   # 302
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *PCS*

Entry conditions to INACTIVE state should be AN enabled and link not good, multidrop disabled is covered by AN enabled (see 147.3.9 Optional support for PCS status generation).

SuggestedRemedy

Change INACTIVE entry condition to "pcs_reset + (mr_autoneg_enable * !an_link_good")

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #300.
Proposed resolution of #300 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Insert new text to the end of sub-clause 147.3.8.1 (page 184/24):
====
Heartbeat is only sent when the PHY is not in the multidrop mode and Auto-Negotiation has achieved a good link. When in the multidrop mode, or when Auto-Negotiation is either not enabled or has not achieved a good link, the Heartbeat transmit state diagram is held in the INIT state, and heartbeat is not sent.<EOL>
When the PHY is not in multidrop mode, if a BEACON is received either over the MII (for transmission) or from the line, i.e., due to a misconfiguration either at the local node or another node on the medium, the Heartbeat transmit state diagram disables heartbeat until a PCS Reset is asserted, multidrop mode is enabled, or Auto-Negotiation is either disabled or stops reporting a good link.
====
<<<<

Cl **147**   *SC* **147.4**   *P* **189**   *L* **1**   # 191
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*

This section needs minor reorganization.

SuggestedRemedy

Move the paragraph that starts with "The PMA couples" to the beginning of the section. After "onto the 10BASE-T1S physical medium" add ", as shown in Figure 147-12." Move the sentence about the PMA Reset not being shown to someplace more sensible, pehaps after the textual refence to Figure 147-12.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #190.
Proposed resolution of #190 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Move all text at page 188/31-48 (effectively the headers and content of sub-clauses "147.3.8.3 Generation of BEACON indication" and "147.3.8.4 Generation of COMMIT indication") before sub-clause "147.3.8 Optional support for PCS status generation", turning those into "147.3.7.1 Generation of BEACON indication" and "147.3.7.2 Generation of COMMIT indication"
<<<<

Cl **147**   *SC* **147.4**   *P* **189**   *L* **29**   # 138
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*

[EZ] The text "from medium employing DME. The interface between PMA" needs some smoothing.

SuggestedRemedy

Change "from medium employing DME. The interface between PMA" to "from a physical [or baseband] medium using DME signaling. The interface between the PMA" or something similar.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Out of scope (text has not changed during last comment resolution cycle).
Moreover text is not technically incorrect (no problem is being fixed).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.4**

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1/4/2019 8:18:32 AM

Cl **147**   *SC* **147.4.3**   *P* **190**   *L* **44**   # 277
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PMA*

Full-duplex operation over one pair should have echo-cancellation (cancel TX from RX) onto/from media. I cannot find any reference to this function. 100BASE-T1 std, in 96.4.3 has text of "PMA Receive has Signal Equalization and Echo Cancellation sub-functions. These sub-functions are used to determine the receiver performance and generate loc_rcvr_status..."

SuggestedRemedy

Please provide a reference to echo cancellation function. And it would be good to have a reference to that function in CL 147.4.3 introductory paragraph (not there now).

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Comment is out of scope (on unchanged text) and does not change requirements or address a problem, only adds informative tutorial text on receiver design. Commenter is invited to resubmit comment on initial sponsor ballot.

Cl **147**   *SC* **147.4.4.1**   *P* **191**   *L* **13**   # 303
Jones, Peter   Cisco Systems

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

Entry conditions to LINK_UP should have link_control TRUE, otherwise "all PCS functions are switched off and no data can be sent or received".

SuggestedRemedy

Change entry conditions to pma_reset + link_control

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #139.
Proposed resolution of #139 is:
>>>>
PROPOSED ACCEPT.
Swap the labels of the two states.
<<<<

Cl **147**   *SC* **147.4.4.1**   *P* **191**   *L* **18**   # 304
Jones, Peter   Cisco Systems

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

Entry conditions to LINK_DOWN should have pcs_status FALSE or loc_rev_status FALSE

SuggestedRemedy

Change entry conditions to !pcs_status + !loc_rev_status

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #139.
Proposed resolution of #139 is:
>>>>
PROPOSED ACCEPT.
Swap the labels of the two states.
<<<<

Cl **147**   *SC* **147.4.4.2**   *P* **191**   *L* **42**   # 136
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *PMA*

[T1S SERVICE PRIMITIVES] The PMA_LINK.indication primitive goes to the Technology Dependent Interface. It is just called link_status across the PMA service interface.

SuggestedRemedy

Remove "via the PMA_LINK.indication primitive"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The link_status parameter set by PMA Link Monitor and passed to the PCS via the PMA_LINK.indication primitive." at 191/42-43 to "The link_status parameter set by PMA Link Monitor and communicated to the Technology Dependent Interface through the PMA_LINK.indication primitive."

Cl **147**   *SC* **147.5.3**   *P* **193**   *L* **3**   # 140
Griffiths, Scott   Rockwell Automation

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

[EZ] Extra unnecessary comma

SuggestedRemedy

Remove comma after "Figure 147-15"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 66 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.5.3**   1/4/2019 8:18:32 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**　　　*SC* **147.5.3**　　　　　　*P* **193**　　　*L* **34**　　　　# 124

Beruto, Piergiorgio　　　　　　　　　　Canova Tech Srl

Comment Type **E**　　　*Comment Status* **D**　　　　　　*PMA Electrical*

The following sentence doesn't make sense for T1S PHY:
"For a MASTER PHY this is the output of
the (divided) clock oscillator, for the SLAVE PHY this is the recovered clock."

In 10BASE-T1S There's no concept of master/slave clock as it's not a clock looped system.

SuggestedRemedy

Remove the following sentence:
"For a MASTER PHY this is the output of the (divided) clock oscillator, for the SLAVE PHY
this is the recovered clock."

Proposed Response　　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **147**　　　*SC* **147.5.4.1**　　　　　*P* **193**　　　*L* **52**　　　　# 350

Brandt, David　　　　　　　　　　　Rockwell Automation

Comment Type **T**　　　*Comment Status* **D**　　　　　　*PMA Electrical*

Market potential would benefit by 10BASE-T1S having an option increased voltage.
Applications in elevators, lighting, and industrial automation have use for increased reach,
higher node count, and improved immunity.

Efforts were made to determine a consensus position in the Bangkok meeting. The request
for 2.4 Vpp was problematic, most likely leading to either multiple PHY chips or higher cost
due to increased power supply voltage. It is believed the lower voltage can bring advantage
without the same drawbacks. If adequate consensus cannot be established by the time of
the meeting, the comment will be withdrawn.

SuggestedRemedy

Add an optional 1.5 Vpp differential transmit level as an engineered option for both
multidrop. Proposed changes are described within: brandt_cg_01_0119.pdf.

Proposed Response　　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
TFTD
Presentation to be given
Waiting for presentation from commenter

Cl **147**　　　*SC* **147.5.4.3**　　　　　*P* **194**　　　*L* **28**　　　　# 123

Beruto, Piergiorgio　　　　　　　　　　Canova Tech Srl

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

"maximum jitter at the transmitter side shall be less than 5 ns symbol-to-symbol jitter", the
last "jitter" seems to be a needless repetition.

SuggestedRemedy

Remove the last "jitter" word in the sentence before the full stop.

Proposed Response　　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **147**　　　*SC* **147.5.4.6**　　　　　*P* **195**　　　*L* **35**　　　　# 141

Griffiths, Scott　　　　　　　　　　　Rockwell Automation

Comment Type **E**　　　*Comment Status* **D**　　　　　　*Editorial*

Alien crosstalk noise rejection relates to the receiver. This subcluase should be moved to
the end of 147.5.5. This is where it is located for T1L, 100BASE-T1, and 1000BASE-T1.

SuggestedRemedy

Move 147.5.4.6 to the end of 147.5.5.

Proposed Response　　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **147**　　　*SC* **147.5.4.8**　　　　　*P* **196**　　　*L* **6**　　　　# 143

Griffiths, Scott　　　　　　　　　　　Rockwell Automation

Comment Type **E**　　　*Comment Status* **D**　　　　　　*Editorial*

The PMA Local Loopback subclause should be under the PMA electrical specifications, not
just the transmitter electrical specifications.

SuggestedRemedy

Move 147.5.4.8 to 147.6.

Proposed Response　　　　*Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general　　　　*Cl* **147**　　Page 67 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected　　　RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn　　*SC* **147.5.4.8**　　1/4/2019 8:18:33 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147** *SC* **147.5.5.1** *P* **196** *L* **26** # 250
Kim, Yong NIO

Comment Type **ER** *Comment Status* **D** *Editorial*

sub clause title does not match the content.

SuggestedRemedy

Receiver characteristics, or receive bit error, or something equivalent that convey the sense of this text content

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Commenter is incorrect, as this is the title that IEEE Std 802.3-2018 uses for this content on BASE-T and BASE-T1 PHY clauses. See clauses 14.3.1.3.2, 23.5.1.3.2, 32.6.1.3.4, 40.6.1.3.2, 55.5.4.1, 96.5.5.1, 97.5.4.1, 113.5.4.1, and 126.5.4.1.

Cl **147** *SC* **147.5.5.1** *P* **196** *L* **30** # 276
Kim, Yong NIO

Comment Type **T** *Comment Status* **D** *PMA Electrical*

"and have passed through a link segment specified in 147.6.1 shall be received with a Bit Error Ratio (BER) of less than 10-10, and sent to the MII" does not have collision-free (for HD) condition.

SuggestedRemedy

Add "collision free" context, if appropriate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change ", and sent to the MII." to read ", and sent to the MII, provided a collision has not occurred on the medium."

Cl **147** *SC* **147.5.5.1** *P* **196** *L* **31** # 251
Kim, Yong NIO

Comment Type **ER** *Comment Status* **D** *PMA Electrical*

Text makes little sense "This specification can be verified by a frame error ratio less than 7.8 10-7 for 800 octet frames with minimum IPG or greater than 220 octet IPG."

SuggestedRemedy

Change to "..the minimum IPG or greater, up to 220 octet IPG". Or if the suggestion is not technically correct, correct it before implementing.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete " with minimum IPG or greater than 220 octet IPG", as this text was incorrectly adopted from PHYs which use a large block of FEC code.

Cl **147** *SC* **147.6.1** *P* **196** *L* **41** # 252
Kim, Yong NIO

Comment Type **TR** *Comment Status* **D** *AutoNeg*

"Auto-Negotiation may be performed as part of the initial set-up of the link and allows negotiation of the duplex mode of operation." and AN for half-duplex P2P related text should be deleted, IFF, sucn mode is deemed to not meet broad market potential (per my other comment)

SuggestedRemedy

Please conditionally (delete P2P HD) consider deleting the referenced sentence.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter refers to two other proposed rejected comments as conditional response; comments 210 and 246.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.6.1**

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Cl **147**   *SC* **147.6.1**   *P* **196**   *L* **45**   # 254
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *AutoNeg*

"If both PHYs advertise the
ability to support 10BASE-T1S half duplex communication during Auto-Negotiation, then 10BASE-T1S
half duplex communication shall be enabled for both PHYs by the management entity, otherwise it shall be
disabled for both PHYs."   This statement contradicts 98B.4 priority resolution.

SuggestedRemedy

Please correct whichever is incorrect. And also, the referenced text contain untestable shall -- acting on disabled.

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

A new bit needs to be allocated for 10BASE-T1S full duplex ability. (bit A21 is preferred - this is adjacent and is freed up by comment 148)

In Table 98B-1 (P235 L29) change description of bit A21 to "10BASE-T1S full duplex ability" (with editorial license - based on comment 148 - otherwise we need to allocate a different bit (likely A26), and reflect below)

In 146.6.1 (P196 L44):
Insert new third sentence in first paragraph of 146.1 immediately before referenced text. Insertion to read: "When Auto-Negotiation is used, Technology Ability Field bit A21 shall contain a one, if the PHY is supporting and advertising 10BASE-T1S full duplex ability and it shall contain a zero, if 10BASE-T1S full duplex communication is not supported or not advertised.:

Then change subsequent referenced sentence (now fourth sentence) to refer to full duplex, as follows:

Change "If both PHYs advertise the ability to support 10BASE-T1S half duplex communication during Auto-Negotiation, then 10BASE-T1S half duplex communication shall be enabled for both PHYs by the management entity, otherwise it shall be disabled for both PHYs."

To "If both PHYs advertise the ability to support 10BASE-T1S full duplex communication during Auto-Negotiation, then 10BASE-T1S full duplex communication shall be enabled for both PHYs by the management entity, otherwise full duplex will be disabled for both PHYs."

Cl **147**   *SC* **147.6.1**   *P* **196**   *L* **48**   # 144
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EEE*
[EZ] T1S does not support EEE; it is inherently energy efficient.

SuggestedRemedy
Remove the text starting with "Bit A26".

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE. Accomdated by response to comment 73.

Cl **147**   *SC* **147.6.1**   *P* **196**   *L* **48**   # 73
Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **E**   *Comment Status* **D**   *EEE*
For 10BASE-T1S there is no need for EEE, as this is inherently given.

SuggestedRemedy
Please remove last sentence in Clause 147.6.1.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Implement suggested remedy and
change A26 to "reserved" in Table 96B-1.

Cl **147**   *SC* **147.8**   *P* **197**   *L* **52**   # 145
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *Editorial*
[EZ] Presumably, (1.4.332) is a reference to the mixing segment definition, but the reference is incorrect.

SuggestedRemedy
Change the reference to 1.4.277 and highlight it as a cross-reference.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
1.4.332 is the correct reference for mixing segment in 802.3-2018 (1.4.227 was the reference in 802.3-2015)

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 69 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.8**   1/4/2019 8:18:33 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**	*SC* **147.8**	*P* **198**	*L* **2**		#	255

Kim, Yong   NIO

Comment Type **E**   *Comment Status* **D**   *Mixing Segment*

".in this sub-clause are met" is ambiguous. Just say "in 147.8 are met".

SuggestedRemedy

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Out of scope (text has not changed during last comment resolution cycle).
Moreover text is not technically incorrect (no problem is being fixed).

Cl **147**	*SC* **147.8**	*P* **198**	*L* **3**		#	74

Graber, Steffen   Pepperl+Fuchs GmbH

Comment Type **T**   *Comment Status* **D**   *Mixing Segment*

"When the mixing segment is line powered, terminations should include in-series DC blocking capacitors." Likely these DC blocking capacitors are also required, if there is no power on a mixing segment or a link segment. Depending on a PHY IC implementation there could be different absolute DC levels on the line driver outputs (only the differential voltage is defined, not the common mode driver output voltage). Not having series capacitors can lead to unintended DC currents between the PHYs.

SuggestedRemedy

Change to: Terminations should include in-series DC blocking capacitors.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "When the mixing segment is line powered, terminations should include in-series DC blocking capacitors." at page 198/3-4 to read "Terminations may include in-series DC blocking capacitors."

Cl **147**	*SC* **147.9.1**	*P* **198**	*L* **43**		#	315

Horrmeyer, Bernd   Phoenix Contact

Comment Type **T**   *Comment Status* **D**   *Late*

A connector is: "device providing connection and disconnection to a suitable mating component". See IEV 581-26-01. A lot of devices will not have a MDI-connector. They will use another kind of interface.

SuggestedRemedy

The mechanical interface to the balanced cabling is a 3-pin connector (BI_DA+, BI_DA-, and optional SHIELD) or alternatively a 2-pin connector with an optional additional mechanical shield connection or any other interface which conforms to the link segment specification defined in 146.7.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text is unchanged and out of scope for this recirculation. Additionally, adding "or any other interface" creates an ambiguous specification.

Cl **147**	*SC* **147.9.1**	*P* **198**	*L* **48**		#	257

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *MDI*

This says "this section defines the MDI for 10BASE-T1S", but it does NOT.   MDI is a *mandatory* "shall"-stated Medium Dependant Interface for 10BASE-TSL.   Tjhis section does NOT specify MDI. It provides (abeit useful) suggestions and diagrams but no specification.   Please decide whether this project has an MDI (or set of MDIs).   And if MDI is indeeed specified, please change the CL title to include MDI (currently just ....PMA)

SuggestedRemedy

Either specify "the MDI for 10BASE-T1S" or not, and make downstream consequential changes. If not specified, then perhaps use "MDI considerations" not "MDI specifications"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Insert the following new paragraph to under clause "147.9 MDI specification" (just before "147.9.1 MDI connectors"):
====
This section describes mechanical connectors which may be used at the MDI, and specifies electrical parameters, including fault tolerance, at the MDI.
====

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.9.1**

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Cl **147**   *SC* **147.9.1**   *P* **198**   *L* **48**   # 256

Kim, Yong   NIO

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

".can." -- shouldn't it be ".could."?

SuggestedRemedy

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.
The word "can" is the correct one to indicate that the possible use of other connectors
subject to specification. Moreover "can be used" shows up 193 times in IEEE Std 802.3-
2018, while "could be used" shows up only once, in connection with a test pattern.

Cl **147**   *SC* **147.9.1**   *P* **198**   *L* **51**   # 279

Bains, Amrik   Cisco Systems

Comment Type   **TR**   *Comment Status*   **D**   *MDI*

IEC 63171-1 connector do not support 18AWG wire as specified. Without 18AWG support
installed single pair cabling can not be used and require different switch/end devices
compared to 23 AWG to 26 AWG
This comment applies to 146.8.1, page 153, line 14

SuggestedRemedy

Change the connector spec to include 18AWG 26 AWG support.

This may require liason letter IEC 63171-1 requesting for support 18 AWG to 26 AWG
support

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of
the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Cl **147**   *SC* **147.9.1**   *P* **198**   *L* **51**   # 281

Bains, Amrik   Cisco Systems

Comment Type   **TR**   *Comment Status*   **D**   *MDI*

MICE1/2 type switches/devices use "stacked/ganged" connectors, e.g. 2x1, 2x2, 2x4, 2x6
etc. Current specs don't address these configurations

SuggestedRemedy

For high port density switches, it is critical to provide stacked connector options as well
surface mount connectrs

This may require liason letter requesting IEC 63171-1 to support stacked and surface
mountable connectors

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment #293 (for c146).
Proposed resolution of #293 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of
the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.
<<<<

Cl **147**   *SC* **147.9.1**   *P* **198**   *L* **51**   # 280

Bains, Amrik   Cisco Systems

Comment Type   **TR**   *Comment Status*   **D**   *MDI*

IEC 63171-1 does not support MICE 2 - This leaves many applications unsupported in light
Industrial segment (IOT) and Enterprise use cases. There is no interoperability between
IEC 63171-1 and IEC 61076-2 for MICE 1 and MICE2

This comment applies to 146.8.1, page 153, line 14

SuggestedRemedy

Change the connector spec to include MICE 1 and MICE2 with Intermateability interface

This may require liason letter requesting IEC 63171-1 to support Intermateability interface
for MICE1/2

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment #293 (for c146).
Proposed resolution of #293 is:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of
the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.
<<<<

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **147**   Page 71 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **147.9.1**   1/4/2019 8:18:33 AM
SORT ORDER: Clause, Subclause, page, line

Cl **147**   *SC* **147.9.1**   *P* **198**   *L* **51**   # 316
Horrmeyer, Bernd   Phoenix Contact

Comment Type **T**   *Comment Status* **D**   *Late*
Redundant information shall be avoided

SuggestedRemedy
Delete figures 147-21 to 26 and refer in the text to the figures in 146.8.1

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
Clauses of the two PHYs should be independent and separately reference their own figures
to be complete.

Cl **147**   *SC* **147.9.1**   *P* **198**   *L* **51**   # 313
Jones, Chad   Cisco

Comment Type **TR**   *Comment Status* **D**   *MDI*
IEC 63171-1 does not support MICE2. Objective 8 states: Support 10 Mb/s single-pair
Ethernet operation in industrial environments. Lack of support for MICE2 is at odds with
this objective.

SuggestedRemedy
the connector must support MICE1 and MICE2. make it so.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of
the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Cl **147**   *SC* **147.9.1**   *P* **199**   *L* **37**   # 98
Fritsche, Matthias   HARTING Technology

Comment Type **E**   *Comment Status* **D**   *MDI*
The figures 147-23 and 146-24 show the IP20 version of the "Industrial style" MDI
connector according to IEC 61076-3-125. The information about the waterproof IP65/67
"Industrial style" SPE MDI connector versions are missing and have to be added.

SuggestedRemedy
Please insert the other M2I2C2E2 and M3I3C3E3 connector versions and add the table
"Connector styles" from IEC 61076-3-125. For more details take a look at the Word file
with the relevant pages from CDV IEC 61076-3-12.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
The purpose of the figures in IEEE Std 802.3 is informational on the configuration of the
electrical mating interfaces and pinout, not as a substitute for the IEC specification or a
definitive description of the environmental housings. Showing all the connector styles
would be inappropriate and potentially cause confusion with the IEC specification, which is
supposed to be definitive.

Cl **147**   *SC* **147.9.1**   *P* **199**   *L* **51**   # 307
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*
Many MICE 2 systems currently being shipped make use of the ability to "stack" the
faceplate connectors (e.g., 2x4 for 8 ports). The current MICE2/3 connector (IEC 61076-3-
125) connector does not support this.
This is a barrier to broad SPE adoption.

SuggestedRemedy
Enable MICE 2 support in IEC 63171-1 connector.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment #293 (for c146).
Proposed resolution of #293 is
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of
the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.
<<<<

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.9.1**

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Cl **147**   *SC* **147.9.1**   *P* **199**   *L* **51**   # 305
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*
IEC 63171-1 connector does not support 18AWG. 18AWG is required for both the building and industrial use cases.

SuggestedRemedy
Add editor's note re IEC 63171-1 lack of 18AWG support.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.

Cl **147**   *SC* **147.9.1**   *P* **199**   *L* **51**   # 308
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*
Connecting a MICE 1 system to a MICE 2 system requires a specialized cable or adaptor. This is a barrier to broad SPE adoption.

SuggestedRemedy
Enable MICE 2 support in IEC 63171-1 connector.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment #293 (for c146).
Proposed resolution of #293 is
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Send liaison to ISO/IEC and TIA TR-42 requesting support for 18AWG in current drafts of the single pair ethernet cabling recommendations and in the IEC 63171-1 connector.
<<<<

Cl **147**   *SC* **147.9.1**   *P* **199**   *L* **51**   # 306
Jones, Peter   Cisco Systems

Comment Type **TR**   *Comment Status* **D**   *MDI*
Many systems currently being shipped use the same mechanical interface for both MICE 1 and MICE 2.
IEC 63171-1 connector does not support MICE 2.
Without this support, 10SPE adoption with be significantly hindered.

SuggestedRemedy
Add editor's note re IEC 63171-1 lack of MICE 2 support.
Send liaisons to ISO/IEC and TIA TR-42 requesting support for MICE 2 in the IEC 63171-1 connector.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Send liaisons to ISO/IEC and TIA TR-42 asking if the IEC 63171-1 connector can support MICE 2.

Cl **147**   *SC* **147.9.1**   *P* **200**   *L* **16**   # 99
Fritsche, Matthias   HARTING Technology

Comment Type **T**   *Comment Status* **D**   *MDI*
Figure 147-25 and figure 146-26 show the pin numbering for the MDI connectors but we don't specify the function of the pins.

SuggestedRemedy
We should add a table to define the signals at pin 1 and pin 2 of the MDI connectors as follows:
pin 1 --> BI_DA+
pin 2 --> BI_DA-
For more details take a look at the Word file with the relevant pages from CDV IEC 61076-3-12.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #54.
Proposed resolution of #54 is:
>>>>
Accept in principle: Add table to give assignment of PMA signals to connector contacts here and 147.9.1.
<<<<

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.9.1**

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Cl **147**   *SC* **147.9.1**   *P* **200**   *L* **26**   # 109
Shariff, Masood   CommScope

Comment Type **ER**   *Comment Status* **D**   *MDI*
Missing PIN 2 label

SuggestedRemedy
Label PIN 2 in Figure 147-25 for completeness and consitency with Figure 147-26. Also, the pdf does not show the full outline of the connector

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #54.
Proposed resolution of #54 is:
>>>>
Accept in principle: Add table to give assignment of PMA signals to connector contacts here and 147.9.1.
<<<<

Cl **147**   *SC* **147.9.1**   *P* **200**   *L* **26**   # 110
Shariff, Masood   CommScope

Comment Type **ER**   *Comment Status* **D**   *MDI*
Add polarity information to figure Figure 147-25

SuggestedRemedy
PIN SIGNAL   POWER
1   BI_DA+   +
2   BI_DA-   -

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #54.
Proposed resolution of #54 is:
>>>>
Accept in principle: Add table to give assignment of PMA signals to connector contacts here and 147.9.1.
<<<<

Cl **147**   *SC* **147.9.1**   *P* **200**   *L* **43**   # 111
Shariff, Masood   CommScope

Comment Type **ER**   *Comment Status* **D**   *MDI*
Add polarity information to figure Figure 147-26

SuggestedRemedy
PIN SIGNAL   POWER
1   BI_DA+   +
2   BI_DA-   -

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comments #54.
Proposed resolution of #54 is:
>>>>
Accept in principle: Add table to give assignment of PMA signals to connector contacts here and 147.9.1.
<<<<

Cl **147**   *SC* **147.9.2**   *P* **156**   *L* **39**   # 296
Jones, Peter   Cisco Systems

Comment Type **T**   *Comment Status* **D**   *Safety*
Include other applications

SuggestedRemedy
change "In industrial applications, all 10BASE-T1L cabling is expected to be routed" to "All 10BASE-T1S cabling is expected to be routed"

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Commenter appears to mean Clause 146.9.2, 10BASE-T1L, based on page reference and text referred to. Change "In industrial applications, all 10BASE-T1L cabling is expected to be routed" to "All 10BASE-T1L cabling is expected to be routed" in second sentence of 147.9.2."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.9.2**

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Cl **147**　　*SC* **147.9.3**　　　　*P* **201**　　*L* **38**　　　# 319

Horrmeyer, Bernd　　　　　　Phoenix Contact

Comment Type **T**　　*Comment Status* **D**　　　　　*Late*

Damage criteria for witstanding 60 V DC 1360mA is missing

SuggestedRemedy

Define the damage criteria for withstanding

Proposed Response　　*Response Status* **W**

PROPOSED REJECT.
Text is out of scope and unchanged.
Commenter provides insufficient information for remedy.
Text is identical to similar text (e.g., short circuits) in nearly every other BASE-T PHY clause.

Cl **147**　　*SC* **147.10**　　　　*P* **202**　　*L* **20**　　　# 27

Huszak, Gergely　　　　　　Kone

Comment Type **T**　　*Comment Status* **D**　　　　　*Safety*

Single node failure on a multidrop segment may interfere with, or even prevent all communication there (between working stations)

SuggestedRemedy

Add an informative sentence to draw the implementer's attention to this fact.
Add: "If operation to specified limits cannot be maintained due to a fault, the faulty PHY should not drive the line, but should fail in such a way that it does not interfere with communication on the line by other PHYs."

Proposed Response　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
TFTD
Comment out of scope, on unchanged text and does not directly fix a specification requirement.

Cl **147**　　*SC* **147.10.1**　　　　*P* **202**　　*L* **24**　　　# 102

Fritsche, Matthias　　　　　　HARTING Technology

Comment Type **E**　　*Comment Status* **D**　　　　　*Safety*

IEC 60950-1 is replaced by IEC 62368-1

SuggestedRemedy

Change "IEC 60950-1" to "IEC 62368-1 (former IEC 60950-1)"

Proposed Response　　*Response Status* **W**

PROPOSED REJECT.
Text says "IEC 60950-1, IEC 62368-1 or IEC 61010-1". IEC 62368-1 is not "former IEC 60950-1" as the commenter suggests, and 60950-1 may still be used for some time.

Cl **147**　　*SC* **147.10.2**　　　　*P* **250**　　*L* **39**　　　# 311

Jones, Peter　　　　　　Cisco Systems

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

Add other applications

SuggestedRemedy

change "In industrial applications, all 10BASE-T1S cabling is expected to be routed" to "in other applications, all 10BASE-T1S cabling is expected to be routed"

Proposed Response　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Note: The sentence in question is wrongly attributed to page 250, while it is in page 202.
Change "In industrial applications, all 10BASE-T1S cabling is expected" at 202/37-38 to "In other applications, all 10BASE-T1S cabling is expected"

Cl **147**　　*SC* **147.12.3**　　　　*P* **205**　　*L* **1**　　　# 146

Griffiths, Scott　　　　　　Rockwell Automation

Comment Type **T**　　*Comment Status* **D**　　　　　*PICS*

Several major capabilities/options are missing.

SuggestedRemedy

Add the following major capabilities/options:
MII -- PHY associated with MII -- 147.1.1 -- O
PCS -- 10BASE-T1S PCS -- 147.3 -- M
PMA -- 10BASE-T1S PMA -- 147.4 -- M
*AN -- Auto-Negotiation -- 93 -- O
*FULL -- Full-duplex mode -- O
*AUTO -- Automotive environment installation -- O

Proposed Response　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add the following major capabilities/options:
MII -- PHY associated with MII -- 147.1.1 -- O
PCS -- 10BASE-T1S PCS -- 147.3 -- M
PMA -- 10BASE-T1S PMA -- 147.4 -- M
AN -- Auto-Negotiation -- 98 -- O
FULL -- Full-duplex mode - O
Change *HALF Status from "O" to "M"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **147.12.3**

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Cl **147**   *SC* **147.12.4.6.2**   *P* **210**   *L* **15**   # 147
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
[EZ] Remove +/- symbol in the 5 ns jitter specification to match text.

SuggestedRemedy
Remove +/- symbol to match text.

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

Cl **147**   *SC* **Figure 147-12**   *P* **189**   *L* **2**   # 195
Griffiths, Scott   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *AutoNeg*
[T1S PMA SERVICE PRIMATIVES] PMA_LINK.request and PMA_LINK.indication should
go to the Technology Dependent Interface (this should be added to the figure). According
to 97.4.1, link_status can also go to the PCS via the PMA service interface, but then it is
not listed as PMA_LINK.indication; it just apperas as link_status. Also, the PMA should be
sending PMA_CARRIER.indication (pma_crs) to the PCS, but this is not shown in the
figure.

SuggestedRemedy
The figure should be modified according to the comment.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
1. Do the following changes to figure "Figure 147-12-PMA functional block diagram":
1.A) Add the new entity/interface "Technology Dependent Interface (optional)", similar to
"Figure 147-2-10BASE-T1S PHY interfaces" with regards to looks (layout)
1.B) Route arrow with "PMA_LINK.request (link_control)" from TDI to "LINK MONITOR"
1.C) Route arrow with "PMA_LINK.indication (link_status)" from "LINK MONITOR" to TDI
2. Do the following changes to figure "Figure 147-2-10BASE-T1S PHY interfaces":
2.A) Change "PMA_LINK.request" to "PMA_LINK.request (link_control)"
2.B) Change "PMA_LINK.indication" to "PMA_LINK.indication (link_status)"
3. Compare results to the content/looks of "Figure 40-14-PMA Reference diagram"

Cl **147**   *SC* **Figure 147-12**   *P* **189**   *L* **2**   # 137
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
[EZ] The arrow out of PMA Transmit is going the wrong direction.

SuggestedRemedy
Fix the arrow to the right of PMA TRANSMIT so that is points towards BI_DA.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Remove arrow from the line that enters PMA TRANSMIT block from the right, but keep the
bidirectional arrow on final segment (near BI_DA).

Cl **147**   *SC* **Figure 147-14**   *P* **191**   *L* **12**   # 139
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
The labels "LINK_UP" and "LINK_DOWN" appear to be reversed.

SuggestedRemedy
Swap the labels of the two states.

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

Cl **147**   *SC* **Figure 147-19**   *P* **195**   *L* **43**   # 142
Griffiths, Scott   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *PMA Electrical*
The text is clear that the noise should be injected at the MDI, but the figure is a little
misleading because it appears that the injection point is not at the MDI.

SuggestedRemedy
Change the figure so that the noise source attaches at the MDI.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
The figure indicates that the noise may be injected within 0.5 m of the MDI. In practice,
some length of cabling is needed, and the noise is calibrated to the noise level at the MDI.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **Figure 147-19**

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Cl **147**   *SC* **Figure 147-2**   *P* **169**   *L* **9**   # 192
Griffiths, Scott   Rockwell Automation

Comment Type   **T**   *Comment Status*   **D**   *AutoNeg*
[T1S PMA SERVICE PRIMATIVES] Add a link_status signal from the PMA to the PCS.

SuggestedRemedy
Add missing PMA service interface link_status signal.

Proposed Response   *Response Status*   **W**
PROPOSED ACCEPT IN PRINCIPLE.
Change "The link_status parameter set by PMA Link Monitor and passed to the PCS via the PMA_LINK.indication primitive." at page 191/42-44 to "The link_status parameter set by PMA Link Monitor and passed to the optional Technology Dependent Interface via the PMA_LINK.indication primitive."

Cl **147**   *SC* **Figure 147-3**   *P* **172**   *L* **2**   # 186
Griffiths, Scott   Rockwell Automation

Comment Type   **T**   *Comment Status*   **X**   *AutoNeg*
link_control should be generated by the PMA.

SuggestedRemedy
Remove link_control from the PCS reference diagram.

Proposed Response   *Response Status*   **W**
PROPOSED ACCEPT IN PRINCIPLE.
1. Change Figure 147-3 to show link_control coming from the Technology Dependent Interface.
2. Change "is generated by management." at page 176/48 to "is generated by the Auto-Negotiation function. When Auto-Negotiation is not present or enabled, link_control has a default value of TRUE, and may be provided by implementation-dependent functionality."
Rationale: The link_control is not generated by the PMA, link_status is. The link_control comes from the Technology Dependent Interface.

Cl **147**   *SC* **Figure 147-3**   *P* **172**   *L* **2**   # 193
Griffiths, Scott   Rockwell Automation

Comment Type   **T**   *Comment Status*   **D**   *AutoNeg*
[T1S PMA SERVICE PRIMATIVES] The link_control signal should not come from the management interface, but from the PMA. Also, probably link_status is meant instead of link_control?

SuggestedRemedy
Rename link_control to link_status, and reroute the signal from MANAGEMENT to the PMA service interface. Indicate where the MII and PMA service interfaces are, as in Figure 146-3.

Proposed Response   *Response Status*   **W**
PROPOSED REJECT.
This is indeed link_control and not link_status, generated by the management, and it works (= is specified) as intended.
Note: Same resolution applies to #193, #194, and #195.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **147**
SC **Figure 147-3**

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Cl **148**   *SC* **148**   *P* **213**   *L* **1**   # 322
Thompson, Geoff   GraCaSI S.A.

Comment Type   **TR**   *Comment Status* **D**   *PLCA*

10 Mb/s half duplex Ethernet offers the lowest level of performance in the market success Ethernet family (ignoring 1BASE5 which was not a market success). 802.3 and the networking market have developed successful improved performance variations of Ethernet over the years. Each of these improvements was judged before the project was authorized to meet the CSD or its predecessor, the Five Criteria. There has never been a project approved in 802.3 for the performance space between 10M CSMA/CD and either 10M Full Duplex or 100M CSMA/CD. The addition of a new access method to "improve" our worst performer was done for this project with no mention of this major addition to the scope and features of this project with no mention of it whatsoever in the project paperwork (PAR, CSD original Project Objectives). Further, the addition of PLCA to the draft clearly constitutes a new medium access control (MAC) protocol which overrides the shared media access method and the basic peer nature of Ethernet thus, the mechanism for it belongs in the Media Access Control (MAC) sublayer according to 802 tradition and to IEEE 802 Overview and Architecture. Further, the non-peer nature of PLCA is specifically contrary to the 802 Overview and Architecture (Ref: Std 802 4.1 para. 6) and thus violates the Compatibility criteria of the CSD. It is clear that when the project was started there either was no anticipated requirement for a new access method or the addition of a new access method was sandbagged, presumably because it could then be added to the project without being subjected to the rigors of the CSD examination. Standardized 10 Mb/s CSMA/CD has proved itself adequate for hundreds of millions of installations. Where it is not adequate the legitimate 802 process and the market have chosen full duplex and/or higher speed is the appropriate path within the standard for higher performance.

SuggestedRemedy

Bring the project back into the bounds of the PAR scope and into compliance with 802 and the layer model by removing clause 148 and all other changes in the draft supporting PLCA elsewhere in the draft. I believe that this includes removing all reconciliation sub-layer functionality from the draft as no reconciliation should be required between a 10 Mb/s PHY and the legacy CSMA/CD MAC.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Commenter incorrectly posits that the Clause 148 PLCA RS is a new MAC. It does not meet the requirements for a MAC, and, leaves the MAC functionality with Clause 4, which, in fact, it could not work without. Commenter also incorrectly quotes IEEE Std 802-2014 4.1, paragraph 6 regarding peer-to-peer networking. Additionally, commenter's suggested remedy appears to further confuse that the reconciliation sublayer is required. It is not, use of the Clause 148 PLCA RS is optional.
Detail follow, breaking down each statement in the comment and responding:
Statement: 10 Mb/s half duplex Ethernet offers the lowest level of performance in the market success Ethernet family (ignoring 1BASE5 which was not a market success). 802.3 and the networking market have developed successful improved performance variations of Ethernet over the years. Each of these improvements was judged before the project was authorized to meet the CSD or its predecessor, the Five Criteria.

>>Response: This part appears to be a preamble statement regarding history. It does not appear to require a response.
Statement: There has never been a project approved in 802.3 for the performance space between 10M CSMA/CD and either 10M Full Duplex or 100M CSMA/CD.
>>Response: This part appears to be based on an assumption that somehow 802.3cg 10BASE-T1S with PLCA is not 10M CSMA/CD. It is. In fact, it couldn't work if it were not CSMA/CD. It does not replace the Clause 4 CSMA/CD half duplex MAC, in fact, it uses the CRS and COL signaling and the CSMA/CD clause 4 MAC model to function, and could not function without it.
Statement: The addition of a new access method to "improve" our worst performer was done for this project with no mention of this major addition to the scope and features of this project with no mention of it whatsoever in the project paperwork (PAR, CSD original Project Objectives).
>>Response: This appears to be a statement based on the conclusion that PLCA is a new MAC. Clause 148 in 802.3cg is not a new 'access method'. It uses the CSMA/CD MAC, and reconciles it to the medium, as other 802.3 clauses have done before. If the argument is that it constitutes a new MAC, then it must meet all the functions of a MAC. PLCA does not. The functions of data encapsulation, framing, addressing, error checking, and even contention resolution (noting resolution can only happen when there is contention on the medium) are all performed by the Clause 4 MAC, not Clause 148. The interface to the MAC Service Access Point is with Clause 4, not 148.
Statement: Further, the addition of PLCA to the draft clearly constitutes a new medium access control (MAC) protocol which overrides the shared media access method and the basic peer nature of Ethernet thus, the mechanism for it belongs in the Media Access Control (MAC) sublayer according to 802 tradition and to IEEE 802 Overview and Architecture.

>>Response: This appears to be the same claim that PLCA is a new MAC. See above.
Statement: Further, the non-peer nature of PLCA is specifically contrary to the 802 Overview and Architecture (Ref: Std 802 4.1 para. 6) and thus violates the Compatibility criteria of the CSD.
>>Response: The commenter incorrectly reads what IEEE Std 802-2014 4.1 para 6 says about peer-to-per networking. 802 4.1 para. 6 says: "An IEEE 802 LAN is a peer-to-peer communication network that enables stations to communicate directly on a point-to-point, or point-to-multipoint, basis without requiring them to communicate with any intermediate stations that perform forwarding or filtering above the PHY. LAN communication takes place at moderate to high data rates and with short transit delays, on the order of a few milliseconds or less." Per 4.1 paragraph 6, stations must communicate directly without requiring any intermediate station to perform forwarding or filtering. For clause 148 communications, no communications with an intermediate station to perform forwarding or filtering are required.

Statement: It is clear that when the project was started there either was no anticipated requirement for a new access method or the addition of a new access method was sandbagged, presumably because it could then be added to the project without being subjected to the rigors of the CSD examination. Standardized 10 Mb/s CSMA/CD has proved itself adequate for hundreds of millions of installations. Where it is not adequate the legitimate 802 process and the market have chosen full duplex and/or higher speed is the appropriate path within the standard for higher performance.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **148**   Page 78 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **148**   1/4/2019 8:18:33 AM
SORT ORDER: Clause, Subclause, page, line

>>Response: This appears to be more editorial on history, based on the incorrect assumption that Clause 148 PLCA is a new access method. No further response required.

>>Response: Further response to the suggested remedy, asking that "no reconciliation sublayer be required". The clause 148 PLCA reconciliation sublayer is not required. It is optional.

Cl **148**   *SC* **148.1**   *P* **213**   *L* **12**   # 258
Kim, Yong   NIO

Comment Type   **ER**   *Comment Status* **D**   *PLCA*

"When disabled, the system operates as specified in Clause 22 RS." is meaningless, since CL22 contains proposed modifications for PLCA support, including existing systems to take no action new beahvior.

SuggestedRemedy

Did you mean to say CL22 in 802.3-2018 and prior? The statement would be relevant if all proposed changes to CL22 is deleted.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter is incorrect. This informational statement highlights to the reader that the clause 22 modifications only occur when PLCA is enabled and supported (see 22.2.2.4 and 22.2.2.8 which clearly state additional codes are only generated "When PLCA is supported and enabled"). Commenter's misunderstanding that modified clause 22 behavior might be specified when PLCA was not supported and enabled underscores the need for this information."

Cl **148**   *SC* **148.1.1.1**   *P* **213**   *L* **21**   # 263
Kim, Yong   NIO

Comment Type   **E**   *Comment Status* **D**   *Editorial*

It would be good to say, "The conventions of 21.5 are adopted, with the following extensions." and replace the existing first sentence with it. The value of doing this is that a reader is informed that all stated conventions are common, and additoinal IF-THEN-ELSE-END was added in this clause.

SuggestedRemedy

Please consider the suggestion.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "The notation used in the state diagrams follows the conventions of 21.5. Some..." to "The conventions of 21.5 are adopted with the extension that some."

Cl **148**   *SC* **148.2**   *P* **213**   *L* **39**   # 264
Kim, Yong   NIO

Comment Type   **TR**   *Comment Status* **D**   *PLCA*

"The working principle of PLCA is that transmit opportunities on a multidrop network are granted in sequence based on a node ID unique to the local collision domain (set by the management entity)." I agree with sense of this sentence WRT to PLCA, and PLCA looks to be an alternate medium access control.

SuggestedRemedy

CSD concern. Also see slide 7~10 of
http://www.ieee802.org/3/cg/public/Nov2018/Kim_3cg_01a_1118.pdf

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
No changes to the draft.

Detail follow, breaking down each statement contained in the mentioned presentation and responding:

Statement: CSMA/CD MAC is specified ("architected") to be a full-duplex datapath - as in TX path has no dependency to RX
states. And vice versa. COL and TX states has no effect on RX path.
>>Response: this is correct, this is specified by the means of Pascal code, which is the mandatory part of CL4. This statement proves that PLCA is compatible with CL4 MAC specifications.

Statement: "Transmitter honors CRS as "HOLD the TX" before starting to transmit. CRS is no-op until CRS deasserts."
>>Response: this statement is imprecise (incomplete) and contains a fundamental mistake which leads to wrong conclusions in slides 9-10. The CL4 MAC does not always hold the TX when CRS is asserted, in fact once CRS is de-asserted the MAC, as specified, is going to transmit a packet (after IPG) despite CRS being asserted again. This was done to mitigate the unwanted CSMA/CD "capturing" effect as explained in Clause 4. This behavior is the reason for which PLCA was designed to use both CRS and COL and represents the fundamental reason for which nothing but CSMA/CD can work in conjunction with a Clause 4 MAC (no token rings/bus, no TDMA, no 802.11 style MAC).

Statement: "Transmitter honors COL as "ABORT TX" with appropriate abort procedure (send rest of preamble + JAM 32)"

>>Response: this is imprecise. The MAC, as specified, reacts to COL by interrupting (aborting) the TX immediately and sending additional 32 bits of random data (JAM).

Statement: "Receiver receives so long as data is valid, and processes with appropriate procedure (FCS check, address filters,
etc)"
>> Response: this is correct if referred to the CL4 MAC ("Receiver" is vague, nor the PHY not the RS perform FCS checking or address filtering).

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **148**
SC **148.2**

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Statement: "CL148 uses these independent TX and RX datapath definitions in CL4. And then inserts its own Media Access
Control - that uses Node=0 as the master transmit opportunity sync generator, et cetera."
>>Response: the PLCA RS maps MII to PLS (MAC) primitives. It cannot work without a Clause 4 MAC. The Media Ccess Control functions are the ones implemented in the Clause 4 MAC, which is not modified by 802.3cg standard.

Statement" "CL148 PLCA "RS"
- Holds back TX using CRS
- Inhibits COL when there is contention condition.
- NodeID = 0 sends access permission to all the nodes."
>>Response: COL is not inhibited by PLCA RS, the statement is just wrong. If you look at PLCA Data State Diagram and related definitions in Clause 148 you can clearly see that in case the PHY detects a physical collision on the line (which is not supposed to happen in a properly configured system), COL is conveyed to the MAC via the PLS_SIGNAL.indication primitive, and the MAC, as specified, handles the collision according to CSMA/CD rules. This is also explained in
http://www.ieee802.org/3/cg/public/Sept2018/beruto_3cg_mixing_PLCA_with_non_PLCA_enabled_nodes_r1.2.pdf.
Regarding the "NodeID = 0 sends access permission." statement, it looks like to be crafted on purpose to induce the reader in believing that complex messages/information is conveyed via some protocol between PLCA RSs, which is completely false. The PLCA RS configured with NodeID = 0 (called PLCA coordinator) periodically requests its attached PHY to send a signal on the line to allow other nodes to reset a counter and compensate for clock drifts. This is conceptually similar to what most pt2pt PHYs do when they elect a master that sends IDLE symbols to allow the slave PHY to properly recover the clock.

Statement: "CL148 (PLCA) is a new MAC. "
>>Response: PLCA is not a MAC, it lacks the most important requirement of a MAC as stated in Clause 4. The functions of data encapsulation, framing, addressing, error checking, and even contention resolution (noting resolution can only happen when there is contention on the medium) are all performed by the Clause 4 MAC, not Clause 148. The interface to the MAC Service Access Point is with Clause 4, not 148. See also the full response to comment #322.

Statement: "The fact that it interfaces to the CL4 MAC without modification is a distraction to seeing what CL148 is - a new MAC"
>>Response: if PLCA was a new MAC, it would work stand-alone without a CL4 MAC. This is not the case. PLCA merely improves CSMA/CD performance in a specific situation (short propagation delays, low number of nodes).

Statement: "But if CL148 is declared to be just an alternate RS Sub-Layer, then I could see some very liberating possibilities and consequences of new class of RS sub-layers (assuming >75% approval) - being a bit silly here." - See also pictures in slide 9.
>>Response: it is not possible to do as the commenter suggests because you're limited by what a Clause 4 CSMA/CD MAC allows you to do. See the above responses.

Summary in slide 10 is based on the assumptions of the previous slides which have been

shown to be wrong.

| Cl **148** | SC **148.2** | P **213** | L **45** | # 261 |

Kim, Yong   NIO

Comment Type   **ER**   *Comment Status* **D**   *Editorial*

"avoiding physical collisions" should just be "avoiding collisions". Collisions on the medium.   There is no other kind.   The other collision "local collision" referred to in CL148 is more of access control and asserting COL signal in order to do access control. Readers of 802.3 understand collision, and introducing two new terms would be confusing without any derived benefit.

SuggestedRemedy

Consider and do so (accepting this comment means careful global search and repace of "physical collision")

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve with #223.

Resolution of comment #223 is:
There are 3 parts to this comment, so all 3 will be addressed.
A. "local collision" - There is no such thing as a local collision in the draft. There is only the 'local collision domain', where local refers to the domain, not the collision. The term collision domain is used as defined in 1.4.203.
B. "logical collision" - In this case, the term collision will suffice. Delete use of "logical collision" in the only two places it occurs:
148.4.6.1, P224 L6: Delete "This is called a logical collision."
148.4.6.1, P225, L10: Change "and a logical collision is triggered" to "and a collision is triggered"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   Cl **148**   Page 80 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   SC **148.2**   1/4/2019 8:18:33 AM
SORT ORDER: Clause, Subclause, page, line

Cl **148**   *SC* **148.2**   *P* **213**   *L* **48**   # 259
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

the node with ID = 0 (PLCA Coordinator) specification is absent. Searching for coordinator finds this reference and AN section, and no where any specification WRT to the coordinator function.

SuggestedRemedy

Without the coorinator function, how it is assigned, the draft is incomplete. CSD concern.
Also see slide 11~13 of
http://www.ieee802.org/3/cg/public/Nov2018/Kim_3cg_01a_1118.pdf

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Commenter provides no proposed remedy, only further comment text.

Regarding the part concerning AN, this has been accomodated by #148.
Comment #148 resolution is:
"
1) remove A20 and A21 entries from table 98B-1
2) delete "7.526.5 and 7.526.4" entries from table 45-330a
3) delete subclause 45.2.7.25.7 and 45.2.7.25.8
4) remove entries AM102 and AM103 from table 45.5.3.9 at page 71
"
Regarding the part of the comment about CSD concerns, this is considered as a reject.

Detail follow, breaking down each statement contained in the mentioned presentation and responding:

Statement: "In CL148, parameters required to operate, and interoperate, and provide compatible behaviors are missing.
- How NodeID = 0 is assigned (or how the node is elected/assigned to be node 0)
- How NodeID = 0 is unique (no duplication), lost (power down), etc
- How other Nodes get their IDs. Et cetera, et cetera, et cetera.
These are examples of necessary specifications to assure interoperability that are declared to be out-of-scope of CL148."
>>Response: NodeID is specified to be assigned by the means of management, which is NOT optional. Commenter is confused about the fact that MDIO is optional, but as stated in the specifications in case MDIO is not provided, an equivalent mean of setting the required parameters shall be provided.

Slide #13 conclusions are based on the above assumption which have been proven to be incorrect.

Cl **148**   *SC* **148.2**   *P* **213**   *L* **48**   # 262
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Editorial*

What is "new cycle" and later "PLCA cycle"? The term is used without definition or clear reference. Also this text indicates BEACON indicates start of new cycle, but RESYNC also starts new cycle from node ID <> 0, in presumablly exception handling case. Shouldn't we know how node ID =0 function (coordinator) behaves to implementj a system?

SuggestedRemedy

Define or specifiy [PLCA] cycle somewhere and provide a reference to it.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change, "cycle" to "cycle of transmit opportunities" at P213 L48, P219 L26, and P219 L29.
Change "PLCA cycle" to "cycle of transmit opportunities" on P218 L41.

Cl **148**   *SC* **148.2**   *P* **213**   *L* **52**   # 265
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

CSMA/CD -- Carrier Sense, Multiple Access, Collision Detect. Multiple Access has to do with fairness to access the network. How does invidually and optionally enabling multiple transmit opportunities preserve fairness? I did not see any presenations in the .3cg project area nor in this draft

SuggestedRemedy

CSD concern, WRT to compatibility (at the network system level, on fairness part of Ethernet).

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter provides insufficient information to identify comment with the text, and insufficient information for a remedy. Proposed remedy is merely more comment. The referenced text could not possibly be a CSD violation impacting compatibility because it is informative, and not normative.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
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SC **148.2**

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Cl **148**	*SC* **148.4.1**	*P* **214**	*L* **47**	*#* 266

Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   *Editorial*

"Within the scope of Clause 148, the term Reconciliation sublayer (RS) is used to denote any
IEEE 802.3 Reconciliation sublayer (RS) used to interface a MAC with any Physical Layer Entity supporting
the PLCA capability through the MII". The use of word "any" in two places are problematic.   Delete the both instances of "any" in this sentence. Otherwise, it looks to have an intention is to use PLCA with other speeds and other medium -- and if that is the case, do that in a separate CFI.

SuggestedRemedy

Please Delete the both instances of "any" in this sentence.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by #132.

Comment #132 resolution is:
"
Replace the quoted text with "This subclause specifies services provided by the PLCA RS as an extension to the MII RS specified in Clause 22.
"

Cl **148**	*SC* **148.4.1**	*P* **214**	*L* **47**	*#* 132

Beruto, Piergiorgio   Canova Tech Srl

Comment Type **E**   *Comment Status* **D**   *Editorial*

After removal of the "Generic RS" concept from C148 the following text does not make sense anymore: "This subclause specifies services provided by an extension to the Reconciliation sublayers specified in
Clause 22. Within the scope of Clause 148, the term Reconciliation sublayer (RS) is used to denote any
IEEE 802.3 Reconciliation sublayer (RS) used to interface a MAC with any Physical Layer Entity supporting
the PLCA capability through the MII."

SuggestedRemedy

Replace the quoted text with "This subclause specifies services provided by the PLCA RS as an extension to the MII RS specified in Clause 22.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **148**	*SC* **148.4.4**	*P* **217**	*L* **24**	*#* 268

Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

148.1 states "PLCA is defined for half-duplex mode of operation only. The PLCA RS is specified for operation with the PHY defined in Clause 147 (10BASE-T1S).". So perhaps 148.4.4. should reference relevant clauses in 147 -- it would be specific and reader friendly, and avoid making non-normative statements such as "PHYs are free to map the BEACON request to any suitable line coding as long as the requirements defined
herein are met." in line 41. And similar comment to COMMIT, etc.

SuggestedRemedy

I do not see the [incomplete] generic PHY mapping, when PLCA is tightly coupled with 10BASE-T1S half-duplex PHY.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text out of scope for recirculation, text was unchanged, and does not fix a problem.

Besides, the text written as it is does not prevent other PHYs to adopt C148 RS in the future.

Cl **148**	*SC* **148.4.4.1.1**	*P* **217**	*L* **32**	*#* 267

Kim, Yong   NIO

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

148.4.4 says "Requirements for the PHY".   The text in 148.4.4.1.1 says "The BEACON function is specified in 148.4.5.1.",   And 148.4.5.1 specifies Beacon control function overall. It does NOT clearly contain requiremetns for support of BEACON in PHY.

SuggestedRemedy

Provide a better referece to only the PHY requirement that supports the PLCA function.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Text out of scope for recirculation, text was unchanged, and does not fix a problem.
See also #268.

Commenter is incorrect. The remainder of 148.4.4.1.1 contains 2 "shall" requirements on the PHY. (one of them mentioned in comments 270 by same commenter). The reference he mentions here is an informative reference tying the reader to how the BEACON works in the clause 148 State Diagram.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **148**   Page 82 of 86
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   *SC* **148.4.4.1.1**   1/4/2019 8:18:33 AM
SORT ORDER: Clause, Subclause, page, line

Cl **148**   *SC* **148.4.4.1.1**   *P* **217**   *L* **36**   # 270
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Editorial*

"Upon the reception of this request, the PHY shall send a message over the media for other PHYs to decode and report to their respective RS via MII interface as specified in 22.2.2.8." -- I am probably confused. This text read by itself sounds like 22.2.2.8 compliance means getting RS state of remote node via remote PHY through PHY sending a message.

SuggestedRemedy

I hope you did not mean how I read it. If you agree, please correct the text -- if this sub clause is kept (I have a separate comment to consider deleting all and do tight coupling to CL147 PHY)

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace "send a message over the media for other PHYs to decode and report to their respective RS via MII interface as specified in 22.2.2.8." with "encode and transmit a signal communicating the BEACON to other PHYs on the segment so that they generate a BEACON indication."

Cl **148**   *SC* **148.4.5.1**   *P* **218**   *L* **1**   # 309
Jones, Peter   Cisco Systems

Comment Type **E**   *Comment Status* **D**   *Editorial*

In D2.2, we changed from "PHY" to "node" in text, looks like we missed Equation (148-1).

SuggestedRemedy

changes Equation (148-1) from "Skew across PHYs" to "Skew across nodes"

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

Cl **148**   *SC* **148.4.5.1**   *P* **218**   *L* **23**   # 271
Kim, Yong   NIO

Comment Type **T**   *Comment Status* **D**   *PLCA*

Pile on: PLCA RS as described in 148.4.5.1 behaves as an alternate Medium Access Control.

SuggestedRemedy

CSD concern. Also see slide 7~10 of http://www.ieee802.org/3/cg/public/Nov2018/Kim_3cg_01a_1118.pdf for MAC compatibiltiy, and Slides 11~13 for PnP compatibility

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter is incorrect. See comment #322 for detailed discussion of media access control issues.
Referenced presentation and slide deal with management, not media access control. See comment #259 for detailed discussion of management parameters.
Commenter provides insufficient information to identify comment being piled onto.
Commenter provides insufficient remedy.

Detailed discussion of referenced presentation slides:
Slide 11: "Management is optional" - Statement is incorrect, while the implementation of clause 45 MDIO registers is optional, the management entity is a part of the 802 system. It is never specified that management is optional. It is desirable that systems function without management, but understood throughout IEEE Std 802.3 that this means they may not have access to advanced features. Necessary features are provided by management, sometimes specified or assumed to be present even without a management interface (e.g., resets, or, see, e.g., 115.11). Systems incorporating clause 148 will function by default when not configured or misconfigured, but without the performance enhancement offered if correctly configured by management. See also http://www.ieee802.org/3/cg/public/Sept2018/beruto_3cg_mixing_PLCA_with_non_PLCA_enabled_nodes_r1.2.pdf.

Moreover, slide 12 of http://www.ieee802.org/3/cg/public/Nov2018/Kim_3cg_01a_1118.pdf merely provides example parameters, and slide 13 merely conclusory statements based on the incorrect statement of slide 11.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **148**
SC **148.4.5.1**

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Cl **148**   *SC* **148.4.5.1**   *P* **218**   *L* **32**   # 269
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *PLCA*

"To achieve error free operation the PLCA node should be configured appropriately before
transmit functions
are enabled." -- While this is good thought, it is not useful unless the spec completes the
thought on how we achieve that.   Please delete the unnessary text or add text to make
this statement more useful

SuggestedRemedy

Please delete, or add text on how.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Insert the following after the referenced sentence:
"Appropriate configuration includes: a) each local_nodeID is unique to the local collision
domain,
b) there is one and only one node with local_nodeID = 0 on the local collision domain,
c) the transmit opportunity timer (to_timer) is set equal across all the nodes on the local
collision domain,
d) on the node with local_nodeID = 0, plca_node_count is set to the number of nodes on
the local collision domain"

Cl **148**   *SC* **148.4.5.1**   *P* **220**   *L* **7**   # 349
Brandt, David   Rockwell Automation

Comment Type **T**   *Comment Status* **D**   *Burst Mode*

It is not clear how the other nodes are kept in synchronization with a node that is using
burst mode. Nodes do not know about each other's burst configuration, and can only track
burst operation by transmit and receive information. A non-burst node is in WAIT_TO and
starts it's to_timer. Once the burst nodes sends it's first transmission, CRS becomes true
and the other nodes go to EARLY_RECEIVE and then to RECEIVE. Now CRS becomes
false and the other nodes go to NEXT_TX_OPPORTUNITY, where curID is incremented.
Essentially, the other nodes think the current transmit opportunity has ended when the
to_timer expires, or something is received.

SuggestedRemedy

Maybe there could be another symbol indicating BURST? The burst node would send the
symbol and the other nodes would return to the WAIT_TO state without incrementing curID.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following sentence at p218 line 20 after "in which case rx_cmd shall be set as
specified in 148.4.4.2.1.":
"The PHY shall assert CRS when a COMMIT indication is detected".

After a receiving node goes into the "RECEIVE" state it will actually remain in such state
until the burst is over because CRS is not going to be de-asserted by the 10BASE-T1S
PHY. The reason for this is that the bursting node appends (with no gaps) a "COMMIT"
request to each packet in a burst, which makes the PHY keep the CRS asserted.

However, even if 10BASE-T1S (which at the moment is the only PHY specifying support
for PLCA) already asserts CRS is presence of a COMMIT, such bechavior is not clearly
indicated in C148, and for this reason this comment is proposed to be accepted in principle.

Cl **148**   *SC* **148.4.5.1**   *P* **220**   *L* **36**   # 121
Beruto, Piergiorgio   Canova Tech Srl

Comment Type **TR**   *Comment Status* **D**   *State Diagram*

When RECOVER state is reached through the EARLY_RECEIVE state, the curID variable
need to be reset as in all the other cases.

SuggestedRemedy

Move "curID <= 0" statement from "RESYNC" state to "SYNCING" state

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **148**
SC **148.4.5.1**

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Cl **148**   *SC* **148.4.5.1**   *P* **221**   *L* **24**   # 348
Brandt, David   Rockwell Automation

Comment Type **E**   *Comment Status* **D**   *EZ*
Equations for the two exit conditions from state COMMIT are not separated and not clearly matched to exit arrows.

SuggestedRemedy
Separate "TX_EN" (left arrow) and "!TX_EN * !packetPending" (right arrow).

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

Cl **148**   *SC* **148.4.5.1**   *P* **221**   *L* **38**   # 119
Beruto, Piergiorgio   Canova Tech Srl

Comment Type **TR**   *Comment Status* **D**   *Burst Mode*
Exit condition from BURST state when burst_timer is done is not correct for two reasons:
1. CRS is asserted when COMMIT is transmitted, so exit condition is always FALSE.
2. tx_cmd is not reset to None in this case

SuggestedRemedy
Do the following:
1. remove transition from BURST state to NEXT_TX_OPPORTUNITY
2. Add a new state box below BURST state named ABORT
3. In the ABORT state box add the following statement: "tx_cmd <= NONE"
4. Add a transition arrow from BURST state to ABORT state with the following condition: "!TX_EN * burst_timer_done"
5. Add transition arrow from ABORT state to NEXT_TX_OPPORTUNITY with the following condition: "!CRS"

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

Cl **148**   *SC* **148.4.5.1**   *P* **221**   *L* **50**   # 122
Beruto, Piergiorgio   Canova Tech Srl

Comment Type **T**   *Comment Status* **D**   *PLCA*
plca_node_count is driven by management interface, therefore it may change in the middle of a PLCA cycle. If this happens the control state machine could end up in a loop until the curID counter wraps around.

SuggestedRemedy
In transition from NEXT_TX_OPPORTUNITY to "B" connector replace "curID = plca_node_count" with "curID >= plca_node_count". In other words replace the equality operator with "greater or equal" sign.

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

Cl **148**   *SC* **148.4.5.2**   *P* **222**   *L* **33**   # 272
Kim, Yong   NIO

Comment Type **ER**   *Comment Status* **D**   *Editorial*
"helper variable, defined as.".   Unncessary text. I thought I commented this on D2.1.

SuggestedRemedy
Change to "Defined as.."

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

Cl **148**   *SC* **148.4.5.2**   *P* **223**   *L* **3234**   # 273
Kim, Yong   NIO

Comment Type **TR**   *Comment Status* **D**   *Burst Mode*
CSMA/CD -- Carrier Sense, Multiple Access, Collision Detect. Multiple Access has to do with fairness to access the network.   How does invidually and optionally enabling multiple transmit opportunities preserve fairness?   The range of 0..255 includes potential transport protocol timeouts by starving other nodes.

SuggestedRemedy
CSD concern, WRT to compatibility (at the network system level, on fairness part of Ethernet, and timeout concerns in upper layer transport protocols in use.   Define number narrowly to practical lower bound, if this # is kept in the draft.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
While comment mentions fairness, CSD, and compatibility, commenter provides insufficient information to connect this to the referenced text and remedy which is related to the bounds for the variable max_bc.

The range of 0..255 is a reasonable number. This can be explained because the max_bc is related to the product of the ratio between the maximum allowed packet size and the minimum allowed packet size on the network, which is ~24, and the number of nodes. Therefore for an 8 node network, max_bc could reasonably be as big as 192.

Burst mode is designed to intentionally unbalance the fairness in favor of specific nodes to achieve better performance in specific cases. In conclusion this is a desired (optional) feature, not a side-effect of PLCA.
Burst mode is described here
"http://www.ieee802.org/3/cg/public/Nov2018/beruto_3cg_PLCA_burst_mode_revB%20.pdf
" and one of its possible use cases is described here
"http://www.ieee802.org/3/cg/public/Nov2018/xu_3cg_01b_1118.pdf"

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
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SC **148.4.5.2**   1/4/2019 8:18:33 AM

Cl **148** *SC* **148.4.6.4** *P* **228** *L* **51** # 274
Kim, Yong NIO

Comment Type **TR** *Comment Status* **D** *PLCA*

Use of commit_timer is not merited. All packets are atomically transferred above the RS. This type of counter woud only be relevant if this function is implemented in PHY. If the intent is support the function in the PHY sideof PCS, then make it explicit. BTW, the name is a bit misleading too. The burst_wait_timer or such would be more descriptive (if this comment is rejected).

SuggestedRemedy

Delete this timer and adjust the statemachnies with the traditional model of atomic transfer of whole packet.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The commenter is probably confused about the meaning and purpose of the commit timer (e.g. it is not related to burst mode).

The reason for having the commit timer is to avoid PLCA Data State Diagram getting stuck forever in WAIT_MAC state in case at that specific time the MAC is reset for any reason.

This is also explained in
http://www.ieee802.org/3/cg/public/Sept2018/beruto_3cg_mixing_PLCA_with_non_PLCA_enabled_nodes_r1.2.pdf slide #5.

Cl **148** *SC* **148.4.6.4** *P* **228** *L* **53** # 310
Jones, Peter Cisco Systems

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

Incorrect state name

SuggestedRemedy

change "WAIT_MAC_STATE" to "WAIT_MAC"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "WAIT_MAC_STATE" to "WAIT_MAC state"

That was a typo.

Cl **148** *SC* **148.4.7.4** *P* **230** *L* **15** # 275
Kim, Yong NIO

Comment Type **TR** *Comment Status* **D** *PLCA*

It seems this timer is very much relevant to interoperability and overall system operation. So I do not believe it should be left to the implmenntation without an upper bound. "the duration of this timer is implementation dependent and should be at least 2 × (to_timer × plca_node_count + beacon_timer).

SuggestedRemedy

If you agree WRT to relevancy, spec the upper bound.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "Duration: the duration of this timer is implementation dependent and should be at least 2 × (to_timer × plca_node_count + beacon_timer)." to "Duration: the duration of this timer is 130 090 bit times, which is 2 × (max to_timer × max plca_node_count + beacon_timer)."

Rationale:
Since the maximum allowed value for to_timer is 255, the maximum allowed value for plca_node_count is 255 and the beacon_timer is defined as 20 bit times, it looks reasonable to have plca_status_timer be defined as 130 090 bit times.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

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