Cl **45** *SC* **45.2.3.68c** *P* *L* # r01-203

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-225 withdrawn in the comment database.

Cl **30** *SC* **30.3.9.2.3** *P* *L* # r01-212

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-267 withdrawn in the comment database.

Cl **148** *SC* **148.1** *P* *L* # r01-211

Thompson, Geoffrey Independent Consultant

Comment Type **ER** *Comment Status* **D** *PLCA_Overview*

The new text is much better. I believe it needs a few tweaks which I believe should be acceptable to the group.

SuggestedRemedy

Change the 1st paragraph of the text to read: This clause specifies <DEL: "a"> <INSERT: "an augmented"> reconciliation sublayer to provide optional Physical Layer Collision Avoidance (PLCA) capabilities among participating stations. The PLCA RS is specified for operation with Clause 147 (10BASE-T1S) PHYs operating in half-duplex multidrop mode. PLCA can be dynamically enabled or disabled via management interface. <INSERT: "When PLCA is disabled or the PHY is in full duplex mode, the reconciliation sublayer function specified in clause 22 is used.">

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter.
Current wording is considered to describe the PLCA RS appropriately.
The commenters' suggested additional text would introduce technical inaccuracies and ambiguities in what is a high-level descriptive statement.

Cl **147** *SC* **147.5.1** *P* *L* # r01-209

Thompson, Geoffrey Independent Consultant

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

Remedy accepted. This is no longer a DISAPPROVE comment

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-252 closed in the comment database.

Cl **147** *SC* **147.3.7.2** *P* *L* # r01-207

Thompson, Geoffrey Independent Consultant

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

Remedy accepted. This is no longer a DISAPPROVE comment

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-250 closed in the comment database.

Cl **147** *SC* **147.1** *P* *L* # r01-206

Thompson, Geoffrey Independent Consultant

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

Remedy accepted. This is no longer a DISAPPROVE comment

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-242 closed in the comment database.

Cl **148** *SC* **148.2** *P* *L* # r01-213

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_ID*

My TR on this comment is not satisfied. It remains as an essential element of my DISAPPROVE vote.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
(Note - the referenced comment is i-268 - editor to mark comment i-268 Unsatisfied in database)
The CRG disagrees with the commenter. Comment provides no additional information with respect to comment i-268, only that comment i-268 remains unsatisfied.

Response to comment i-268 is:
REJECT.
CRG disagrees with the commenter:
The CRG specifically disagrees on these points:
[1] PLCA is an optional feature that still operates under misconfiguration. See http://www.ieee802.org/3/cg/public/Sept2018/beruto_3cg_mixing_PLCA_with_non_PLCA_enabled_nodes_r1.2.pdf
[2] The draft does not constrain how the value for PLCA node ID is obtained. There are many different ways to implement this.
[3] Defining an "automatic configuration app" may be a desirable feature, but is only one of a large set of possible solutions.
[4] Default operation is with PLCA turned off, allowing interoperable plug-and-play, and opportunity for the management entity to configure for improved performance.

Cl **45** *SC* **45.5.3.3** *P* *L* # r01-204

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-231 withdrawn in the comment database.

Cl **147** *SC* **147.5.6** *P* *L* # r01-210

Thompson, Geoffrey Independent Consultant

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

My TR on this comment is not satisfied. The REJECT text was non-responsive to the substance of the comment.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-256 unsatisfied in the comment database.

Cl **45** *SC* **45.2.1.185.2** *P* *L* # r01-202

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-221 withdrawn in the comment database.

Cl **45** *SC* **45.2.1.185** *P* *L* # r01-201

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-220 withdrawn in the comment database.

Cl **30** *SC* **30.3** *P* *L* # r01-200

Thompson, Geoffrey Independent Consultant

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

My TR on this comment is not satisfied. The REJECT text was non-responsive to the substance of the comment.

SuggestedRemedy

Implement originally proposed solution. I believe (at a minimum) that there needs to be an affirmative statement that the BEHAVIOUR is unchanged under PLCA.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is in reference to comment #i-215. The Comment for #i-215 is,
"aCollisionFrames; 30.3.1.1.31 aMACCapabilities; 30.3.1.1.32 aDuplexStatus"

The Suggested Remedy to #i-215 is,
"Examine each BEHAVIOUR for each of the listed attributes in the context of PLCA operation and augment the text definition of each BEHAVIOUR to cover operation in PLCA mode. This should explicitly cover whether an occurrence is an error in PLCA operation when such is not the case in CSMA/CD."

The Response to #i-215 is,
"The CRG disagrees with the commenter. PLCA does not to change the behavior of these attributes."

Commenter provides no new information for the CRG to consider and has an already-existing DISAPPROVE vote.

Cl **22** *SC* **22.2.2.4** *P* *L* # r01-199

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-213 withdrawn in the comment database.

Cl **9** *SC* **9.1** *P* *L* # r01-198

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *Multidrop*

This change is required to maintain the technical integrity of the 10 Mb/s portion of the standard. Your assertion that my proposed change is beyond the scope of this project is incorrect. As this is not "maintenance", it a necessary portion of the completeness of the project.

SuggestedRemedy

Implement originally proposed solution.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

(this comment is in reference to the commenter's initial SA ballot comment #i-212)

The CRG disagrees with the commenter.
The CRG re-affirms the full response to comment #i-212, shown below:

REJECT.
The CRG disagrees with the commenter. The commenter's suggested remedy goes beyond the scope of this amendment and potentially excludes PHYs beyond the project's scope.

(the commented-on text) reads (new text added by this project set off by >> <<)
"This clause specifies a repeater for use with IEEE 802.3 10 Mb/s baseband networks>>, with the exceptions of 10BASE-T1L (Clause) and 10BASE-T1S (Clause 147)<<. A repeater for any other IEEE 802.3 network type is beyond the scope of this clause."

The suggested remedy would have this changed this to:
"This clause specifies a repeater for use with half duplex IEEE 802.3 10 Mb/s baseband networks, with the exceptions of 10BASE-T1S (Clause 147). A repeater for any other IEEE 802.3 network type is beyond the scope of this clause."

The change requested by the commenter is too general, modifying clause 9 to only relate to half duplex 10 Mb/s baseband networks in general and would therefore change implications on IEEE 802.3 standard networks beyond the project's scope. In contrast, the existing text is sufficient and limited to only amend clause 9 to exempt the PHY types defined by this amendment.

Cl **00** *SC* **0** *P* *L* # r01-197

Thompson, Geoffrey Independent Consultant

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

I agree that the referenced material is not within the scope of comments that may be labeled as required. The substance of the comment is still true. Thus, the comment stands but is no longer "Required".

SuggestedRemedy

Implement originally proposed solution.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The CRG disagrees with commenter. Changing the historical front-matter would put this draft out-of-sync with the base-standard it is amending, with a differing description of history - something out of scope of the amendment. The proper place for this to be considered in the next revision of IEEE Std 802.3, where the ballot pool will be appropriately broad.

Editor to mark comment #i-207 closed, and remove from unsatisfied comment database.

Cl **146** *SC* **146.11.4.3** *P* *L* # r01-205

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-241 closed in the comment database.

Cl **148** *SC* **148** *P* *L* # r01-224

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_Scope*

Please consider this a "PILE ON" to Mr. Kim's comment i.390 on D3.0. I agree with his comment.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter provides no new information for the CRG to consider and has an already-existing DISAPPROVE vote.

Cl **00** *SC* **0** *P* *L* # r01-8

Berger, Catherine

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

This draft meets all editorial requirements.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # r01-227

Thompson, Geoffrey Independent Consultant

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

SCOPE OF DRAFT:
One of the responsibilities as a balloter is to ensure that the scope of the draft (including the scope statement in the draft, if any) is within the scope of the work authorized by the PAR.

(From the IEEE-SA Ballot Instructions)
An affirmative vote indicates your agreement that the scope of the draft does not exceed the work authorized by the PAR.

I vote DISSAPROVE ballot on the basis that the inclusion of clause 148 and its related text are beyond the scope of the approved PAR. The function of the specification of the shared media access method belongs within the boundaries of the Media Access Control sublayer of the ISO Data Link Layer per the long standing text in clauses 1.1.3.1 and 1.1.4.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The commenter provides insufficient information on specific text changes to the draft which would satisfy the commenter.
(The references to 1.1.3.1 and 1.1.4 provide no additional clarity or information.
The referenced subclauses refer to the division of 802.3 on architectural lines, but do not provide any information on technical issues specifically in conflict with this draft.)

The CRG disagrees with the commenter. The CRG disagrees with the commenter, and believes the draft is within the PAR scope.
A key responsibility of the ballot pool is to evaluate whether the scope of the draft is within the scope of the PAR, and an affirmative vote indicates your agreement that the work does not exceed the scope of the PAR. The ballot pool has voted in the affirmative.
This comment is essentially a restatement of the arguments in previously rejected comments i-27 and i-270, and are not associated with a new disapprove vote.
The majority of the CRG believes that the functions are appropriately placed in the architecture of IEEE Std. 802.3 and ISO layering model.

Cl **30** *SC* **30.3.9.2.6** *P* *L* # r01-226

Thompson, Geoffrey Independent Consultant

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

Please consider this a "PILE ON" to Mr. Kim's comment i.400 on D3.0. I agree with his comment. After 38+ years in the marketplace there is a significant amount of interlayer behavior that is unspecified but assumed and depended upon for Ethernet operation. Breaking those assumptions will have a severe negative impact on the Broad Market Potential.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The CRG disagrees with the commenter.

Comment #i-400 is: "Capability for aPLCAMaxBurstCount set to 255 packet bursts would significantly impact fairness ("multiple-access") and would cause upper layer protocol time-outs."

The response of the CRG is: "REJECT. The CRG disagrees with the commenter. The comment regarding upper layer protocols is protocol specific, which is outside the scope of IEEE 802.3. The commenter did not provide a proposed resolution in sufficient detail to readily determine the specific wording of changes that will cause him to change his vote to approve (see SASB Ops Manual clause 5.4.3.2,b)."

Commenter provides opinion that he believes this may impact market adoption, but no new information related to the scope of "upper layer protocols" for the CRG to consider, nor does he provide additional information necessary for a sufficient remedy.

Cl **147** *SC* **147.4** *P* *L* # r01-208

Thompson, Geoffrey Independent Consultant

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

Remedy accepted. This is no longer a DISAPPROVE comment

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-252 closed in the comment database.

Cl **148** *SC* **148** *P* *L* # r01-225

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_Scope*

Please consider this a "PILE ON" to Mr. Kim's comment i.393 on D3.0. I agree with his comment.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter provides no new information for the CRG to consider and has an already-existing DISAPPROVE vote.

Cl **148** *SC* **148.3** *P* *L* # r01-214

Thompson, Geoffrey Independent Consultant

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

My TR on this comment is not satisfied. It remains as an essential element of my DISAPPROVE vote.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
(Note - the referenced comment is i-270 - editor to mark comment i-270 Unsatisfied in database)
The CRG disagrees with the commenter. Comment provides no additional information with respect to comment i-270, only that comment i-270 remains unsatisfied.

Response to comment i-270 is:
REJECT.
The CRG disagrees with the commenter's description of layering and the proper placement of PLCA in the layering model. PLCA performs the functions delegated by the 802.3 layer model to the physical layer - carrier sense and collision detection. Commenter seems to posit an implementation which is not described in the amendment, where the PLCA sublayer interfaces to the MAC via an MII. (a "top MII" per the commenter), whereas PLCA maintains the layering and communicates to the MAC via the primitives PLS_CARRIER and PLS_SIGNAL defined in IEEE Std 802.3, and communicates with the remainder of the physical layer through the MII interface. For more detail on how PLCA relates to OSI layering please see http://www.ieee802.org/3/cg/public/adhoc/brandt_020619_3cg_01a_adhoc.pdf.
Additionally, the fact that PLCA-enabled half-duplex CSMA/CD stations may operate with and coexist with non-PLCA enabled half-duplex CSMA/CD stations on the same mixing segment is evidence that the PLCA RS is located beneath the CSMA/CD MAC and not a new MAC function in itself. See http://www.ieee802.org/3/cg/public/Jan2019/Tutorial_cg_0119_final.pdf and http://www.ieee802.org/3/cg/public/Sept2018/beruto_3cg_mixing_PLCA_with_non_PLCA_enabled_nodes_r1.2.pdf

Cl **00** *SC* **0** *P* *L* # r01-220

Thompson, Geoffrey Independent Consultant

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

Please consider this a "PILE ON" to Mr. Robinson's comment i.27 on D3.0. I agree with him that the layering of PLCA is incorrect and beyond the scope authorized in the PAR.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter provides no new information for the CRG to consider and has an already-existing DISAPPROVE vote.

Cl **148** *SC* **148.4.6.1** *P* *L* # r01-216

Thompson, Geoffrey Independent Consultant

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

Remedy accepted. This is no longer a DISAPPROVE comment

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-276 closed in the comment database.

Cl **148** *SC* **148** *P* *L* # r01-218

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_Scope*

Please consider this a "PILE ON" to Mr. Grow's comment i.47 on D3.0. I agree with the referred to comment in its entirety.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter provides no new information for the CRG to consider and has an already-existing DISAPPROVE vote.

Cl **148** *SC* **148.4.5.1** *P* *L* # r01-217

Thompson, Geoffrey Independent Consultant

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

Withdrawn

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-428 withdrawn in the comment database.

Cl **148** *SC* **148** *P* *L* # r01-219

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_Scope*

Please consider this a "PILE ON" to Mr. Grow's comment i.48 on D3.0. I agree with the referred to comment in its entirety.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Commenter provides no new information for the CRG to consider and has an already-existing DISAPPROVE vote.

Cl **30** *SC* **30.2.2.2.1** *P* **0** *L* # r01-196

Thompson, Geoffrey Independent Consultant

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

My TR on this comment is not satisfied. The REJECT text was non-responsive to the substance of the comment. Whether a statistic appears in a Managed Object is independent of whether or not the same information can be derived from local register bits. Register bits are for local access. Managed Object information is for access by largely remote management applications. This statistic will be needed by such applications. My original comment stands.

SuggestedRemedy

Implement originally proposed solution.

Proposed Response *Response Status* **W**

Defer to George.

Reference comment #i-205. The Comment for #i-205 is, "As I think I understand PLCA the occurance of collision at any point during reception is an error. If that is the case, then collision (in the presence of PLCA operation) should be added to the list of error statistics in this clause."

The Suggested Remedy to #i-205 is,
"See comment."

The Response to #i-205 is,
"The CRG disagrees with the commenter. Collisions on the media in the presence of PLCA operation are already counted by the bits in register 3.2294.15:0 (see 45.2.3.68f.1). No change is required."

The CRG disagrees with the commenter. The management parameters reported in 30.2.2.2.1 are for DTE MAC sublayer functions. The reported statistic is a physical layer function, and not a MAC layer function. Collisions at the MAC layer will be counted as normal. PLCA is a physical layer mapping function, and hence counting statistics related to it in the MAC sublayer is not appropriate.

Cl **00** *SC* **90.1** *P* **0** *L* **0** # r01-90

Jones, Peter Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **D** *TSSI*

802.3cg should support the TSSI. I don't believe that the TF discussed the pros/cons of supporting PTP or decided not to support PTP on 10BASE-T1S half-duplex point to point or multidrop. A significant portion of the applications for 10BASE-T1S will need precision time support.

SuggestedRemedy

Replace "The TSSI is defined for the full-duplex mode of operation only." with "The TSSI is defined for the full-duplex mode of operation, as well as clause 147 half-duplex point-to-point and multidrop."

Add the following paragraph to the end of 90.4.3.1.1 Semantics
"When using the half-duplex mode of operation, multiple TS_TZ indications may be produced for a single MA_DATA.request as a result of collisions on the media. The TimeSync Client should always use the last indication corresponding to a given MA_DATA.request."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

TFTD

The CRG disagrees with the commenter. The comment is out of scope of the recirculation, bringing new text, unrelated to changed text into the draft on the recirculation.

This change would introduce new functionality into the draft beyond the existing text or approved project objectives.

Cl **00** *SC* **0** *P* **1** *L* **1** # r01-71

Graber, Steffen Pepperl+Fuchs GmbH

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

There are some typos/small editorial things, which need to be corrected in D3.1.

SuggestedRemedy

P45, L35: remove the dot after the double dot.
P65, L8: Change "Table 45-331" to "Table 45-338".
P67, L32: add a space before "as follows".
P68, L26 Change "PD Extended Class (13.3.11:0)" to "Assigned Power (13.3.11:0)"
P98, L31: Remove the second dot.
P101, L10: Change "... as specified by Clause , and ..." to "... as specified by Clause 146 and ..." (add Clause 146 number).
P112, L37: Change "DC Loop resistance6(ohm symbol)" to "DC Loop resistance"
P120, L52: Change reference to 146.3.3.
P122, L4: Change "loc_rcvr_status" to "rem_rcvr_status"
P134, L1: Change headline of 146.3.3.4 from "Generation of scrambled bits Sdn[3:0]" to "Data and idle stream scrambling".
P135, L10: Change 2^(33-1) to 2^33-1 (where -1 is not in superscript)
P136, L39: Add a space between "2" and "or".
P183, L43: Add 146.7.2.1 in subclause column.
P184, L6: Change "Meets electrical requirements ..." to "Electrical requirements ..."
P255, L24: Change "10BASE-T1L full duplex ability" to "10BASE-T1L capability".
P255, L27: Change "10BASE-T1S half duplex ability" to 10BASE-T1S capability".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor's note (to be deleted after comment resolution): Response is the same as the Suggested Remedy except for the change proposed for P68, L26.

P45, L35: remove the dot after the double dot.
P65, L8: Change "Table 45-331" to "Table 45-338".
P67, L32: add a space before "as follows".
P68, L26 Change "PD Extended Class (13.3.11:0)" to "PD Assigned Power (13.3.11:0)"
P98, L31: Remove the second dot.
P101, L10: Change "... as specified by Clause , and ..." to "... as specified by Clause 146 and ..." (add Clause 146 number).
P112, L37: Change "DC Loop resistance6(ohm symbol)" to "DC Loop resistance"
P120, L52: Change reference to 146.3.3.
P122, L4: Change "loc_rcvr_status" to "rem_rcvr_status"
P134, L1: Change headline of 146.3.3.4 from "Generation of scrambled bits Sdn[3:0]" to "Data and idle stream scrambling".
P135, L10: Change 2^(33-1) to 2^33-1 (where -1 is not in superscript)
P136, L39: Add a space between "2" and "or".
P183, L43: Add 146.7.2.1 in subclause column.
P184, L6: Change "Meets electrical requirements ..." to "Electrical requirements ..."
P255, L24: Change "10BASE-T1L full duplex ability" to "10BASE-T1L capability".

P255, L27: Change "10BASE-T1S half duplex ability" to 10BASE-T1S capability".

Cl **00** *SC* **0** *P* **11** *L* **30** # r01-15

Maguire, Valerie — The Siemon Company

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

Yellow highlighting is unecessary

SuggestedRemedy

Remove yellow highlighting from "xx"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **12** *L* **52** # r01-16

Anslow, Peter — Ciena

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

A number of cross-references to the first level heading of Clause 146 now seem to point to the newly inserted editing instruction at the top of page 114.
This means that they now say "Clause " rather than "Clause 146".
The best way to fix this issue is to delete the T shaped cross-reference marker associated with the editing instruction. This will cause all of the incorrect cross references to become unresolved. Then doing an "Update Book" will identify all of the unresolved cross-references, which can then be replaced with a cross-reference to the Clause 146 first level heading.

SuggestedRemedy

Fix all of the cross-references that point to the editing instruction at the top of page 114.
This is at least :
Page 12, line 52
Page 32, line 9
Page 39, line 48
Page 40, line 6
Page 76, line 15 (cell is now empty)
Page 101, line 10
Page 175, line 2, line 7, line 36

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **12** *L* **52** # r01-95

Kabra, Lokesh — Synopsys, Inc.

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

Clause number missing

SuggestedRemedy

Replace "adds Clause through Clause 148" with "adds Clause 146 through Clause 148"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.1.3** *P* **28** *L* **31** # r01-96

Kabra, Lokesh — Synopsys, Inc.

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

Redundant "and" in the Note given above Figure 1-1

SuggestedRemedy

Replace "10BASE-T1S and 100 Mb/s and above" with "10BASE-T1S, 100 Mb/s and above"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Suggested remedy changes the context of the sentence. Further, the comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **01** *SC* **1.3** *P* **29** *L* **24** # r01-17

Anslow, Peter — Ciena

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

The references to IEC standards in 1.3 of the base standard do not include the Edition number, just the year.

SuggestedRemedy

Change "IEC 63171-1 Ed.1:201x," to "IEC 63171-1:201x,"
Change "IEC 63171-6 Ed.1:201x," to "IEC 63171-6:201x,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.3** *P* **29** *L* **24** # r01-158

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

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

The references to IEC 63171-1 and IEC 63717-6 do not meet the requirements of the IEEE-SA style guide to be normative references ("Normative references are those documents that contain material that must be understood and used to implement the standard.") Since these are not connected to requirements, they are informative, and should be moved to bibliographic references. (note this also potentially eases the situation with regards to when these standards finish relative to 802.3cg)

SuggestedRemedy

Add Bibliography to the amendment. Move references to IEC 63171-1 and IEC 637171-6 to the bibliography, along with the associated editor's notes.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.3** *P* **29** *L* **31** # r01-54

Anslow, Peter Ciena

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

The new editor's notes related to IEC 63171-1 and IEC 63171-6 say ;
"If IEC 63171-x is not referenceable by final circulation, then the entry for IEC 63171-x, this Editor's Note, and references to IEC 63171-x in this draft will be removed."
In 146.8.1 and 147.9.1, however, there are text figures and tables that depend on these references that would not make sense if just the references were removed.

SuggestedRemedy

In the two editor's notes, change:
"... this Editor's Note, and references to IEC 63171-x in this draft will be removed." to:
"... this Editor's Note, references to IEC 63171-x and any text, figures and tables dependent on these references in this draft will be removed."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

IEC 63171-1 and IEC 63171-6 are informative references and there are no text, figures, and tables dependent on them. This comment is accomodated by comment #r01-158.

The resolution to comment #r01-158 is:

Add Bibliography to the amendment. Move references to IEC 63171-1 and IEC 637171-6 to the bibliography, along with the associated editor's notes.

Cl **01** *SC* **1.4.151** *P* **30** *L* **14** # r01-97

Kabra, Lokesh Synopsys, Inc.

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

The given definition gives the false impression that 10BASE-T1S/L PHYs operate on a single twisted-pair copper.

SuggestedRemedy

Change definition to
PHYs that belong the set of specific Ethernet PCS/PMA/PMDs that operate on a single twisted-pair copper cable or single balanced pair of conductors, including 100BASE-T1, 1000BASE-T1, 10BASE-T1L, and 10BASE-T1S.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

BASE-T1's defining characteristic is that it operates on a single balanced twisted-pair cable. There are non-BASE-T1 PHYs that operate on balanced pairs of conductors (e.g., backplane PHYs) would end up meeting the new definition as proposed, so accepting the Commenter's Suggested Remedy would introduce an error. That BASE-T1 can also run on single balanced pair of conductors is not necessary in the definition.

Cl **01** *SC* **1.4.198** *P* **30** *L* **25** # r01-18

Anslow, Peter Ciena

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

"96.3" is an external cross-reference

SuggestedRemedy

Apply character tag "External" to make it forest green.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4.198** *P* **30** *L* **26** # r01-98

Kabra, Lokesh Synopsys, Inc.

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

The term "nibble" is already used for "four bits" in the second & third sentences. Maintain consistency

SuggestedRemedy

Replace "four bits" with "a nibble"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4.319** *P* **30** *L* **29** # r01-19

Anslow, Peter Ciena

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

Definition 1.4.319 has been renumbered to 1.4.318 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018

SuggestedRemedy

Change the editing instruction to "Change 1.4.318 (re-numbered from 1.4.319 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:"
Renumber the definition accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4.456** *P* **30** *L* **47** # r01-20

Anslow, Peter Ciena

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

Definition 1.4.456 has been renumbered to 1.4.455 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018

SuggestedRemedy

Change the editing instruction to "Change 1.4.455 (re-numbered from 1.4.456 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:"
Renumber the definition accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **01** *SC* **1.4.471** *P* **31** *L* **4** # r01-21

Anslow, Peter Ciena

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

Definition 1.4.471 has been renumbered to 1.4.470 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018

SuggestedRemedy

Change the editing instruction to "Change 1.4.470 (re-numbered from 1.4.471 due to the deletion of 1.4.294 by IEEE Std 802.3bt-2018) as follows:"
Renumber the definition accordingly.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.2.2.4** *P* **33** *L* **52** # r01-99

Kabra, Lokesh Synopsys, Inc.

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

RS layer sends a BEACON request, not a BEACON

SuggestedRemedy

Replace "a BEACON or" with "a BEACON request or"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **22** *SC* **22.8.3.2** *P* **36** *L* **39** # r01-100

Kabra, Lokesh Synopsys, Inc.

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

RS layer sends a BEACON request, not a BEACON

SuggestedRemedy

Replace "sends BEACON " with "sends BEACON request"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.2.2.1** *P* **37** *L* **10** # r01-22

Anslow, Peter Ciena

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

The web page http://www.ieee802.org/3/WG_tools/editorial/requirements/words.html#list contains instructions:
The editing instructions list only amendment(s) that have edited the specific part (e.g. paragraph) of the subclause being changed. Based on this: ... [2] For Change, the only other amendments included in the editing instruction are those that include the base text that follows.

SuggestedRemedy

Change the editing instruction to "Change the entry for oPHYEntity in 30.2.2.1 as follows:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.2.3** *P* **38** *L* **18** # r01-23

Anslow, Peter Ciena

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

In Figure 30-3, the line from the "oOAM" box to the "oMACEntity" box in Figure 30-3 has a single arrowhead (Denotes one-to-one relationship) in the base standard, but has a double arrowhead (Denotes one-to-many relationship) in this draft.

SuggestedRemedy

Change the line to have a single arrowhead as per the base standard.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.2.3** *P* **38** *L* **44** # r01-24

Anslow, Peter Ciena

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

In Figure 30-3, in the "oResourceTypeID" box there is a dashed box around "Present if MII"

SuggestedRemedy

Restore the dashed box

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.2.3** *P* **38** *L* **44** # r01-101

Kabra, Lokesh Synopsys, Inc.

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

The term "Present if MII" is encapsulated in a dashed line box in 802.3-2018 but is not in this draft

SuggestedRemedy

Enclose "Present if MII" in a dashed-line box as in 802.3-2018 Figure 30-3

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by #r01-24. The resolution to #r01-24 is:

Restore the dashed box

Cl **30** *SC* **30.2.5** *P* **39** *L* **6** # r01-25

Anslow, Peter Ciena

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

"Table 30-11" should be a cross-reference and should be underlined

SuggestedRemedy

Make "Table 30-11" a cross-reference and underline it

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.3.2.1.2** *P* **39** *L* **47** # r01-102

Kabra, Lokesh Synopsys, Inc.

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

Clause number missing

SuggestedRemedy

Replace "Clause 10Mb/s" with "Clause 146 10 Mb/s"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.3.2.1.3** *P* **40** *L* **6** # r01-103

Kabra, Lokesh Synopsys, Inc.

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

Clause number missing

SuggestedRemedy

Replace "Clause 10Mb/s" with "Clause 146 10 Mb/s"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.15.1.1.6** *P* **41** *L* **43** # r01-26

Anslow, Peter Ciena

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

"Clause 45" and "45.2.9.2.8" should be cross-references

SuggestedRemedy

Make "Clause 45" and "45.2.9.2.8" cross-references

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.16** *P* **42** *L* **1** # r01-27

Anslow, Peter Ciena

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

In the editing instruction, space missing in "30.15(and"

SuggestedRemedy

Change to "30.15 (and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.16** *P* **42** *L* **4** # r01-104

Kabra, Lokesh Synopsys, Inc.

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

Maintain consistency in title and sub-section organization. Object Class are numbered 1 level below the main sub-section in previous sections (30.4 to 30.15)

SuggestedRemedy

Add new title "30.16 Management for PLCA Reconciliation Sublayer"
Change subsection numbering 30.16 in D3.1 to 30.16.1,
30.16.1 to 30.16.1.1, 30.16.2 to 30.16.1.2,
30.16.1.1 to 30.16.1.1.1 and so on.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.16.1.1** *P* **42** *L* **19** # r01-105

Kabra, Lokesh Synopsys, Inc.

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

Missing capitalization

SuggestedRemedy

Replace "reconciliation sublayer" with "Reconciliation Sublayer"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "reconciliation sublayer" with "Reconciliation Sublayer" in the following locations:

page 42, line 19
page 233, line 5
page 234, line 12

Cl **30** *SC* **30.16.1.2** *P* **42** *L* **34** # r01-106

Kabra, Lokesh Synopsys, Inc.

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

PLCA Control state diagram does not receive or transmit "BEACON signals" but transmits BEACON requests and receives BEACON indications

SuggestedRemedy

Replace "state diagram is receiving or transmitting BEACON signals" with
"state diagram is receiving BEACON indiction or transmitting BEACON request"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **30** *SC* **30.16.1.6** *P* **43** *L* **22** # r01-107

Kabra, Lokesh Synopsys, Inc.

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

Sentence not having proper structure

SuggestedRemedy

Change the first sentence to
"This value is assigned to limit the maximum number of additional packets the node is allowed to transmit in a single transmit opportunity as specified in 148.4.5.1 and 18.4.5.2.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **30** *SC* **30.16.1.7** *P* **43** *L* **33** # r01-108

Kabra, Lokesh Synopsys, Inc.

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

Sentence not having proper structure

SuggestedRemedy

Change the first sentence to
"This value is assigned to define the time to wait for the MAC to send a new packet before yielding the transmit opportunity in bit-times.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **30** *SC* **30.16.2.2** *P* **44** *L* **11** # r01-109

Kabra, Lokesh Synopsys, Inc.

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

Improper usage of the terms as "PLCA state, PLCA portion"

SuggestedRemedy

Change the definition to
"This action provides a mean to reset the optional PLCA functions in the RS. Setting acPLCAReset to reset will reset the PLCA functions of the RS to its initial state. It has no effect if the acPLCAAdminControl is in disabled state"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace,

"This action provides a means to reset the PLCA state of a Reconciliation Sublayer. Setting ac-PLCAReset to reset will reset the PLCA portion of a Reconciliation Sublayer provided the PHY implements and enables optional Clause 148 PLCA.;"

with,

"This action provides a means to reset the PLCA Reconciliation Sublayer functions. See 148.4.5.2.;"

Cl **45** *SC* **45.2.1.186a** *P* **48** *L* **21** # r01-110

Kabra, Lokesh Synopsys, Inc.

Comment Type **E** *Comment Status* **D** *EEE*

Improper register bit name of "EEE config value"

SuggestedRemedy

Replace all instances of "EEE config value" with "EEE mode".
In the Description of bit 1.2294.10, have the following
1 = enable EEE mode
0 = disable EEE mode

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace "EEE config value" with "EEE mode" in the following locations:

page 48, line 21
page 49, line 24

Replace the Description of bit 1.2294.10 on page 48, line 21 with,

"1 = enable EEE mode
0 = disable EEE mode"

Cl **45** *SC* **45.2.1.186a.5** *P* **49** *L* **29** # r01-111

Kabra, Lokesh Synopsys, Inc.

Comment Type **E** *Comment Status* **D** *EEE*

Default value is missing

SuggestedRemedy

Add the following sentence to the paragrapph.
"The default value of bit 1.2294.10 is zero".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following sentence to the end of page 49, line 29,

"The default value of bit 1.2294.10 is zero."

Cl **45** *SC* **45.2.1.186b.3** *P* **50** *L* **33** # r01-112

Kabra, Lokesh Synopsys, Inc.

Comment Type **E** *Comment Status* **D** *EEE*

Remove unnecessary sentence

SuggestedRemedy

Remove "If the 10BASE-T1L PMA supports the low-power ability, then it is controlled using either bit 1.2294.11 or bit 1.0.11"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **45** *SC* **45.2.1.186d.4** *P* **53** *L* **44** # r01-113

Kabra, Lokesh Synopsys, Inc.

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

Restructure the first sentence to avoid the phrase "PCS shall operate ..." in this PMA register bit description. The PCS behavior should not be specified in PMA register bit.

SuggestedRemedy

Change the first sentence to
When bit 1.2297.10 is set to one, the 10BASE-T1S PMA is multidrop mode in which it shall operate over a mixing segment network in half-duplex mode (see Clause 147). The setting of bit 3.2291.8 has no effect when bit 1.2297.10 is set.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is on text that is out of scope of the ciruculation. This text is unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **45** *SC* **45.2.1.186d.4** *P* **53** *L* **45** # r01-114

Kabra, Lokesh Synopsys, Inc.

Comment Type **G** *Comment Status* **D** *PMA*

Contradiction in register bit behavior. As per PMA reset bit 1.2297.15 description (line 3, page 53), reset action shall set all PMA registers to their default values. But in this section, it is stated that "setting of bit 1.2297.10 is not affected by reset". It is confusing.

SuggestedRemedy

I am not proposing solution because I dont know the intent. Moreover, default value is not specified.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The CRG disagrees with the commenter. In 802.3-2018, there are many bits whose default value is either not specified or specified relative to the PHY's configuration (i.e., the default setting is the previoud configuration). The changed text is in response to to a must-be-satisfied comment on draft 3.0 and provides additional clarify.

Cl **45** *SC* **45.2.1.186e.2** *P* **54** *L* **40** # r01-115

Kabra, Lokesh Synopsys, Inc.

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

Remove unnecessary sentence

SuggestedRemedy

Remove "If the 10BASE-T1S PMA supports the low-power ability, then it is controlled using either bit 1.2297.11 or bit 1.0.11"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **45** *SC* **45.2.1.186e.3** *P* **54** *L* **47** # r01-116

Kabra, Lokesh Synopsys, Inc.

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

Remove unnecessary sentence

SuggestedRemedy

Remove "If the 10BASE-T1S PMA supports the multidrop mode, then it is controlled using bit 1.2297.10, otherwise bit 1.2297.10 has no effect"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **45** *SC* **45.2.3.68c.3** *P* **60** *L* **3** # r01-117

Kabra, Lokesh Synopsys, Inc.

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

Dependency on multidrop mode control bit is missing

SuggestedRemedy

Replace "7.512.12 is set to one" with
"7.512.12 is set to one or when the Multimode drop bit 1.2297.10 is set to one"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace,

"This bit shall be ignored when the Auto-Negotiation enable bit 7.512.12 is set to one."

with,

"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, or if Auto-Negotiation is not implemented. In these cases, if bit
3.2291.8 is set to one, then duplex_mode is set to DUPLEX_HALF. If bit 3.2291.8 is set to zero, then duplex_mode is set to DUPLEX_FULL. This bit shall be ignored when the Auto-Negotiation enable bit 7.512.12 is set to one. If the 10BASE-T1S PHY only supports half-duplex mode, or is in multidrop mode (bit 1.2297.10 set to one), then bit 3.2291.8 is set to one by the PHY (see 45.2.1.186d.4)."

and add the following new sentence to the end of clause 45.2.1.186d.4,
"The 10BASE-T1S PMA shall operate in multidrop mode over a mixing segment network (see Clause 147) and the PCS shall operate in half duplex mode with bits 3.2291.8 and 0.8 set to one (see 45.2.3.68c.3).

Cl **45** *SC* **45.2.3.68e** *P* **60** *L* **32** # r01-28

Anslow, Peter Ciena

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

In the title of 45.2.3.68e, "(Register 1 3.2293)" contains a spurious "1"

SuggestedRemedy

In the title of 45.2.3.68e, change "(Register 1 3.2293)" to "(Register 3.2293)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.25.1** *P* **62** *L* **36** # r01-118

Kabra, Lokesh Synopsys, Inc.

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

the terms "capability" and "ability" are interchangeably used.
I am not sure about the difference but the register bit name and the description should be consistent

SuggestedRemedy

Replace "the ability to operate" with "the capability to operate"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.25.5** *P* **63** *L* **14** # r01-119

Kabra, Lokesh Synopsys, Inc.

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

the terms "capability" and "ability" are interchangeably used.
I am not sure about the difference but the register bit name and the description should be consistent

SuggestedRemedy

Replace "duplex capability" with "duplex ability"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The changes made to advertise "capability" (as opposed to "ability") affect bits 7.526.15 and 7.526.6. Suggested remedy changes the context of the sentence. Further, the comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **45** *SC* **45.2.9** *P* **65** *L* **8** # r01-29

Anslow, Peter Ciena

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

Table 45-331 should be Table 45-338 as per the editing instruction

SuggestedRemedy

Re-number Table 45-331 to be Table 45-338

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.2** *P* **66** *L* **15** # r01-30

Anslow, Peter Ciena

Comment Type **E** *Comment Status* **D** *PoDL*

In Table 45-340, the insertion "Extend to Status 2 Register" should be "Extend to PoDL PSE status 2 register"

SuggestedRemedy

In Table 45-340, change the insertion "Extend to Status 2 Register" to "Extend to PoDL PSE status 2 register"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.2.8** *P* **66** *L* **44** # r01-31

Anslow, Peter Ciena

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

At the end of the insertion: "and when read as 1111 the Class is indicated by the PD Extended Class (13.2.4:3) bits"
"(13.2.4:3) bits" should be "(13.2.10:9) bits"

SuggestedRemedy

At the end of the insertion: Change "(13.2.4:3) bits" to "(13.2.10:9) bits"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.3** *P* **67** *L* **3** # r01-32

Anslow, Peter Ciena

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

In the editing instruction, "Bits 10:9" should be "Bits 13.2.10:9"

SuggestedRemedy

In the editing instruction, change "Bits 10:9" to "Bits 13.2.10:9"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.3** *P* **67** *L* **13** # r01-147

Stewart, Heath Analog Devices Inc.

Comment Type **ER** *Comment Status* **D** *PoDL*

PD Assigned Power is now contained in a separate register. Hence, we need to remove it from this table. This frees bits 13.2.8:3. The PD Extended Class bits shift down to occupy two of these freed bits (13.2.4:3) and the reserved bits are also extended accordingly- 13.2.14:5

SuggestedRemedy

Change the edit to Table 45-341 (P67 L13-20) to delete the row containing "PD Assigned Power" ,change the edit to second row, first column to change the bits for PD Extended Class from "13.2.14:11" to "13.2.14:5" and change the third row first column from "13.2.10:9" to "13.2.4:3"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor's note (to be removed after comment is resolve): This uncouples the comment from other comments, and leaves space for future PD PoDL types.

P67 L13, Change the name and description in row for 13.2.8:3 in Table 45-341 from: "PD Assigned Power" (both places) to "Reserved", "Value always 0"

Cl **45** *SC* **45.2.9.3.1a** *P* **67** *L* **31** # r01-33

Anslow, Peter Ciena

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

In the editing instruction, space missing in "45.2.9.3.1as"

SuggestedRemedy

Change to "45.2.9.3.1 as"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.3.1a** *P* **67** *L* **33** # r01-34

Anslow, Peter Ciena

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

In the heading for 45.2.9.3.1a, "(13.2.4:3)" should be "(13.2.10:9)"

SuggestedRemedy

In the heading for 45.2.9.3.1a, change "(13.2.4:3)" to "(13.2.10:9)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.3.1a** *P* **67** *L* **35** # r01-35

Anslow, Peter Ciena

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

It is usual to define the bits in question in the description of their effect.

SuggestedRemedy

Change "When read as 00 a Class 15 PD is indicated." to "When bits 13.2.4:3 are read as 00 a Class 15 PD is indicated."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change "When read as 00 a Class 15 PD is indicated." to "When bits 13.2.4:3 are read as 00, a Class 15 PD is indicated."

Cl **45** *SC* **45.2.9.3.1b** *P* **67** *L* **40** # r01-36

Anslow, Peter Ciena

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

Subclause 45.2.9.3.1b should be added to define bits 13.2.8:3.

SuggestedRemedy

Add subclause 45.2.9.3.1b to define bits 13.2.8:3 with heading 45.2.9.3.1b PD Assigned Power (13.2.8:3)
Change the editing instruction to "Insert 45.2.9.3.1a and 45.2.9.3.1b after 45.2.9.3.1 as follows:"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by #r01-147. The resolution to #r01-147 is:

P67 L13, Change the name and description in row for 13.2.8:3 in Table 45-341 from: "PD Assigned Power" (both places) to "Reserved", "Value always 0"

Cl **45** *SC* **45.2.9.4** *P* **68** *L* **22** # r01-159

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

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

"0.0249 W per LSb" is inconsistent with the specification in clause 104, and the proper abbreviation in 802.3-2018 is LSB

SuggestedRemedy

Change "0.0249 W per LSb" to "0.025 W per LSB" in Table 45-341a at P68 L22 and Table 45-341b at P68 L41.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.9.4.1** *P* **68** *L* **26** # r01-37

Anslow, Peter Ciena

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

The heading for 45.2.9.4.1 should be "PD Assigned Power (13.3.11:0)"

SuggestedRemedy

Change the heading for 45.2.9.4.1 from "PD Extended Class (13.3.11:0)" to "PD Assigned Power (13.3.11:0)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This comment is accomodated by comment #r01-71.

The resolution to comment #r01-17 is:

P45, L35: remove the dot after the double dot.
P65, L8: Change "Table 45-331" to "Table 45-338".
P67, L32: add a space before "as follows".
P68, L26 Change "PD Extended Class (13.3.11:0)" to "PD Assigned Power (13.3.11:0)"
P98, L31: Remove the second dot.
P101, L10: Change "... as specified by Clause , and ..." to "... as specified by Clause 146 and ..." (add Clause 146 number).
P112, L37: Change "DC Loop resistance6(ohm symbol)" to "DC Loop resistance"
P120, L52: Change reference to 146.3.3.
P122, L4: Change "loc_rcvr_status" to "rem_rcvr_status"
P134, L1: Change headline of 146.3.3.4 from "Generation of scrambled bits Sdn[3:0]" to "Data and idle stream scrambling".
P135, L10: Change 2^(33-1) to 2^33-1 (where -1 is not in superscript)
P136, L39: Add a space between "2" and "or".
P183, L43: Add 146.7.2.1 in subclause column.
P184, L6: Change "Meets electrical requirements ..." to "Electrical requirements ..."
P255, L24: Change "10BASE-T1L full duplex ability" to "10BASE-T1L capability".
P255, L27: Change "10BASE-T1S half duplex ability" to 10BASE-T1S capability".

Cl **45** *SC* **45.2.9.5** *P* **68** *L* **39** # r01-38

Anslow, Peter Ciena

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

In Table 45-341b:
"13.3.15:12" should be "13.4.15:12"
"13.3.11:0" should be "13.4.11:0"

SuggestedRemedy

In Table 45-341b:
Change "13.3.15:12" to "13.4.15:12"
Change "13.3.11:0" to "13.4.11:0"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.5** *P* **69** *L* **1** # r01-156

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

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

Four PICS entries are missing for "shalls" in clause 45. PICS are associated with: MM197 (is missing the additional requirement that PCS operates in half duplex mode), and missing PICS for 45.2.3.68e.1 (counter shall not wrap), 45.2.3.68f (writes to PCS diagnostic 2 register have no effect), and 45.2.7.25.4 (a request is not advertised when the bit is zero)

SuggestedRemedy

Add:
"and the PCS operates in half duplex mode" to MM197 feature description
Add new PICS items RM191 and RM192 after RM190:
RM191 | Remote jabber count does not wrap | 45.2.3.68e.1 | | PCS:M | Yes[] N/A[]
RM192 | Writes to PCS diagnostic 2 register have no effect | 45.2.3.68f | | PCS:M | Yes [] N/A []

Insert new PICS item (new AM99) after PICS item AM98 and renumber subsequent PICS:
AM99 | When bit 7.526.12 is set to one, a request to operate the 10BASE-T1L PHY in increased transmit level mode is not advertised. | 45.2.7.25.4 | | AN:M | Yes [] N/A []

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(note - adds registers to MM197 and fixes typo (one should be zero) in new PICS entry for transmit level advertisement to the commenter's remedy)

Add:
"and the PCS operates in half duplex mode with bits 3.2291.8 and 0.8 set to one" to MM197 feature description

Add new PICS items RM191 and RM192 after RM190:
RM191 | Remote jabber count does not wrap | 45.2.3.68e.1 | | PCS:M | Yes[] N/A[]
RM192 | Writes to PCS diagnostic 2 register have no effect | 45.2.3.68f | | PCS:M | Yes [] N/A []

and change Editor's Instruction on page 73, line 4 from "through RM188" to "through RM192"

Insert new PICS item (new AM99) after PICS item AM98 and renumber subsequent PICS:
AM99 | When bit 7.526.12 is set to zero, a request to operate the 10BASE-T1L PHY in increased transmit level mode is not advertised. | 45.2.7.25.4 | | AN:M | Yes [] N/A []

and change Editor's Instruction on page 73, line 4 from "through AM104" to "through AM105"

Cl **45** *SC* **45.5.3.3** *P* **69** *L* **8** # r01-39

Anslow, Peter Ciena

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

In the editing instruction, "through MM203" should be "through MM204"

SuggestedRemedy

In the editing instruction, change "through MM203" to "through MM204"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This comment is accomodated by comment #r01-160.

The resolution to comment #r01-160 is:

Delete PICS item MM177, renumber PICS entries, and do not change Editing Instruction on page 69, line 8.

Cl **45** *SC* **45.5.3.3** *P* **70** *L* **41** # r01-160

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

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

PICS item MM177 doesn't have an associated requirement (it was deleted from clause 45)

SuggestedRemedy

Delete PICS item MM177

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete PICS item MM177, renumber PICS entries, and do not change Editing Instruction on page 69, line 8.

Cl **45** *SC* **45.5.3.7** *P* **73** *L* **3** # r01-40

Anslow, Peter Ciena

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

In the editing instruction, "through RM188" should be "through RM190"

SuggestedRemedy

In the editing instruction, change "through RM188" to "through RM190"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

This comment is accomodated by comment #r01-156.

The resolution to comment #r01-156 is:

Add:
"and the PCS operates in half duplex mode with bits 3.2291.8 and 0.8 set to one" to MM197 feature description

Add new PICS items RM191 and RM192 after RM190:
RM191 | Remote jabber count does not wrap | 45.2.3.68e.1 | | PCS:M | Yes[] N/A[]
RM192 | Writes to PCS diagnostic 2 register have no effect | 45.2.3.68f | | PCS:M | Yes [] N/A []

and change Editor's Instruction on page 73, line 4 from "through RM188" to "through RM192"

Insert new PICS item (new AM99) after PICS item AM98 and renumber subsequent PICS:
AM99 | When bit 7.526.12 is set to one, a request to operate the 10BASE-T1L PHY in increased transmit level mode is not advertised. | 45.2.7.25.4 | | AN:M | Yes [] N/A []

and change Editor's Instruction on page 73, line 4 from "through AM104" to "through AM105"

Cl **45** *SC* **45.5.3.9** *P* **75** *L* **25** # r01-120

Kabra, Lokesh Synopsys, Inc.

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

the terms "capability" and "ability" are interchangeably used.
I am not sure about the difference but PICS description and the register bit description should be consistent

SuggestedRemedy

Replace "duplex capability" with "duplex ability"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by comment r01-121.
Response to comment r01-121 is:
ACCEPT IN PRINCIPLE.

Replace, "capability" with "ability" in the Feature entries for PICS AM99 and AM100.

Cl **45** *SC* **45.5.3.9** *P* **75** *L* **28** # r01-121

Kabra, Lokesh Synopsys, Inc.

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

the terms "capability" and "ability" are interchangeably used.
I am not sure about the difference but PICS description and the register bit description should be consistent

SuggestedRemedy

Replace "duplex capability" with "duplex ability"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace, "capability" with "ability" in the Feature entries for PICS AM99 and AM100.

Cl **98** *SC* **98.5.2** *P* **79** *L* **19** # r01-57

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *AutoNeg_timers*

The timing of Clause 98 low speed mode (LSM) Auto-Negotiation is designed for a link segment length of 1589 m without taking signal dispersion and tolerances in the wire speed into account. Assuming that next page transmissions of Clause 98 Auto-Negotiation need interaction of the management entity, which takes additional time, the failure_timer of the speed selection state diagram needs to get a longer duration.

SuggestedRemedy

Change the timing values of Clause 98 LSM Auto-Negotiation to allow headroom in the link segment delay (12500 ns max. link segment delay) add an additional time of 2 bit times to allow for additional dispersion of the signal. Change the failure_timer of the speed selection state diagram from 150 ms to 250 ms.

P80, L43: Change text for backoff_timer_[LSM] duration to:
If T[4] bit is 1, the duration is (156200 ns to 159400 ns) + (random integer from 0 to 15) x (31400 ns to 34600 ns).
If T[4] bit is 0, the duration is (172700 ns to 175900 ns) + (random integer from 0 to 15) x (31400 ns to 34600 ns).

P80, L51: Change timer duration for blind_timer_[LSM] to: 28200 ns to 31400 ns
P81, L35: Change timer duration for receive_DME_timer_[LSM] to: 156200 ns to 159400 ns
P81, L40: Change timer duration for rx_wait_timer_[LSM] to: 330 us to 370 us
P81, L44: Change timer duration for silent_timer_[LSM] to: 31400 ns to 34600 ns

P88, L7: Change timer duration for failure_timer to: 250 ms +/- 1 ms

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **98** *SC* **98.5.2** *P* **79** *L* **41** # r01-41

Anslow, Peter Ciena

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

Changes have been made to the text of the first sentence of "break_link_timer" that are not shown with underline and strikethrough in the clean version.
The text in the base standard is:
"Timer for the amount of time to wait in order to assure that the link partner enters a Link Fail state."

SuggestedRemedy

Show the added text in underline font and the deleted text in strikethrough font.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **98** *SC* **98.5.2** *P* **81** *L* **49** # r01-81

McCarthy, Mick — Analog Devices Inc.

Comment Type **T** *Comment Status* **D** *AutoNeg_timers*

For 10BASE-T1S the link_fail_inhibit_timer is defined to have a duration of between 97 ms and 98 ms. This does not give sufficient time for a 10BASE-T1S PHY to assert link_status=OK and should be increased to ~400 ms.

Subclause147.3.7 describes PCS status generation, required when Auto-Negotiation is implemented/enabled.
Figure 147-10 describes heartbeat (HB) transmission. Transmission of each HB takes ~50 ms.
Figure 147-11 describes heartbeat receive, and generates pcs_status. pcs_status=OK requires ACTIVE_CNT heartbeats to be received. ACTIVE_CNT is in the range 0 - 7, and so this might take ~350 ms to occur.
Note that pcs_status=OK is required in the transition condition into the LINK_UP state of Figure 147-14 Link Monitor.
Assuming that no changes are made to Clause 147, the link_fail_inhibit_timer for 10BASE-T1S should be increased to address this.

SuggestedRemedy

Change link_fail_inhibit_timer_[HCD] description as follows:

link_fail_inhibit_timer_[HCD]
Timer for qualifying a link_status=FAIL indication or a link_status=OK indication when a specific technology link is first being established. A link will only be considered "failed" if the link_fail_inhibit_timer_[HCD] has expired and the link has still not gone into the link_status=OK state. The expiration time of the link_fail_inhibit_timer_[HCD] shall be dependent on the selected PHY type. For all PHY types, except 10BASE-T1L and 10BASE-T1S, this timer shall expire 97 ms to 98 ms after entering the AN GOOD CHECK state. For a 10BASE-T1L PHY this timer shall expire 3030 ms to 3090 ms after entering the AN GOOD CHECK state. For a 10BASE-T1S PHY this timer shall expire 400 ms to 405 ms after entering the AN GOOD CHECK state.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Reaplce existing link_fail_inhibit_timer_[HCD] description with (all shown in underline),

"link_fail_inhibit_timer_[HCD]
Timer for qualifying a link_status=FAIL indication or a link_status=OK indication when a specific technology link is first being established. A link will only be considered "failed" if the link_fail_inhibit_timer_[HCD] has expired and the link has still not gone into the link_status=OK state. The expiration time of the link_fail_inhibit_timer_[HCD] shall be dependent on the selected PHY type. For all PHY types, except 10BASE-T1L and 10BASE-T1S, this timer shall expire 97 ms to 98 ms after entering the AN GOOD CHECK state. For a 10BASE-T1L PHY this timer shall expire 3030 ms to 3090 ms after entering the AN GOOD CHECK state. For a 10BASE-T1S PHY this timer shall expire 400 ms to 405 ms after entering the AN GOOD CHECK state."

Cl **98** *SC* **98.6.4** *P* **90** *L* **3** # r01-42

Anslow, Peter — Ciena

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

The editing instruction says "and insert one new row immediately below each changed row in the table in 98.6.4" but there is only one new row (DME9a).

SuggestedRemedy

Change "and insert one new row immediately below each changed row in the table in 98.6.4" to "and insert a row for DME9a immediately below the DME9 row in the table in 98.6.4"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **98** *SC* **98.6.8** *P* **90** *L* **23** # r01-13

Maguire, Valerie — The Siemon Company

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

Editing Instruction does not instruct to make a change to SD3.

SuggestedRemedy

Replace, "Change rows for SD4, SD5" with "Change rows for SD3, SD4, SD5"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Accomodated by #r01-43. The resolution to #r01-43 is:

Change:
"Change rows for SD4, SD5, SD6, SD7, SD8, SD9, SD10, SD11, SD12, SD13, SD14, and SD15 and ..." to:
"Change rows for SD3 through SD15 and"

Cl **98** *SC* **98.6.8** *P* **90** *L* **23** # r01-43

Anslow, Peter — Ciena

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

SD3 is missing from the editing instruction

SuggestedRemedy

Change:
"Change rows for SD4, SD5, SD6, SD7, SD8, SD9, SD10, SD11, SD12, SD13, SD14, and SD15 and ..." to:
"Change rows for SD3 through SD15 and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **98** *SC* **98.6.8** *P* **91** *L* **45** # r01-157

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

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

PICS are missing for new state diagrams in 98.5.6

SuggestedRemedy

Insert new subclause 98.6.9 after 98.6.8
98.6.9 High-speed and low-speed Auto-Negotiation modes
Insert PICS table as follows:
Item | Feature | Subclause | Value/Comment | Status | Support
SM1 | Supports two Auto-Negotiation speeds | | 98.5.6 | Implements the state diagram in Figure 98-11 | ANSM: M | Yes [] N/A []
SM2 | Supports only high-speed mode | 98.5.6 |Implements Figures 98-7, 98-8, 98-9 and 98-10 using the timer values for high-speed mode | !LSM:M | Yes [] N/A []
SM3 | Supports only low-speed mode | 98.5.6 | Implements Figures 98-7, 98-8, 98-9 and 98-10 using the timer values for low-speed mode | !HSM:M | Yes [] N/A []

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert new Editor's Instruction, "Insert 98.6.9 after 98.6.8 as follows:"

and insert new subclause 98.6.9 after 98.6.8:
98.6.9 High-speed and low-speed Auto-Negotiation modes

and insert PICS table as follows:
Item | Feature | Subclause | Value/Comment | Status | Support
SM1 | Supports two Auto-Negotiation speeds | | 98.5.6 | Implements the state diagram in Figure 98-11 | ANSM: M | Yes [] N/A []
SM2 | Supports only high-speed mode | 98.5.6 |Implements Figures 98-7, 98-8, 98-9 and 98-10 using the timer values for high-speed mode | !LSM:M | Yes [] N/A []
SM3 | Supports only low-speed mode | 98.5.6 | Implements Figures 98-7, 98-8, 98-9 and 98-10 using the timer values for low-speed mode | !HSM:M | Yes [] N/A []

Cl **104** *SC* **104.1.3** *P* **92** *L* **22** # r01-44

Anslow, Peter Ciena

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

The editing instruction says "Change" the figure, but there are no changes indicated. This should be a "Replace" editing instruction.

SuggestedRemedy

Change "Change" to "Replace"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **104** *SC* **104.2** *P* **92** *L* **48** # r01-93

Schicketanz, Dieter University of Applied Science Reutlingen

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

Actual loop resistances for classes 10 to 15 are 65,25 and 9.5 Ohm. Between 25 ohm and 65 ohm there is a large difference and makes it difficult to match industrial channels at higher temperatures like 75 degrees.

SuggestedRemedy

There are two possibilities to solve this: first by adding a class with a loop resistance of 40 Ohm or second by changing the 25 Ohm allowance to 30 Ohm. The first one gives most flexibility while adding complexity. The second one means a compromise between flexibility and complexity. The necesary adaptations for both cases in the following clauses will be presented in Vienna .

Proposed Response *Response Status* **W**

PROPOSED REJECT.

CRG disagrees with the commenter. Changes were made to the new classes in response to comments on draft 3.0. These introduced a 25 ohm loop resistance for classes 11 and 14. See slide 3 of
http://www.ieee802.org/3/cg/public/May2019/stewart_3cg_01_0519_v3.pdf

Cl **104** *SC* **104.4.3.3** *P* **95** *L* **2** # r01-151

Stewart, Heath Analog Devices Inc.

Comment Type **ER** *Comment Status* **D** *PoDL*

Add Table 104-2a to the description of PSE state diagram variable 'power_available'

SuggestedRemedy

On P95, L2, add the following edit to 'power_available' in clause 104.4.3.3 before Table 104-2a.
Change the text from
"power_available
TRUE: a compatible PSE class to PD class pairing exists as defined in Table 104-2 and the PSE is
able to source the required voltage and power.
FALSE: a valid PSE class to PD class pairing does not exist as defined in Table 104-2 or the PSE is
not able to source the required voltage and power."
to
"power_available
TRUE: a compatible PSE class to PD class pairing exists as defined in Table 104-2 and Table 104-2a and the PSE is
able to source the required voltage and power.
FALSE: a valid PSE class to PD class pairing does not exist as defined in Table 104-2 and Table 104-2aor the PSE is
not able to source the required voltage and power."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert new subclause, "104.4.3.3 Variables" after "104.4.3 PSE state diagram"

Insert editing instruction, "Change the entry for power_available as follows:"

Change the text from,
"power_available
TRUE: a compatible PSE class to PD class pairing exists as defined in Table 104-2 and the PSE is able to source the required voltage and power.
FALSE: a valid PSE class to PD class pairing does not exist as defined in Table 104-2 or the PSE is not able to source the required voltage and power."

to,
"power_available
TRUE: a compatible PSE class to PD class pairing exists as defined in Table 104-2 and Table 104-2a and the PSE is able to source the required voltage and power.
FALSE: a valid PSE class to PD class pairing does not exist as defined in Table 104-2 and Table 104-2a or the PSE is not able to source the required voltage and power."

Shown additions in underline and deletions in strikeout.

Cl **104** *SC* **104.4.3.4** *P* **95** *L* **2** # r01-150

Stewart, Heath Analog Devices Inc.

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

Table 104-2-PSE power_available matrix needs to include the new classes 10 to 15. Add a Table for the new classes (since adding to the older table makes it cumbersome).

SuggestedRemedy

On P95, L2 add Table 104-2a as shown below:
"Table 104-2a- PSE power_available matrix continued" followed by the table below
"
{
{{} {} {} {PSE Class} {} {} {} {} {}}
{{} {} {} {30V reg} {} {} {58V reg} {} {}}
{{} {} {} {10} {11} {12} {13} {14} {15}}
{{PD Class} {30V reg} {10} {X} {X} {X} {-} {-} {-}}
{{} {} {11} {-} {X} {X} {-} {-} {-}}
{{} {} {12} {-} {-} {X} {-} {-} {-}}
{{} {58V reg} {13} {-} {-} {-} {X} {X} {X}}
{{} {} {14} {-} {-} {-} {-} {X} {X}}
{{} {} {15} {-} {-} {-} {-} {-} {X}}
}
"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

After the revised entry for power_available under newly added subclause "104.4.3.3 Variables" (see comment #r01-150), insert editing instruction, "Change the title of Table 104-2 as follows:"

Show new title as, "Table 104-2 - PSE power_available matrix for PSE and PD for classes 0 through 9" with " for PSE and PD for classes 0 through 9" in underline

Insert editing instruction, "Insert Table 104-2a following Table 104-2 as follows:"

Insert new table entitled, "Table 104-2a - PSE power_available matrix for PSE and PD for classes 10 through 15" with the following entries:
"
{
{{} {} {} {PSE Class} {} {} {} {} {}}
{{} {} {} {30V reg} {} {} {58V reg} {} {}}
{{} {} {} {10} {11} {12} {13} {14} {15}}
{{PD Class} {30V reg} {10} {X} {X} {X} {-} {-} {-}}
{{} {} {11} {-} {X} {X} {-} {-} {-}}
{{} {} {12} {-} {-} {X} {-} {-} {-}}
{{} {58V reg} {13} {-} {-} {-} {X} {X} {X}}
{{} {} {14} {-} {-} {-} {-} {X} {X}}
{{} {} {15} {-} {-} {-} {-} {-} {X}}

}
"

Refer to contribution
http://www.ieee802.org/3/cg/public/July2019/stewart_3cg_xx_0719.pdf for a representation of how the table entries will look.

Cl **104** *SC* **104.4.6** *P* **97** *L* **29** # r01-149

Stewart, Heath Analog Devices Inc.

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

The maximum classification time that was specified for Class 0 to 9 systems is insufficient for Class 10 to 15 systems because of the increased transaction times.

SuggestedRemedy

Change the edit to Table 104-4 on P97, L29. Edit the classification time limits as follows:
{
{{8} {Classification time} {TClass} {ms} {-} {366} {Classes 0 to 9} {All} {See 104.4.5}}
{{} {} {TClass} {} {} {800} {Classes 10 to 15} {All} {See 104.4.5}}
}

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Page 98, line 3 - replace "Items 6 and 7" with "Items 6, 7, and 8" in the Editing Instruction.

Insert item 8 from Table 104-4 from 802.3-2018 (page 4730) after item 7.

Edit the classification time limits as follows:
{
{{8} {Classification time} {TClass} {ms} {-} {366} {Classes 0 to 9} {All} {See 104.4.5}}
{{} {} {TClass} {} {} {800} {Classes 10 to 15} {All} {See 104.4.5}}
}

Show additions in underline and deletions in strikeout.

Cl **104** *SC* **104.5.1a** *P* **98** *L* **30** # r01-45

Anslow, Peter Ciena

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

"Table 104-4a" should be a cross-reference
There is a double ".." at the end of the sentence.

SuggestedRemedy

Make "Table 104-4a" a cross-reference
delete one "." at the end of the sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **104** *SC* **104.7.1.5** *P* **106** *L* **54** # r01-46

Anslow, Peter Ciena

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

"Table 104-1" should be an external cross-reference

SuggestedRemedy

Apply character tag "External" to "Table 104-1" to make it Forest green

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.1.2.3** *P* **116** *L* **19** # r01-72

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *PICS*

146.1.2.3 is explanatory text and should not contain shall statements.

SuggestedRemedy

Change "The transition to or from LPI mode shall not cause any MAC frames to be lost or corrupted." to "The transition to or from LPI mode does not cause any MAC frames to be lost or corrupted."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.2** *P* **117** *L* **29** # r01-73

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *PICS*

146.2 is explanatory text and should not contain shall statements.

SuggestedRemedy

Change "The 10BASE-T1L PHY shall use the service primitives and interfaces in 40.2." to "The 10BASE-T1L PHY uses the service primitives and interfaces in 40.2."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.2.5** *P* **120** *L* **52** # r01-58

Graber, Steffen Pepperl+Fuchs GmbH

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

The referenced state diagrams and chapters in the primitives section of Clause 146 changed over time, adding figures and renumbering the document. Need to correct the references.

SuggestedRemedy

P121, L45: Change "The effect of receipt of this primitive is specified in 146.3.3.4.3, 146.3.4, 146.4.4, Figure 146-9, Figure 146-15, and Figure 146-16." to "The effect of receipt of this primitive is specified in 146.3.3.4.3 and 146.3.4".
P122, L17: Change "The effect of receipt of this primitive is specified in Figure 146-15 and Figure 146-16." to "The effect of receipt of this primitive is specified in 146.4.4."
P122, L41: Change "The effect of receipt of this primitive is specified in Figure 146-9, Figure 146-15, and Figure 146-16." to "The effect of receipt of this primitive is specified in Figure 146-15."
P123, L11: Change "The effect of receipt of this primitive is specified in Figure 146-15 and Figure 146-16." to "The effect of receipt of this primitive is specified in Figure 146-15."
P124, L10: Change "The effect of receipt of this primitive is specified in Figure 146-15 and Figure 146-16." to "The effect of receipt of this primitive is specified in Figure 146-15 and Figure 146-17."
P124, L33: Change "The PMA generates PMA_TX_LPI_STATUS.indication messages to indicate a change in the loc_lpi variable as described in Figure 146-15 and Figure 146-16." to "The PMA generates PMA_TX_LPI_STATUS.indication messages to indicate a change in the loc_lpi variable."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.3.3** *P* **133** *L* **35** # r01-59

Graber, Steffen Pepperl+Fuchs GmbH

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

The SIDE STREAM SCRAMBLER block now generates Syn[4:0], from which Syn[4] needs to have an arc directly going into PCS transmit state diagram (where the different delimiters, based on the pseudo random sequence of Syn[4] are selected).

SuggestedRemedy

Figure 146-7: Add an arc going from "SIDE STREAM SCRAMBLER" block to "PCS transmit state diagram" block, marked with Syn[4], where n is in subscript.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.3.5.1** *P* **136** *L* **38** # r01-47

Anslow, Peter Ciena

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

Space missing in "2or 3,"

SuggestedRemedy

Change to "2 or 3,"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.4.1.1** *P* **138** *L* **24** # r01-60

Graber, Steffen Pepperl+Fuchs GmbH

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

rx_code_group is defined, but never used in the state diagrams. What is used is Rxn, which is rx_code_group at time n.

SuggestedRemedy

Remove definition for rx_code_group at P138, L31. On P138, L51 change "a rx_code_group is received" to "a code-group is received". On P139, L21, L27, L32 and L38, change "the rx_code_group" to "the received code-group". On P139, L47 change "rx_code_group" to "the received code-group". On P143, L32 change "rx_code_group" to "received code-groups".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.4.1.4** *P* **141** *L* **19** # r01-61

Graber, Steffen Pepperl+Fuchs GmbH

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

Condition "RSTCD * lpi_enabled * rem_lpi" is not mutually exclusive to the other two conditions exiting IDLE state.

SuggestedRemedy

Change "RSTCD * (Rxn != COMMA) * (!valid_idle)" to "RSTCD * (Rxn != COMMA) * (!valid_idle) * (!(lpi_enabled * rem_lpi))" and change "RSTCD * (Rxn = COMMA)" to "RSTCD * (Rxn = COMMA) * (!(lpi_enabled * rem_lpi))". ("!=" is meant as non equal symbol acc. to IEEE802.3 style guide).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.3.4.1.4** *P* **141** *L* **46** # r01-62

Graber, Steffen Pepperl+Fuchs GmbH

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

CHECK_DISP and DECODE function both use rx_disparity as input parameter and the DECODE function is also modifying the rx_disparity. This can lead to a situation where it is not clear, which value to use for rx_disparity in the CHECK_DISP function.

SuggestedRemedy

P141, L46: Move DECODE function from DATA state to DATA ERR state and rename DATA ERR state to DATA DECODE state.
P142, L6: Move DECODE function from CHECK ESD COMMA2 state to CHECK ESD COMMA2 ERR state and rename CHECK ESD COMMA2 ERR state to CHECK ESD COMMA2 DECODE state.
P142, L18: Move DECODE function from CHECK ESD DISPRESET3 state to CHECK ESD DISPRESET3 ERR state and rename CHECK ESD DISPRESET3 ERR state to CHECK ESD DISPRESET3 DECODE state.
P142, L29: Move DECODE function from CHECK ESD ESD4 state to CHECK ESD ESD4 ERR state and rename CHECK ESD ESD4 ERR state to CHECK ESD ESD4 DECODE state.
P142, L51: Add a new state ESD DECODE below ESD state. Add an UCT condition between ESD state and ESD DECODE state. Move the original exit condition of ESD state to ESD DECODE state. Move DECODE function from ESD state to new ESD DECODE state.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(Commenter's remedy plus editorial license to rearrange diagram, including and possibly moving states between pages, such as DATA and DATA_ERR to page 142)

P141, L46: Move DECODE function from DATA state to DATA ERR state and rename DATA ERR state to DATA DECODE state.
P142, L6: Move DECODE function from CHECK ESD COMMA2 state to CHECK ESD COMMA2 ERR state and rename CHECK ESD COMMA2 ERR state to CHECK ESD COMMA2 DECODE state.
P142, L18: Move DECODE function from CHECK ESD DISPRESET3 state to CHECK ESD DISPRESET3 ERR state and rename CHECK ESD DISPRESET3 ERR state to CHECK ESD DISPRESET3 DECODE state.
P142, L29: Move DECODE function from CHECK ESD ESD4 state to CHECK ESD ESD4 ERR state and rename CHECK ESD ESD4 ERR state to CHECK ESD ESD4 DECODE state.
P142, L51: Add a new state ESD DECODE below ESD state. Add an UCT condition between ESD state and ESD DECODE state. Move the original exit condition of ESD state to ESD DECODE state. Move DECODE function from ESD state to new ESD DECODE state.

With editorial license to rearrange diagram, and including possibly moving states between the two pages.

Cl **146** *SC* **146.4** *P* **145** *L* **2** # r01-83

McCarthy, Mick Analog Devices Inc.

Comment Type **E** *Comment Status* **D** *EEE*

Figure 146-12 - PMA functional block diagram was not updated as per the directions in http://www.ieee802.org/3/cg/public/May2019/LPI_Editor_Instructions_RevA.docx, which called for the diagram of slide 13 of mccarthy_3cg_02b_0519.pdf to be used.
The 'LPI QUIET REFRESH CYCLING' module has not been included in the diagram.

SuggestedRemedy

Replace Figure 146-12 with diagram of slide 13 of http://www.ieee802.org/3/cg/public/May2019/mccarthy_3cg_02b_0519.pdf

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add functional block "LPI QUIET REFRESH CYCLING" with connections to PHY CONTROL (loc_lpi_state and loc_lpi_sync_timer_en) as shown on Slide 13 of http://www.ieee802.org/3/cg/public/May2019/mccarthy_3cg_02b_0519.pdf, with the following changes:

1. block for LPI QUIET REFRESH CYCLING should be in solid line
2. Surround new block with dashed line (as in EEE-only parts of state diagrams)
3. Change NOTE 2 (at line 43), from: "Signals shown with dashed lines are required only for EEE functionality." to "Signals shown with dashed lines and blocks within dashed lines are required only for EEE functionality."

Cl **146** *SC* **146.4.4.2** *P* **149** *L* **45** # r01-63

Graber, Steffen Pepperl+Fuchs GmbH

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

lpi_sleep_timer and lpi_wake_timer are specified in us, while the lpi_refresh_timer and lpi_quiet_timer are specified in TX_TCLK cycles. Intention was to bind the lpi timing to TX_TCLK cycles (as there may be a clock deviation to the nominal timing due to crystal oscillator tolerances in the master PHY), so the lpi_sleep_timer and lpi_wake_timer period definitions need to be changed to reflect TX_TCLK clock cycles.

Additionally the change of the LPI sleep timer from 250 us to 20 us in Table 78-2 has been missed in D3.1.

SuggestedRemedy

P149, L41: Change "The timer shall expire 20 us (150 TX_TCLK periods) after being started." to "The timer shall expire 150 TX_TCLK periods (nominally 20 us) after being started."
P149, L45: Change "The timer shall expire 250 us after being started." To "The timer shall expire 1875 TX_TCLK periods (nominally 250 us) after being started."
P76, L33: Change Ts min and max from 250 us to 20 us for each of the two parameters.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.4.4.3** *P* **151** *L* **2** # r01-64

Graber, Steffen Pepperl+Fuchs GmbH

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

When there is a reset of the local PHY for only a short time, then the remote PHY will not go down for up to 200 ms. This leads to training problems, if the local PHY already starts training and then the training is distubed by the far end PHY bringing the link down during local PHY training. This happens only, if Auto-Negotiation is not active.

SuggestedRemedy

Increase the silent_timer from 100 ms +/- 1 ms to 245 ms +/- 5 ms to securely break the link of the remote PHY and implement the silent_timer in a way, that if Auto-Negotiation is disabled or not implemented, the PHY, independent, if master or slave, at startup always breaks the link until the silent_timer expires.

P150, L3: Change the timer interval for the silent_timer from 100 ms +/- 1 ms to 245 ms +/- 5 ms

P151, L2: Figure 146-15 PHY control state diagram (part a)

Move the existing SILENT state between the DISABLE TRANSMITTER and SLAVE SILENT state.
Move the input condition arcs of SLAVE SILENT state coming from SEND IDLE state and (C) from SLAVE SILENT state to SILENT state.
Add a new condition arc from DISABLE TRANSMITTER state to SILENT state with "(link_control = ENABLE) * (!mr_autoneg_enable)".
Change the condition of the arc going from DISABLE TRANSMITTER state to SLAVE SILENT state from "link_control = ENABLE" to "(link_control = ENABLE) * mr_autoneg_enable".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(commenter's remedy minus the editorial, and in the right place)
On Page 150 line 3:
Change "The timer shall expire 100 ms +/- 1 ms after being started."
to "The timer shall expire 245 ms +/- 5 ms after being started."

Cl **146** *SC* **146.4.4.3** *P* **151** *L* **18** # r01-65

Graber, Steffen Pepperl+Fuchs GmbH

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

Condition "(loc_rcvr_status = OK) * (scr_status = OK) * (rem_rcvr_status = OK)" is not mutually exclusive to the condition going to SILENT state.

SuggestedRemedy

Change Condition "(loc_rcvr_status = OK) * (scr_status = OK) * (rem_rcvr_status = OK)" to "(!maxtraining_timer_done) * (loc_rcvr_status = OK) * (scr_status = OK) * (rem_rcvr_status = OK)" (no other change needed as (!slave_clock_locked) will prevent loc_rcvr_status from being OK).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.4.4.3** *P* **151** *L* **31** # r01-67

Graber, Steffen Pepperl+Fuchs GmbH

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

There is no need to check if the scrambler status is NOT_OK, as this is purely implementation dependent.

SuggestedRemedy

P151, L28: Change condition "(!maxwait_timer_done) * (!lpi_enabled) * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK) * (scr_status = OK)" to "(!maxwait_timer_done) * (!lpi_enabled) * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK)"
P151, L31: Change condition "(!maxwait_timer_done) * lpi_enabled * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK) * (scr_status = OK)" to "(!maxwait_timer_done) * lpi_enabled * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(commenter's remedy plus arc description for clarity):
P151, L28: On arc from SEND IDLE to SEND IDLE OR DATA, change condition
from: "(!maxwait_timer_done) * (!lpi_enabled) * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK) * (scr_status = OK)"

to: "(!maxwait_timer_done) * (!lpi_enabled) * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK)"

P151, L31: On arc from SEND IDLE to exit tag "S", change condition
from: "(!maxwait_timer_done) * lpi_enabled * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK) * (scr_status = OK)"

to: "(!maxwait_timer_done) * lpi_enabled * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK)"

Cl **146** *SC* **146.4.4.3** *P* **151** *L* **40** # r01-66

Graber, Steffen Pepperl+Fuchs GmbH

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

In case one PHY goes to SEND IDLE state, the other PHY needs to quickly follow, so that both PHYs will enter SEND IDLE and both PHYs can restart the LPI timer synchronization. This is currently prevented, while the local PHY is in an active data transmission. This may lead to a situation, that one PHY tries to synchronize the LPI timers, while the other PHY is still kept in SEND IDLE OR DATA state, which will then prevent a resynchronization of both PHYs without doing a complete retraining.

SuggestedRemedy

Change condition "minwait_timer_done * (!tx_enable_mii) * ((loc_rcvr_status = NOT_OK) + (rem_rcvr_status = NOT_OK) + ((scr_status = NOT_OK) * ((!lpi_enabled) + (!rx_lpi_active))))" to "min_wait_timer_done * (((!tx_enable_mii) * (loc_rcvr_status = NOT_OK)) + (rem_rcvr_status = NOT_OK))"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.4.4.3** *P* **152** *L* **1** # r01-68

Graber, Steffen Pepperl+Fuchs GmbH

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

maxwait_timer_done is not mutually exclusive to the other conditions in figure 146-16. Additionally there is no need to check if the scrambler status is NOT_OK, as this is purely implementation dependent.

SuggestedRemedy

P152, L8: Change condition "(config = MASTER) + (rem_lpi = TRUE)" to "(!maxwait_timer_done) * ((config = MASTER) + (rem_lpi = TRUE))"
P152, L14: Change condition "((config = MASTER) * (rem_lpi = TRUE)) + ((config = SLAVE) * (rem_lpi = FALSE))" to "(!maxwait_timer_done) * (((config = MASTER) * (rem_lpi = TRUE)) + ((config = SLAVE) * (rem_lpi = FALSE)))"
P152, L22: Change condition "rem_lpi = FALSE" to "(!maxwait_timer_done) * (rem_lpi = FALSE)"
P152, L27: Change condition "minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK) * (scr_status = OK)" to "(!maxwait_timer_done) * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
(Commenter's remedy plus arc descriptions for clarity):
P152, L8: On arc from LPI SYNC START to LPI SYNC SET, change condition
from: "(config = MASTER) + (rem_lpi = TRUE)"
to: "(!maxwait_timer_done) * ((config = MASTER) + (rem_lpi = TRUE))"

P152, L14: On arc from LPI SYNC SET to LPI SYNC CLR, change condition
from: "((config = MASTER) * (rem_lpi = TRUE)) + ((config = SLAVE) * (rem_lpi = FALSE))"
to: "(!maxwait_timer_done) * (((config = MASTER) * (rem_lpi = TRUE)) + ((config = SLAVE) * (rem_lpi = FALSE)))"

P152, L22: On arc from LPI SYNC CLR to LPI SYNC DONE, change condition
from: "rem_lpi = FALSE"
to: "(!maxwait_timer_done) * (rem_lpi = FALSE)"

P152, L27: On arc from LPI SYNC DONE to exit tag "B", change condition
from: "minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK) * (scr_status = OK)"
to: "(!maxwait_timer_done) * minwait_timer_done * (loc_rcvr_status = OK) * (rem_rcvr_status = OK)"

Cl **146** *SC* **146.4.4.3** *P* **152** *L* **20** # r01-84

McCarthy, Mick Analog Devices Inc.

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

An assignment to loc_lpi_sync_timer_en in the LPI SYNC CLR state does not use the correct assignment character.

SuggestedRemedy

Use the correct left arrow assignment character for this assignment (as per 1.2.1).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.4.4.3** *P* **153** *L* **1** # r01-85

McCarthy, Mick Analog Devices Inc.

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

Figure 146-17 - PHY Control state diagram (part c) pertains to the optional EEE capability. Therefore, it should be contained within a dashed box.

SuggestedRemedy

Enclose Figure 146-17 within a dashed box.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Enclose the functionality in Figure 146-17 within a dashed box. Editorial license to collapse Figures 146-16 and 146-17 into a single figure, if it helps clarity, as these are both EEE functions in the PHY control diagram.

Cl **146** *SC* **146.4.4.3** *P* **153** *L* **8** # r01-69

Graber, Steffen Pepperl+Fuchs GmbH

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

lpi_sleep_timer_done is not mutually exclusive to the other exit condition of SEND SLEEP state.

SuggestedRemedy

Change condition "(!lpi_enabled) + (loc_rcvr_status = NOT_OK) + (rem_rcvr_status = NOT_OK) + (!tx_lpi_active)" to "(!lpi_sleep_timer_done) * ((!lpi_enabled) + (loc_rcvr_status = NOT_OK) + (rem_rcvr_status = NOT_OK) + (!tx_lpi_active))"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.5.4.1** *P* **158** *L* **49** # r01-70

Graber, Steffen Pepperl+Fuchs GmbH

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

Supporting unshielded cables in most cases requires a signal isolation transformer and not only a capacitive coupling to block the common mode noise (which may be several volts) from the inputs of the PHY IC. These transformers add additional resistance and indroduce additional insertion loss. Thus the -5 % signal amplitude tolerance is hard to meet in a transformer coupled PHY. To allow the use of signal isolaton transformers, it is suggested to change the lower signal amplitude tolerance from -5% to -15%. The PSD mask does not need to be changed, as the tolerances for the PSD mask are already high enough.

SuggestedRemedy

Change "2.4 V +/- 5%" to "2.4 V +5%/-15%" and change "1.0 V+/- 5%" to "1.0 V +5%/-15%"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.5.5.1** *P* **161** *L* **18** # r01-48

Anslow, Peter Ciena

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

"1x10-6" should be just "10-6" as per "10-9" above.
The minus sign should be an en-dash

SuggestedRemedy

Delete "1x"
make the minus sign an en-dash

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.7.1.5** *P* **167** *L* **50** # r01-92

Schicketanz, Dieter — University of Applied Science Reutlingen

Comment Type **TR** *Comment Status* **D** *Link Segment*

1-Usually coupling attenuation is specified and measured down to 30 MHz and not siuted fort cg. Therefore IEC developed a new specificationn that allows the measurement down to the expected 0.1 MHz. 2-The tables 146-5 to -7 mention E1 to E3 without any reference to the ownership of this specification.

SuggestedRemedy

1-To avoid confusion this new reference should be quoted here by adding after line 54 "(see Add IEC 62153-4-9 Ed2 Amd1: Coupling attenuation
of screened balanced cables, triaxial method)" 2-To avoid copyrigth issues the reference for E1 to E3 should be added in clause 146.7.1.6 by adding after line 14 : this specifications are an exerpt from the mice tables defined in ISO/IEC 11801-1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The reference to the IEC test method is not necessary in this draft, we specify the requirement, not the test method. Additionally, according to the IEC webpage, Amendment 1 will not publish until September 2020, and is not appropriate for this draft.

The remainder of the comment is accomodated by comment r01-9. Resolution to comment r01-9 is:
PROPOSED ACCEPT IN PRINCIPLE.
Change title of Table 146-7 to
Table 146-7-Link segment electromagnetic classifications (ISO/IEC 11801-1)

Cl **146** *SC* **146.7.1.6** *P* **168** *L* **17** # r01-9

Maguire, Valerie — The Siemon Company

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

The contents of Table 146-7 are used to support both 10BASE-T1L (see 146.8.1) and 10BASE-T1S (see147.9.1).

SuggestedRemedy

Replace, "Table 146-7--Electromagnetic classifications 10BASE-T1L link segment" with "Table 146-7--Electromagnetic classifications link segment"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change title of Table 146-7 to
Table 146-7-Link segment electromagnetic classifications (ISO/IEC 11801-1)

Cl **146** *SC* **146.8.1** *P* **169** *L* **51** # r01-88

Jones, Peter — Cisco Systems, Inc.

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

The changes made in the resolution of D3.0 comment #196 linked the optional connector choice to the E1/E2/E3 environments.
We clearly state that any connector/terminal that matches requirements can be used: "Specific systems or applications can use connectors or terminals, in addition to those listed below, that support the link segment specification defined in 146.7."
Also, according to the notes in the normative references, both IEC 63171-1 or 63171-6 are still in development, and unless they are referenceable by final circulation, references to them will have to be removed from the draft.
In addition, we have seen contributions describing issues with selected connectors (http://www.ieee802.org/3/cg/public/Jan2019/bains_3cg_01e_0119.pdf)
I think that we should revert to the D3.0 text or implement the D3.0 comment #196 suggested remedy and remove discussion of specific connectors. This would be equivalent to D2.1 comment #407 (see http://www.ieee802.org/3/cg/public/Nov2018/jones_3cg_02c_1118.pdf).

SuggestedRemedy

Implement D3.0 comment #196 suggested remedy
On page 169 line 51: Replace, "Specific systems or applications can use connectors or terminals, in addition to those listed below, that support the link segment specification defined in 146.7." with, "Specific systems or applications can use connectors or terminals that support the link segment specification defined in 146.7.

Delete 146.8.1 paragraph 3 (starts on page 200, line 53).

In 146.8.1, delete figures 146-29, 146-30, 146-31, 146-32, 146-33, 146-34, and table 146-3.

Remove IEC 63171-1 and 63171-6 from the normative references list.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve with Comment r01-55, r01-87, and r01-155.
Discuss also with Comment 89 on clause 147

TFTD: Issue to be discussed is whether to delete paragraph 3, the connector figures and references from the draft.

If the group decides to delete:
Then ACCEPT IN PRINCIPLE this comment (implementing 196 is not necessary, as the text is deleted, and the reference to the pinout polarity needs to be retained for powering)

On page 169 line 51: Replace, "Specific systems or applications can use connectors or terminals, in addition to those listed below, that support the link segment specification defined in 146.7." with, "Specific systems or applications can use connectors or terminals that support the link segment specification defined in 146.7.

Replace 146.8.1 paragraph 3 (starts on page 200, line 53) with:
The assignment of PMA signals to connector contacts for PHYs are given in Table 146-8.

In 146.8.1, delete figures 146-29, 146-30, 146-31, 146-32, 146-33, 146-34.

Remove IEC 63171-1 and 63171-6 from the normative references list. (only if both clauses 146 and 147 choose to remove the references)

If the group decides to retain the connector references, then, REJECT this comment and ACCEPT comment r01-155:

The text in paragraph 3 of 146.8.1 of draft 3.1 represents consensus resolving a previous disapprove vote, and would be trading one disapprove for another.
See Motion 7 from the May 2019 CRG meeting, slide 8 of http://www.ieee802.org/3/cg/May2019/motions_3cg_01a_0519.pdf, adding the existing text of paragraph 3 of 146.8.1 to the draft.

Cl **146** *SC* **146.8.1** *P* **170** *L* **1** # r01-55

Bains, Amrik Cisco Systems, Inc.

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

Change from 802.3cg_D3p0 (page 153, line 12) to 802.3cg_D3p1 (page 170, lin1) does not improve
improve the specification requirements for the connector selection. New text is very restrictive on uses case that will be developed.

I prefer to go back to the text as per 802.3cg_D3p0

SuggestedRemedy

FROM:
"Connectors meeting the requirements of IEC 63171-1 or IEC 63171-6 may be used as the mechanical interface
to the balanced cabling in environments meeting the E1 and E2 electromagnetic classifications specified
in Table 146-7. Connectors meeting the requirements of IEC 63171-6 may be used as the mechanical interface
to the balanced cabling in environments meeting the E3 electromagnetic classification specified in
Table 146-7"

TO

"Connectors meeting the requirements of IEC 63171-1 or IEC 61076-3-125 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 146-28"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolve with Comment r01-155, r01-87, and r01-88.

TFTD
Note - if comment r01-88 deletes the connector references, the text changed by this comment is deleted. Also, comment r01-155 changes the text commented on, correcting an editorial error.

PROPOSED REJECT.
The CRG disagrees with the commenter.
Motion #7, slide 8, of http://www.ieee802.org/3/cg/public/May2019/motions_3cg_01a_0519.pdf, established the text (as would be corrected by comment r01-155) for this subclause.

Simply reverting the paragraph would undo a change which flipped a disapprove ballot

(exchanging one disapprove for another) so discussion should focus on whether there is a way to satisfy both commenters without flipping another.

Cl **146** *SC* **146.8.1** *P* **170** *L* **1** # r01-155

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

Comment Type **E** *Comment Status* **D** *Big Ticket Item - MDI*

The resolution to comment i-196 was incorrectly implemented. First sentence as implemented in draft 3.1 reads: "Connectors meeting the requirements of IEC 63171-1 or IEC 63171-6 may be used as the mechanical interface to the balanced cabling in environments meeting the E1 and E2 electromagnetic classifications specified in Table 146-7."
The first sentence in the resolution reads "Connectors meeting the requirements of IEC 63171-1 may be used as the mechanical interface to the balanced cabling in environments meeting the E1 and E2 electromagnetic classifications specified in Table 146-7."

SuggestedRemedy

Change the first sentence of the third paragraph of 146.8.1 from "Connectors meeting the requirements of IEC 63171-1 or IEC 63171-6 may be used as the mechanical interface to the balanced cabling in environments meeting the E1 and E2 electromagnetic classifications specified in Table 146-7."
to "Connectors meeting the requirements of IEC 63171-1 may be used as the mechanical interface to the balanced cabling in environments meeting the E1 and E2 electromagnetic classifications specified in Table 146-7."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.
Resolve with Comment r01-55, r01-87, and r01-88.

TFTD

This comment only fixes the editorial error implementing comment i-196.

See comment r01-88 for a discussion of the main issue, whether this text stays in the document at all - that needs to be resolved first. If the changed text is deleted, per comment r01-88, then this comment will be unneeded, and is expected to be withdrawn.

Cl **146** *SC* **146.8.1** *P* **170** *L* **5** # r01-87

Tillmanns, Ralf

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

The sentence 'Connectors meeting the requirements of IEC 63171-1 or IEC 61076-3-125 may be used as the mechanical interface to the balanced cabling.' gives the impression that the mechanical interfaces given are the ones that have to be used. The sentence above, however, indicates that others may be used as well. Therefore the intention of this comment is to clarify that, if other mechanical interfaces are used, they still have to meet requirements in accordance with IEC 63171.

SuggestedRemedy

Add the sentence ' Other connector types suitable for 1-pair applications meeting the electrical requirements of IEC 63171 may be used as the mechanical interface to the balanced cabling.'

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter.
According to IEEE Standards style, 'may' can be replaced by 'is/are allowed'. The text "may be used" would therefore be understood as "are allowed to be used", which does not convey that these "have to be used" as the commenter suggests.
Further, the additional text that the connectors meet IEC 63171 would levy new requirements on the MDI connector without justification.

This comment is identical to comment i-46 from the same commenter, with a nonsubstantial wording difference in the Suggested Remedy, making the new text a new sentence, rather than appending it as a compound sentence joined with "and".

The remedy above is from comment i-46, and given by Motion #6 at the May 2019 interim (see http://www.ieee802.org/3/cg/public/May2019/motions_3cg_01a_0519.pdf slide 7).

Cl **146** *SC* **146.11.3** *P* **176** *L* **8** # r01-49

Anslow, Peter Ciena

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

"EEE" should be "*EEE" as it appears in the Status column in 146.11.4.2.1

SuggestedRemedy

Change "EEE" to "*EEE"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.1.2** *P* **178** *L* **28** # r01-74

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *PICS*

PCSR7 has no shall statement in the text anymore.

SuggestedRemedy

Remove PCSR7 from PICS

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.2.2** *P* **181** *L* **35** # r01-161

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

Comment Type **E** *Comment Status* **D** *PICS*

PICS item PMAE7 (termination resistor on the test fixture) reflects a requirement eliminated from the text, and this is covered by PICS PMAE10

SuggestedRemedy

Delete PICS item PMAE7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.2.2** *P* **182** *L* **3** # r01-75

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **E** *Comment Status* **D** *PICS*

PMAE12 has been moved to MI3 and thus needs to be removed here.

SuggestedRemedy

Remove PMAE12 entry and do a renumbering.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.3** *P* **183** *L* **3** # r01-14

Maguire, Valerie The Siemon Company

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

There are two rows for identifed as item MI1

SuggestedRemedy

Correct PICS numbering for row entries in the 146.11.4.3 Management interface clause

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.3** *P* **183** *L* **9** # r01-76

Graber, Steffen Pepperl+Fuchs GmbH

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

There are two MI1 entries, needs a renumbering.

SuggestedRemedy

Renumber PICS in 146.11.4.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accomodated by comment r01-14 (same comment, same remedy)

Cl **146** *SC* **146.11.4.3** *P* **183** *L* **23** # r01-77

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *PICS*

PICS entry for transmit amplitude selection and EEE are missing.

SuggestedRemedy

Add the following new PICS entries:

Item: MI5
Feature: Increased transmit level request
Subclause: 146.6.4
Value/Content: Bit A23 contains a one, if the PHY is requesting the increased transmit level, otherwise bit A23 contains a zero
Status: RTDL:O AN:M
Support: Yes [] No [] N/A []

Item: MI6
Feature: Increased transmit level support
Subclause: 146.6.4
Value/Content: Bit A24 contains a one, if the PHY is supporting and advertising the 2.4 Vpp operating mode, otherwise bit A24 contains a zero
Status: RTDL:O AN:M
Support: Yes [] No [] N/A []

Item: MI7
Feature: Increased transmit level selection
Subclause: 146.6.4
Value/Content: If both PHYs advertise increased transmit/receive ability and at least one PHY requests an increased transmit level, the 2.4 Vpp operating mode is selected, otherwise the 1.0 Vpp operating mode is selected
Status: RTDL:O AN:M
Support: Yes [] No [] N/A []

Item: MI8
Feature: Energy Efficient Ethernet ability
Subclause: 146.6.5
Value/Content: Bit A25 contains a one, if Energy Efficient Ethernet is supported and advertised, otherwise bit A25 contains a zero
Status: EEE:M AN:M
Support: Yes [] N/A []

Provide editorial license to renumber the 146.11.4.3 PICS entries.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.3** *P* **183** *L* **27** # r01-162

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

Comment Type **E** *Comment Status* **D** *PICS*

146.6.5 contains two requirements ('shalls') not reflected in the PICS for advertising or not advertising EEE capability.

SuggestedRemedy

Insert a new PICS item after MI3, with editorial license to number appropriately based on other comments, and renumber subsequent MI PICS:
MI4 | Feature | Advertise EEE capability in bit A25 | 146.6.6 | Bit A25 contains a one when the PHY is supporting and advertising EEE ability, and contains a zero when the PHY is not supporting or not advertising EEE.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolved by comment r01-77.

Response to comment r01-77 is:
PROPOSED ACCEPT.

Item: MI5
Feature: Increased transmit level request
Subclause: 146.6.4
Value/Content: Bit A23 contains a one, if the PHY is requesting the increased transmit level, otherwise bit A23 contains a zero
Status: RTDL:O AN:M
Support: Yes [] No [] N/A []

Item: MI6
Feature: Increased transmit level support
Subclause: 146.6.4
Value/Content: Bit A24 contains a one, if the PHY is supporting and advertising the 2.4 Vpp operating mode, otherwise bit A24 contains a zero
Status: RTDL:O AN:M
Support: Yes [] No [] N/A []

Item: MI7
Feature: Increased transmit level selection
Subclause: 146.6.4
Value/Content: If both PHYs advertise increased transmit/receive ability and at least one PHY requests an increased transmit level, the 2.4 Vpp operating mode is selected, otherwise the 1.0 Vpp operating mode is selected
Status: RTDL:O AN:M
Support: Yes [] No [] N/A []

Item: MI8
Feature: Energy Efficient Ethernet ability
Subclause: 146.6.5

Value/Content: Bit A25 contains a one, if Energy Efficient Ethernet is supported and advertised, otherwise bit A25 contains a zero
Status: EEE:M AN:M
Support: Yes [] N/A []

Provide editorial license to renumber the 146.11.4.3 PICS entries.

Cl **146** *SC* **146.11.4.4** *P* **183** *L* **43** # r01-78

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *PICS*

PICS entry for mode conversino and coupling attenuation are missing.

SuggestedRemedy

Add the following new PICS entries:

Item: LMF5
Feature: Differential to common mode conversion
Subclause: 146.7.1.4
Value/Content: See Table 146-5
Status: INS:M
Support: Yes []

Item: LMF6
Feature: Coupling attenuation
Subclause: 146.7.1.5
Value/Content: See Table 146-6
Status: INS:M
Support: Yes []

Provide editorial license to renumber the 146.11.4.4 PICS entries.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.5** *P* **184** *L* **24** # r01-79

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *PICS*

PICS entry for automatic recovery after a fault is missing.

SuggestedRemedy

Change Value/Comment for MDI5 entry from "Withstand without damage the application of a short circuit of any wire to the other wire of the same pair or ground potential" to "Withstand without damage the application of a short circuit of any wire to the other wire of the same pair or ground potential, operation resumes after removing the short(s)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **146** *SC* **146.11.4.6** *P* **184** *L* **33** # r01-80

Graber, Steffen Pepperl+Fuchs GmbH

Comment Type **T** *Comment Status* **D** *PICS*

PICS entry for conformance with local and national codes is missing.

SuggestedRemedy

Add the following new PICS entries:

Item: ES2
Feature: Compliance with local and national codes
Subclause: 146.9.2.2
Value/Content: System integrating a 10BASE-T1L PHY complies to all applicable local and national codes.
Status: INS:M
Support: Yes []

Change Item ES1 Status from "M" to "INS:M"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.2** *P* **187** *L* **3** # r01-176

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

Comment Type **E** *Comment Status* **D** *PICS*

"The 10BASE-T1S PHY shall use the service primitives" is an untestable shall, and really is describing the operation.

SuggestedRemedy

Change "shall use" to "uses"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.2.3** *P* **188** *L* **50** # r01-178

Law, David — Hewlett Packard Enterprise

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

Subclause 147.3.6 'Carrier sense' specifies that in half-duplex mode 'CRS shall be asserted when the pma_crs parameter is CARRIER_ON and CRS shall be deasserted when the pma_crs parameter is CARRIER_OFF.'. Subclause 147.2.3 'Mapping of PMA_CARRIER.indication' specifies that 'The pma_crs parameter is set to CARRIER_ON if a signal compatible with DME encoding rules specified in 147.4.2 is present on the medium. Otherwise the pma_crs parameter is set to CARRIER_OFF.'. Subclause 147.4.2 specifies that 'If tx_sym value is anything other than 'I' the following rules apply:' and then specifies where the DME clock and data transitions. Based on this a HEARTBEAT, which consists of 'T' symbols (see table 147-1), will produce a signal compatible with DME encoding rules specified in 147.4.2 resulting in the pma_crs parameter being set to CARRIER_ON and therefore CRS being asserted.

SuggestedRemedy

If it is not intended to assert CRS during reception of HEARTBEAT, add text to the description of the generation of pma_crs parameter to exclude HEARTBEAT.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Assertion of CRS upon HB is intentional: it's purpose is to minimize (eliminate) the chance of collision between HBs in half-duplex mode.

Cl **147** *SC* **147.3.2.2** *P* **192** *L* **32** # r01-139

Xu, Dayin — Rockwell Automation

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

Reword the text

SuggestedRemedy

Change "When set to FALSE transmission is disabled. When set to TRUE transmission is enabled" to "When set to FALSE it indicates the transmission is disabled. When set to TRUE it indicates the tranmission is enabled."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **147** *SC* **147.3.2.2** *P* **192** *L* **37** # r01-140

Xu, Dayin — Rockwell Automation

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

Reword the text

SuggestedRemedy

Change "When set to FALSE it indicates a non-errored transmission. When set to TRUE it indicates an errored transmission." to "When set to FALSE it indicates no transmission error. When set to TRUE it indicates a transmission error."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **147** *SC* **147.3.2.2** *P* **192** *L* **52** # r01-141

Xu, Dayin — Rockwell Automation

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

Saying "TX_ER = TRUE" is not correct

SuggestedRemedy

Change" TX_ER = TRUE" to "TX_EN = TRUE"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.2.4** *P* **195** *L* **1** # r01-179

Law, David — Hewlett Packard Enterprise

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

There seems to be a spurious space between 'TXCMD_' and 'ENCODE' in the function name.

SuggestedRemedy

Change 'TXCMD_ ENCODE' to read 'TXCMD_ENCODE' to match the function call in the SILENT state of Figure 147-4 'PCS Transmit state diagram (part a)'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.2.5** *P* **195** *L* **12** # r01-180

Law, David — Hewlett Packard Enterprise

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

There no other mention of 'symbol timer' in the draft, suggest that 'symbol timer' should be symb_timer, see timer definition immediately below.

SuggestedRemedy

Suggest that 'Alias for symbol timer done.' should be changed to read 'Alias for symb_timer_done.'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.2.6** *P* **195** *L* **26** # r01-145

Xu, Dayin — Rockwell Automation

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

Reword the text

SuggestedRemedy

Change "Optionally times the minimum duration the PHY suppresses any transmission before reverting to normal operations." to "Defines the minimum duration the PHY suppresses any transmission before reverting to normal operations. Reverting to normal operations when this timer expires is optional."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Comment is on text out of scope of the recirculation, unchanged from draft 3.0, and not subject to a must-be-satisfied comment associated with a disapprove vote.

Cl **147** *SC* **147.3.2.7** *P* **196** *L* **9** # r01-181

Law, David — Hewlett Packard Enterprise

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

The variable hb_cmd is used as an input to the TXCMD_ENCODE function in the SILENT state in Figure 147-4 'PCS Transmit state diagram (part a)' but is not defined in subclause 147.3.2.2 'Variables'.

SuggestedRemedy

Add the following addition to subclause 147.3.2.2 'Variables':

hb_cmd
See 147.3.7.1.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.2.7** *P* **197** *L* **6** # r01-182

Law, David — Hewlett Packard Enterprise

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

The is no definition in subclause 147.3.2.2 'Variables' of the meaning of the subscript n in respect to TXDn passed to the ENCODE() function in the DATA state in Figure 147-5 'PCS Transmit state diagram (part b)'. Since TXD is defined in subclause 147.3.2.2, is only used in the DATA state in the PCS Transmit state diagram, and the timing is defined by the state diagram since entry into the DATA state is based on STD (symbol timer done) being true, suggest that TXDn be replaced by TXD.

SuggestedRemedy

Change the action 'tx_sym <= ENCODE(TXDn)' to read 'tx_sym <= ENCODE(TXD)'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.2.8** *P* **197** *L* **43** # r01-2

Beruto, Piergiorgio — Canova Tech S.r.l.

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

The standalone "n" in the sentence "The bits stored in the shift register delay line at time n are denoted" could be more readable if put in evidence.

SuggestedRemedy

Surround the standalone 'n' in the aforementioned sentence with apexes, as shown here. Do the same in 147.3.3.7 on page 201 line 31.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
CRG disagrees with the commenter.
Existing text is clear and consistent with style.
Changing these 2 locations would make other, similar, constructs (e.g. "with i ranging from 0 to 3") inconsistent.

Cl **147** *SC* **147.3.2.9** *P* **198** *L* **14** # r01-163

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

Comment Type **T** *Comment Status* **D** *PICS*

147.3.2.9 describes the operation of the PCS transmit state diagram in Figure 147-5, but contains "shalls" which are redundant to the state diagram. (additionally, there are no PICS for these) This clause needs to be rewritten as descriptive. (changing "shall contain" to "contains", etc.)

SuggestedRemedy

Change "The PCS Transmit function shall contain the capability to interrupt a transmission that exceeds a time duration determined by xmit_max_timer. If the packet being transmitted continues longer than the specified time duration, the PCS Transmit shall send an ESD, ESDJAB symbol sequence to notify the receivers, then it shall inhibit further transmissions for at least the duration of unjab_timer."
to: "The PCS Transmit function contains the capability to interrupt a transmission that exceeds a time duration
determined by xmit_max_timer. If the packet being transmitted continues longer than the specified time
duration, the PCS Transmit sends an ESD, ESDJAB symbol sequence to notify the receivers, then it
inhibits further transmissions for at least the duration of unjab_timer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.3.2** *P* **199** *L* **9** # r01-183

Law, David Hewlett Packard Enterprise

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

Suggest that a cross reference be added to subclause 22.2.2.8 'RXD'.

SuggestedRemedy

Change the text 'PCS decoded data synchronous to RX_CLK.' to read ' PCS decoded data synchronous to RX_CLK as specified in 22.2.2.8.'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.3.2** *P* **199** *L* **19** # r01-146

Xu, Dayin Rockwell Automation

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

"behind" seems to mean later than here, but it should be early than.

SuggestedRemedy

Change "... 'x' cycles behind ..." to "... 'x' cycles early than ...".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
CRG disagrees with the commenter.
Existing text is clear and consistent with style.
Beind refers here to the delay line's past (stored) states.

Cl **147** *SC* **147.3.3.8** *P* **201** *L* **51** # r01-153

Baggett, Tim Microchip Technology, Inc.

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

The newly added section "147.3.3.8 Timers" is located in an odd place between the descrambler and jabber diagnostics sections.

SuggestedRemedy

Move section 147.3.3.8 to follow 147.3.3.5. (Rename it at 147.3.3.6 and renumber following sections)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.3.8** *P* **201** *L* **51** # r01-142

Xu, Dayin Rockwell Automation

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

The subclause "147.3.3.8 Timer" is not at proper place

SuggestedRemedy

Move the subclause "147.3.3.8 Timer" after 147.3.3.5

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Resolved by r01-153, proposed resolution of which is as follows:
>>>>
Move section 147.3.3.8 to follow 147.3.3.5. (Rename it at 147.3.3.6 and renumber following sections)
PROPOSED ACCEPT.
<<<<

Cl **147** *SC* **147.3.3.9** *P* **202** *L* **11** # r01-50

Anslow, Peter Ciena

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

"3.2293" is not an external cross-reference, so should not be Forest green.

SuggestedRemedy

Remove the character tag "External" so that this text reverts to black
(highlight the text and in the character catalogue pod, click on Default font)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7** *P* **203** *L* **10** # r01-166

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

Comment Type **E** *Comment Status* **D** *PICS*

The PICS entry for the heartbeat function is missing

SuggestedRemedy

Insert new subclause after 147.12.4.4 Support for PCS status generation, with a PICS table with a single entry:
HB1 | Heartbeat behavior when Auto-Negotiation is implemented and enabled | 147.3.7 | Conform to Figure 147-10 and 147-11 | AN:M | Yes[] N/A[]

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7** *P* **203** *L* **10** # r01-167

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

Comment Type **E** *Comment Status* **D** *PICS*

The title of the heartbeat section misleads the readers that it's implementation is an independent option, when it is optional based on the status of autonegotiation. Also, the text has two shalls in it "shall be disabled" and "shall convey" which are redundant to the state diagram, and should be descriptive.

SuggestedRemedy

Change title of 147.3.7 to: Support for PCS status generation

P203 L15 Change "shall be disabled" to "are disabled"
P203 L17 Change "shall convey" to "conveys"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7** *P* **203** *L* **20** # r01-184

Law, David Hewlett Packard Enterprise

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

It appears from Figure 147-11 'Heartbeat receive state diagram' that HEARTBEATs on their own, RX_DVs on their own, or combination of both, will set the pcs_status parameter of PCS_STATUS.indication primitive to OK.

SuggestedRemedy

Suggest that '... is set after the reception of HB signals and valid data reception ...' be changed to read '... is set to OK after the reception of HB signals or valid data reception ...'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7.1.1** *P* **203** *L* **47** # r01-185

Law, David Hewlett Packard Enterprise

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

There appear to be two issues with the use of the variable an_link_good in the Figure 147-10 'Heartbeat transmit state diagram' and Figure 147-11 'Heartbeat receive state diagram'. The first is the variable an_link_good isin't passed across the Technology Dependent Interface, see IEEE Std 802.3-2018 subclause 98.4 'Technology-Dependent Interface'. The second is that the variable an_link_good just indicates that Auto-Negotiation has completed, see IEEE Std 802.3-2018 subclause 98.5.1, it doesn't necessarily mean that 10BASE-T1S has been chosen by Auto-Negotiation as the highest common denominator technology. Hence an_link_good may be TRUE even though 10BASE-T1S hasn't been selected. Instead the link_control parameter of the PMA_LINK.request primitive which is part of the Technology Dependent Interface should be used.

SuggestedRemedy

[1] In subclause 147.3.7.1.1 'Variables' and 147.3.7.2.1 'Variables' replace an_link_good with the following:

link_control
The link_control parameter of the PMA_LINK.request primitive defined in 89.4.2.
Values: DISABLE or ENABLE

[2] Replace the term (!an_link_good) with (link_control = DISABLE) in the open arrow entry to the INIT state of Figure 147-10 'Heartbeat transmit state diagram'.

[3] Replace the term an_link_good with (link_control = ENABLE) in the open arrow entry to the DISABLE_HB state of Figure 147-10 'Heartbeat transmit state diagram'.

[4] Replace the term (!an_link_good) with (link_control = DISABLE) in the open arrow entry to the INACTIVE state of Figure 147-11 'Heartbeat receive state diagram'.

Proposed Response *Response Status* **W**

1. In "147.3.7.1.1 Variables" and in "147.3.7.2.1 Variables" replace the entries for "an_link good" (including "See 98.5.1.") with entries for link_control, as follows:
====
link_control
<TAB>See 147.3.2.2
====
2. Replace the term (!an_link_good) with (link_control = DISABLE) in the open arrow entry to the INIT state of "Figure 147-10-Heartbeat transmit state diagram".
3. Replace the term an_link_good with (link_control = ENABLE) in the open arrow entry to the DISABLE_HB state of "Figure 147-10-Heartbeat transmit state diagram".
4. Replace the term (!an_link_good) with (link_control = DISABLE) in the open arrow entry to the INACTIVE state of "Figure 147-11-Heartbeat receive state diagram".
5. In "147.3.7.1 Heartbeat transmit overview" change "Auto-Negotiation has not achieved a good link." part of the last sentence of the 2nd paragraph (203/33) to "Auto-Negotiation signals link_control = DISABLE."
6. In "147.3.7.1 Heartbeat transmit overview" change "Auto-Negotiation stops reporting a good link." part of the last sentence of the 3rd paragraph (203/38) to "Auto-Negotiation signals link_control = DISABLE."

Cl **147** *SC* **147.3.7.1.1** *P* **204** *L* **5** # r01-186

Law, David Hewlett Packard Enterprise

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

The definition for the variable 'hb_cmd' includes the text '... or a higher priority request is in effect, as specified in 147.3.2.2.'. There is however no mention of 'hb_cmd' in subclause 147.3.2.2. Instead I think this cross-reference should be to subclause 147.3.2.4 'Functions' where the description of the TXCMD_ENCODE function which includes the text '... his function takes as its arguments the values of tx_cmd and hb_cmd variables and returns a 5B symbol ...'.

SuggestedRemedy

Change the text '... as specified in 147.3.2.2.' to read ' as specified in 147.3.2.4.'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7.1.1** *P* **204** *L* **11** # r01-187

Law, David Hewlett Packard Enterprise

Comment Type **TR** *Comment Status* **D** *PCS*

The definition of rx_cmd doesn't give a clear description of the when the values should be generated. As an example it is stated that rx_cmd will take the value BEACON when '... a BEACON indication is generated as specified in 147.3.7' yet it is then stated that it will take the value HEARTBEAT '... when an HB is detected on the line'. It isn't what is 'generating' the BEACON in the former case, and the use of 'detected on the line' in the latter, but not the former implies the former may not be related to what is received. I don't think this is correct, instead isn't rx_cmd simply the detection of a BEACON, COMMIT, HEARTBEAT, or NONE (not BEACON, COMMIT or HEARTBEAT) in the rx_sym parameter of the PMA_UNITADATA.indication primitive defined in 147.2.1.

SuggestedRemedy

Suggest that the definition of the rx_cmd variable be changed to read:

rx_cmd
The value of the rx_sym parameter (see Table 147-1) passed to the PCS from the PMA by the PMA_UNITADATA.indication primitive defined in 147.2.1.

Values:
BEACON: The 5B symbol is BEACON
COMMIT: The 5B symbol is COMMIT
HEARTBEAT: The 5B symbol is HB
NONE: The 5B symbol is not BEACON, COMMIT or HB

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7.1.1** *P* **204** *L* **17** # r01-143

Xu, Dayin — Rockwell Automation

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

Minor edit

SuggestedRemedy

Change " ... when an HB ..." to " ... when a HB .."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
CRG disagrees with the commenter.
The article "an" is used correctly before an acronym.

Cl **147** *SC* **147.3.7.1.2** *P* **204** *L* **34** # r01-188

Law, David — Hewlett Packard Enterprise

Comment Type **TR** *Comment Status* **D** *PCS*

The hb_send_timer and link_hold_timer are both defined with the same duration and tolerance. As a result the hb_send_timer in the master PHY at one end of a link can be set to a value (worst case 50.1 ms) that is greater that the value of the link_hold_timer (worse case 49.9 ms) in the salve PHY at the other end of a link.

In such a configuration, in the absence of packets and with ACTIVE_CNT set to its default of 2 or greater, the Figure 147-11 'Heartbeat receive state diagram' in the slave PHY will enter the COUNT_UP state on rx_cmd = HEARTBEAT incrementing cnt_h to 1 and starting the link_hold_timer. It will then enter the HOLD_OFF state then, as a result of the hb_send_timer being greater than link_hold_timer, the link_hold_timer will expire resulting in a transition to the INACTIVE state. This results in cnt_h being set back to 0. This cycle will repeat every HEARTBEAT, and as a result pcs_status will never be set to OK.

As link_status use by Auto-Negotiation is derived from pcs_status, through the Figure 147-14 'Link Monitor state diagram', if the above persists for excess of link_fail_inhibit_timer time Auto-Negotiation renegotiation will take place (see subclause 98.2.4.1 'Renegotiation function').

SuggestedRemedy

Define the hb_send_timer and link_hold_timer duration and tolerance such that the maximum hb_send_timer time is less than the minimum link_hold_timer time plus some tolerance. Suggest that the link_hold_timer duration be changed to 50.2 ms to achieve this.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Commenter is believed to mean hb_timer (204/38) instead of hb_send_timer (204/34).
Resolved by r01-82, proposed resolution of which is as follows:
>>>>
PROPOSED ACCEPT IN PRINCIPLE.
Change the duration of link_hold_timer from 50 to 75 ms (at 207/34)
<<<<

Cl **147** *SC* **147.3.7.1.3** *P* **205** *L* **10** # r01-189

Law, David — Hewlett Packard Enterprise

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

The variable tx_cmd is used in the open arrow transition in to the DISABLE_HB state however tx_cmd isn't defined in subclause 147.3.7.1.1 'Variables'.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add the following to under "147.3.7.1.1 Variables", right after the definition of rx_cmd:
====
tx_cmd
<TAB>See 147.3.2.2.
====

Cl **147** *SC* **147.3.7.1.3** *P* **205** *L* **13** # r01-7

Beruto, Piergiorgio Canova Tech S.r.l.

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

In the Heartbeat state diagram, a method to go out from the DISABLE_HB state when PLCA is disabled is needed.
This would also ensure correct operation in the unlikely case of misdetection of a BEACON.

SuggestedRemedy

In Figure 147-10 add a transition from the "DISABLE_HB" state to the "INIT" state with the following condition: "disable_hb_timer_done".
In Figure 147-10 add the following statement inside the "DISABLE_HB" state box: "start disable_hb_timer"
Add the following timer description to 147.3.7.1.2:
"disable_hb_timer
Time the heartbeat state diagram dwells in the DISABLE_HB state without receiving or transmitting a BEACON.
Duration: 1 s.
Tolerance: +/- 100ms.
"
At page 203, line 38 change
"the DISABLE_HB state and stays there until PCS Reset is asserted, multidrop mode is enabled, Auto-Negotiation is disabled, or Auto-Negotiation stops reporting a good link."
with:
"the DISABLE_HB state. It remains in the disable HB state until at least one of the following occurs: PCS Reset is asserted, multidrop mode is enabled, the disable_hb_timer expires, Auto-Negotiation is disabled, or Auto-Negotiation stops reporting that it is complete. NOTE - any BEACON received either from the MII or the PMA restarts the disable_hb_timer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7.1.3** *P* **205** *L* **35** # r01-190

Law, David Hewlett Packard Enterprise

Comment Type **TR** *Comment Status* **D** *PCS*

Subclause 147.3.6 'Carrier sense' specifies that 'When operating in half-duplex mode, 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 as specified in 22.2.2.11.'. Based on this text CRS is never asserted in full duplex mode. When a slave PHY (!master = TRUE) in full duplex mode receives a packet the Figure 147-10 'Heartbeat transmit state diagram' will transition to the WAIT_RX state due to RX_DV = TRUE, but the instantly to WAIT_TX due to CRS = FALSE. After a delay of hb_send_timer time (20 bit times +/- 0.5 bit time) the state diagram will transition to REPLY_HB where HEARTBEAT will be sent for hb_send_timer time (20 bit times +/- 0.5 bit time). The state diagram will then transition to WAIT_HB where, due to RX_DV = TRUE and CRS = FALSE the whole cycle will repeat again. This results is that the Figure 147-10 'Heartbeat transmit state diagram' transmits a continuous cycle of 20 bits of IDLE followed by 20 bits of HEARTBEAT whenever a packet is being received.

SuggestedRemedy

Since RX_DV is used for the entry into the WAIT_RX suggest that the exit condition be changed from !CRS to !RX_DV.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the condition on WAIT_RX->WAIT_TX from this:
====
!CRS
====
to this:
=====
(rx_cmd = NONE) *
(!RX_DV)
====

Cl **147** *SC* **147.3.7.2** *P* **206** *L* **2** # r01-191

Law, David Hewlett Packard Enterprise

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

Unit symbols shouldn't be used to stand for the quantity being measured (see IEEE-SA Style Guide subclause 12.4).

SuggestedRemedy

Suggest that '... within link_hold_timer ms for ...' should read '... within link_hold_timer time for ...'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.3.7.2.3** *P* **207** *L* **33** # r01-82

McCarthy, Mick Analog Devices Inc.

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

The link_hold_timer is used in Figure 147-11 - Hearbeat receive state diagram. link_hold_timer is used as an inactivity timeout and prompts a transition back to INACTIVE if it expires, where cnt_h counter is reset. The duration of this timer is too short and needs to be increased.

The corresponding timer used in Figure 147-10 - Heartbeat transmit state diagram is hb_timer, which sets the period of silence/inactivity between heartbeats on the transmit side.

The problem is that these two timers are defined to have the same duration, i.e. 50 ms +/- 100 us. Two compliant PHY implementations could have the link_hold_timer duration less than the hb_timer duration. Then the link_hold_timer would expire before the next heartbeat is received, and the Heartbeat receive state diagram would never achieve the ACTIVE state.

SuggestedRemedy

Change link_hold_timer description as follows:

link_hold_timer
Timer used to check inactivity.
Duration: 52 ms
Tolerance: +/-100 us [editor: use proper symbol for micro, comment tool not recognising character]

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the duration of link_hold_timer from 50 to 75 ms (at 207/34)

Cl **147** *SC* **147.4.4** *P* **210** *L* **9** # r01-168

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

Comment Type **E** *Comment Status* **D** *PICS*

The PICS entry for the Link Monitor function is missing

SuggestedRemedy

Add new PICS item PMA5 after PMA4 (with editorial license to adjust order for other comments):
PMA5 | Link Monitor Function | 147.4.4 | Conform to Figure 147-14 |M | Yes[]

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.5.2** *P* **211** *L* **34** # r01-177

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

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

"The test modes described in this subclause shall be provided to allow testing of the transmitter waveform, transmitter distortion, transmitter jitter, and transmitter droop" is redundant to the enumerated list of test modes below, and also incorrectly includes transmitter distortion.

It is simpler and more correct to simply say they allow testing of the transmitter.

SuggestedRemedy

Change :"The test modes described in this subclause shall be provided to allow testing of the transmitter waveform, transmitter distortion, transmitter jitter, and transmitter droop"

to: "The test modes described in this subclause shall be provided to allow testing of the transmitter."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.5.4.4** *P* **213** *L* **40** # r01-169

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

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

The language "shall be measured using ..." puts a requirement on the user. The langauge in the related PICS item PMAE15 is "when measured using test mode 3" - also, the reference to the equations as the requirements is missing.

SuggestedRemedy

Change "The transmitter Power Spectral Density (PSD) shall be measured using test mode 3 in combination with the test fixture shown in Figure 147-16."
to "When measured using test mode 3 and the test fixture shown in Figure 147-16, or equivalent, the transmitter Power Spectral Density (PSD) shall be between the upper and lower masks specified in Equation (147-1) and Equation (147-2)."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.5.5.1** *P* **214** *L* **51** # r01-6

Beruto, Piergiorgio Canova Tech S.r.l.

Comment Type **T** *Comment Status* **D** *Test Mode*

The computation of the frame error ratio versus the BER is not correct.

SuggestedRemedy

Change " 7.8 x 10^-7" to "6.4 x 10^-7"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.5.5.1** *P* **215** *L* **47** # r01-170

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

Comment Type **E** *Comment Status* **D** *PICS*

The PICS entry for the receiver performance is missing.

SuggestedRemedy

Add new PICS item PMAE17 between existing PMAE16 and PMAE17, and renumber subsequent accordingly.
PMAE17 | Receiver differential input signals | 147.5.5.1 | Can be verified with a frame error ratio less than 7.8 x 10^-7 for 800 octet
frames

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.6.1** *P* **215** *L* **50** # r01-171

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

Comment Type **E** *Comment Status* **D** *PICS*

147.6.1 contains several shalls without PICS which actually put requirements on the user - these need to be descriptive text.

SuggestedRemedy

P215 L50: Change "shall contain" to "contains" in all 4 instances in the following: "When Auto-Negotiation is used, Technology Ability Field bit A22 shall contain a one, if the PHY is supporting and advertising 10BASE-T1S half duplex ability and it shall contain a zero, if 10BASE-T1S half duplex communication is not supported or not advertised. When Auto-Negotiation is used, Technology Ability Field bit A1 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."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.9.1** *P* **218** *L* **50** # r01-89

Jones, Peter Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **D** *MDI*

The changes made in the resolution of D3.0 comment #197 linked the optional connector choice to the E1/E2/E3 environments.
We clearly state that any connector/terminal that matches requirements can be used: "Specific systems or applications can use connectors or terminals, in addition to those listed below, that support the link segment specification defined in 147.7 or the mixing segment specification defined in 147.8."
Also, according to the notes in the normative references, both IEC 63171-1 or 63171-6 are still in development, and unless they are referenceable by final circulation, references to them will have to be removed from the draft.
In addition, we have seen contributions describing issues with selected connectors (http://www.ieee802.org/3/cg/public/Jan2019/bains_3cg_01e_0119.pdf)
I think that we should revert to the D3.0 text or implement the D3.0 comment #197 suggested remedy and remove discussion of specific connectors. This would be equivalent to D2.1 comment #407 (see http://www.ieee802.org/3/cg/public/Nov2018/jones_3cg_02c_1118.pdf)

SuggestedRemedy

Implement D3.0 comment #197 suggested remedy
On page 218, line 50: Replace, " Specific systems or applications can use connectors or terminals, in addition to those listed below, that support the link segment specification defined in 147.7 or the mixing segment specification defined in 147.8 " with, "Specific systems or applications can use connectors or terminals that support the link segment specification defined in 147.7 or the mixing segment specification defined in 147.8"

Delete 147.9.1 paragraph 3 (starts on page 170, line 1).

In 147.9.1, delete figures 147-21, 147-22, 147-23, 147-24, 147-25, 147-26, and table 147-3.

Remove IEC 63171-1 and 63171-6 from the normative references list.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Discuss with Comment r01-088, which is the same issue, but in clause 146.

TFTD: Issue to be discussed is whether to delete paragraph 3, the connector figures and references from the draft.

If the group decides to delete the references in clause 147, then:
ACCEPT IN PRINCIPLE this comment (implementing 196 is not necessary, as the text is deleted, and the reference to the pinout polarity needs to be retained for powering)

Implement D3.0 comment #197 suggested remedy
On page 218, line 50: Replace, " Specific systems or applications can use connectors or terminals, in addition to those listed below, that support the link segment specification defined in 147.7 or the mixing segment specification defined in 147.8 " with, "Specific

systems or applications can use connectors or terminals that support the link segment specification defined in 147.7 or the mixing segment specification defined in 147.8"

Delete 147.9.1 paragraph 3 (starts on page 170, line 1).

In 147.9.1, delete figures 147-21, 147-22, 147-23, 147-24, 147-25, 147-26, and table 147-3.

Remove IEC 63171-1 and 63171-6 from the normative references list. (only if both clause 146 and 147 choose to delete the references)

If the group decides to retain the connector references in clause 147, then, REJECT this comment with:

The CRG disagrees with the commenter. The text in paragraph 3 of 147.9.1 of draft 3.1 was drafted from the parallel comment on 146.8.1, resolved by motion #7 at the May 2019 interim. This text represents consensus resolving a previous disapprove vote, and would be trading one disapprove for another.
See Motion 7 from the May 2019 CRG meeting, slide 8 of http://www.ieee802.org/3/cg/May2019/motions_3cg_01a_0519.pdf, adding the existing text of paragraph 3 of 147.9.1 to the draft.

Cl **147** *SC* **147.9.2** *P* **221** *L* **3** # r01-148

Stewart, Heath Analog Devices Inc.

Comment Type **TR** *Comment Status* **D** *MDI*

This MDI electrical specification currently mandates a minimum parallel resistance of 10kohms. However, this value is suitable only for the multidrop operation mode. For the point-to-point operation modes, transmitter should present a proper termination and the MDI should have a defined return loss limit. Since T1S systems operating in point-to-point mode share the same PoDL type as 100BASE-T1 systems, the MDI return loss limit can be same as 100BASE-T1 systems.

SuggestedRemedy

Change Clause 147.9.2 (P221, L3-7) as follows: Change the text on P221, L3 from "The MDI shall present..." to "When connected to a mixing segment as defined in 147.8 the MDI shall present..." and add a sentence on L6 after last sentence of paragraph "When connected to a link segment as defined in 147.7, the MDI shall meet the return loss limits as specified in Clause 96.8.2.1 Equation 96-11a."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
TFTD
Editorial license to adjust PICS as necessary

Cl **147** *SC* **147.11** *P* **223** *L* **35** # r01-51

Anslow, Peter Ciena

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

As stated in 1.2.6:
"Unless otherwise stated, numerical limits in this standard are to be taken as exact, with the number of significant digits and trailing zeros having no significance."

SuggestedRemedy

In the row for "MDI input to COL asserted" change "5.0" to "5"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.12.4.2** *P* **226** *L* **17** # r01-164

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

Comment Type **E** *Comment Status* **D** *PICS*

Both PICS PCSR5 and PCSR7 omit the condition on which the override of the current state ends.

SuggestedRemedy

Add to the description of PCSR5 - "Override ceases as soon as the currently received symbol is anything other than 'N'.
Add to the description of PCSR7 - "Override ceases as soon as the currently received symbol is anything other than 'J'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.12.4.3** *P* **227** *L* **16** # r01-165

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

Comment Type **E** *Comment Status* **D** *PICS*

PICS PCSL3 and PCSL4 reference 147.3.5, they should reference 147.3.4, where the requirement is

SuggestedRemedy

Change reference in PICS items PCSL3 and PCSL4 to 147.3.4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.12.4.5.1** *P* **228** *L* **15** # r01-173

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

Comment Type **E** *Comment Status* **D** *PICS*

PICS item PMA4 does not represent a requirement - it represents what is now a NOTE in the text, and not a "shall"

SuggestedRemedy

Delete PICS item PMA4

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.12.4.8** *P* **231** *L* **52** # r01-172

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

Comment Type **E** *Comment Status* **D** *PICS*

PICS item MDI3 is incomplete, the Value/Comment does not indicate that normal operation is to resume after all short circuits are removed, as reflected in the text

SuggestedRemedy

Add to description of PICS item MDI3: "Normal operation resumes after all short circuits are removed."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **147** *SC* **147.12.4.9** *P* **232** *L* **11** # r01-174

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

Comment Type **E** *Comment Status* **D** *PICS*

There are two "shalls" in 147.10 which are missing PICS items in 147.12.4.9 - "All equipment subject to this clause shall conform to all applicable local, state, national, and application-specific standards." in 147.10.1 and "A system integrating the 10BASE-T1S PHY shall comply with all applicable local and national codes." in 147.10.2.2. These put requirements on teh equipment which are out of scope of the PHY being specified. The recommendation is to make these 'expectations' not requirements.

SuggestedRemedy

Change "shall conform" to "is expected to conform" in both 147.10.1 and 107.10.2.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall conform" to "is expected to conform" in both 147.10.1 and 147.10.2.2.

Cl **148** *SC* **148.1** *P* **233** *L* **13** # r01-221

Thompson, Geoffrey Independent Consultant

Comment Type **ER** *Comment Status* **D** *PLCA_Overview*

I do not know the definition of "enhanced performance relative to CSMA/CD without PLCA" that is appropriate for this text. Such a statement is clearly not universally true and I know of no standardized test (which has not been quoted or referenced) to support such a statement. While this may be true for some traffic conditions, it is not universally true as asserted.

SuggestedRemedy

Remove this statement or replace it with something that is true.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change: "The use of PLCA-enabled physical layers in CSMA/CD half-duplex shared-medium networks provides enhanced performance relative
to CSMA/CD without PLCA."
to: "The use of PLCA-enabled physical layers in CSMA/CD half-duplex shared-medium networks can provide enhanced bandwidth and access latency under heavily loaded traffic conditions."

Cl **148** *SC* **148.2** *P* **233** *L* **42** # r01-222

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_Overview*

Overview does not even give a hint as to what happens in a mixed network or the impact of such on network performance.

SuggestedRemedy

Add text describing performance of mixed networks and how it compares to "pure" of either flavor.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add new second paragraph, "PLCA-enabled nodes may be used in the same CSMA/CD collision domain as non-PLCA enabled nodes. As the percentage of non-PLCA enabled nodes increases, performance advantages also decrease."

Cl **148** *SC* **148.2** *P* **233** *L* **42** # r01-223

Thompson, Geoffrey Independent Consultant

Comment Type **TR** *Comment Status* **D** *PLCA_ID*

Overview does not even give a hint as to what sort of recovery procedure there is if Node ID = 0 fails or disappears.

SuggestedRemedy

Add text describing that there is a recovery procedure which can fall back to pure CSMA/CD.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
When Node ID = 0 fails or disappears the network behaves like a non-PLCA enabled CSMA/CD network. Such behavior has been intentionally defined in the PLCA Control State Diagram. However, there is one missing corner case where the mentioned state diagram could get stuck if the Node with ID = 0 fails immediately after PLCA has been enabled.

[1] At page 233 line 53 append the following after "new cycle of transmit opportunities.":
"If the node with ID = 0 fails, the network is still operational with the same performance level of a CSMA/CD network without PLCA."

[2] In Figure 148-3 in the transition from NEXT_TX_OPPORTUNITY to the B connector, replace the condition "(local_nodeID = 0) * (curID >= plca_node_count)" with "(local_nodeID = 0) * (curID >= plca_node_count) + curID = 255".

[3] In Figure 148-4 in the global transition to the NORMAL state, change the condition "plca_reset + (!plca_en)" to "plca_reset + (!plca_en) + (!plca_status)".

[4] In Figure 148-4 in the transition from the NORMAL state to the IDLE state replace "plca_en" with "plca_en * (!plca_reset) * plca_status"

[5] In Figure 148-4 in the TRANSMIT state box replace "
IF COL THEN
  SIGNAL_STATUS <= SIGNAL_ERROR
ELSE
"
with "
IF COL THEN
  SIGNAL_STATUS <= SIGNAL_ERROR
 a <= 0
ELSE
"

[6] At page 249, line 3 append the following:
"
plca_status
  see 148.4.7.2
"

Cl **148** *SC* **148.2** *P* **233** *L* **45** # r01-52

Anslow, Peter Ciena

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

"Clause 148" should be a cross-reference

SuggestedRemedy

Make "Clause 148" a cross-reference

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.2** *P* **234** *L* **6** # r01-126

Kabra, Lokesh Synopsys, Inc.

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

Improper sentence

SuggestedRemedy

Replace "transmit opportunity is met" with "transmit opportunity is available". This construct is used in multiple places in this clause and to be corrected.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "transmit opportunity is met" to "transmit opportunity is available" on P234 L7 (148.2) , P236 L16 (148.4.3.1.3), and P244 L20 (148.4.6.1).

Cl **148** *SC* **148.4.1** *P* **234** *L* **50** # r01-127

Kabra, Lokesh Synopsys, Inc.

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

The term "MII RS" is not proper. MII is the interface between RS and PHY.

SuggestedRemedy

Replace "MII RS" with "RS"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.2** *P* **235** *L* **7** # r01-128

Kabra, Lokesh Synopsys, Inc.

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

The term "MII RS" is not proper. MII is the interface between RS and PHY.

SuggestedRemedy

Replace "MII RS" with "RS"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.2** *P* **235** *L* **10** # r01-91

Jones, Peter Cisco Systems, Inc.

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

802.3cg should support the TSSI. I don't believe that the TF discussed the pros/cons of supporting PTP or decided not to support PTP on 10BASE-T1S half-duplex point to point or multidrop. A significant portion of the applications for 10BASE-T1S will need precision time support.

SuggestedRemedy

Modify "Figure 148-2--PLCA functions within the Reconciliation Sublayer (RS)" to add TS_TX.indication, TS_RX.indication, SFD DETECT TX and SFD DETECT RX as shown in D2.0 Figure 148-3.
Insert the following paragraph before "148.4.3 Mapping of MII signals to PLS service primitives and PLCA functions"
"Operation with TSSI
When TSSI support is also specified in the actual RS, the SFD detection of transmitted frames shall be detected after the PLCA variable delay line, as shown in Figure 148-2. This ensures the network latency measurement is not affected by the synchronization latency added by PLCA. No special attention is required for SFD detection of received frames."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Discuss with comment r01-90.
TFTD

The CRG disagrees with the commenter. The comment is out of scope of the recirculation, bringing new text, unrelated to changed text into the draft on the recirculation. This change would introduce new functionality into the draft beyond the existing text or approved project objectives.

Cl **148** *SC* **148.4.2** *P* **235** *L* **16** # r01-130

Kabra, Lokesh Synopsys, Inc.

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

Direction of arrow for PLS_DATA.request in Figure 148-2 is opposite as compared to arrow in Figure 22-3 in 802.3-2018. I think Figure 22-3 has to be corrected?

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The comment is out of scope of the recirculation.

However, the CRG agrees with the commenter, the direction of the arrow is indeed from the MAC to the RS in several other clauses (e.g. Figure 78-1). That would also be consistent with the definition in 6.3.1.1.3 "
This primitive is generated by the MAC sublayer to request the transmission of a single data bit on the physical medium or to stop transmission".

That could be addressed by a maintenance request to IEEE Std 802.3-2018.

Cl **148** *SC* **148.4.3.1.1** *P* **235** *L* **53** # r01-129

Kabra, Lokesh Synopsys, Inc.

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

TX_CLK is not generated by RS and is an input from PHY in Clause 22

SuggestedRemedy

Replace "TXD<3:0>, TX_EN and TX_CLK" with "TXD<3:0> and TX_EN"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.3.1.2** *P* **236** *L* **9** # r01-12

Maguire, Valerie The Siemon Company

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

"PLCA DATA state diagram" and "PLCA Data state diagram" are used interchangeably throughout the document.

SuggestedRemedy

Replace "PLCA DATA state" with "PLCA Data state" in the following locations: P236-L9, P236-L17, P236-L31, P236-L42, P236-L52, P242-L24, P243-L1, P243-L5, P246-L54, P247-L54, P253-L27, and P253-L34.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.3.3.2** *P* **236** *L* **37** # r01-122

Kabra, Lokesh Synopsys, Inc.

Comment Type **E** *Comment Status* **D** *EEE*

Remove unnecessary sentence as EEE is not applicable for 10BASE-T1S for which PLCA is specified

SuggestedRemedy

Delete "For EEE capability, CARRIER_STATUS is overridden as specified in 22.2.1.3.3."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.4.1.1** *P* **237** *L* **7** # r01-134

Kabra, Lokesh Synopsys, Inc.

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

Missing reference

SuggestedRemedy

Replace "MII interface." with "MII interface as specified in 22.2.2.4."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter. The comment is out of scope of the recirculation, bringing new text, unrelated to changed text into the draft on the recirculation.

Cl **147** *SC* **147.4.4.1.1** *P* **237** *L* **39** # r01-175

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

Comment Type **E** *Comment Status* **D** *PICS*

"A BEACON request shall not make the PHY assert the RX_DV signal." is not present in the PICS, and is different from similar text in 148.4.4.1.2 describing the effect of COMMIT on RX_DV. Either a PICS item needs to be added or the "shall" needs to be written out.

SuggestedRemedy

Either:
(a) Insert new PICS item PLCA1 in 148.5.3.3 and renumber subsequent:
PLCA1 | Effect of BEACON request on RX_DV | 148.4.4.1.1 | A BEACON request shall not make the PHY assert RX_DV | Yes[]

OR:
(b) at P237 L39, change "A BEACON request shall not make the PHY assert the RX_DV signal " to "Upon the reception of this request, the RX_DV signal is not asserted."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.4.1.1** *P* **237** *L* **39** # r01-4

Beruto, Piergiorgio Canova Tech S.r.l.

Comment Type **E** *Comment Status* **D** *PICS*

As part of the previous round comment i-372, we cannot set requirements on the PHY. However, some changes have been left behind.

SuggestedRemedy

Change "A BEACON request shall not make the PHY assert the RX_DV signal."
to
"A BEACON request does not make the PHY assert the RX_DV signal."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.4.1.1** *P* **237** *L* **41** # r01-131

Kabra, Lokesh Synopsys, Inc.

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

"in" is missing. Same is true in line 53 (148.4.4.1.2)

SuggestedRemedy

Replace "defined this" with "defined in this"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.4.2.1** *P* **238** *L* **5** # r01-135

Kabra, Lokesh Synopsys, Inc.

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

This sub-section should come under 148.4.4.1 as it is a PLCA notification

SuggestedRemedy

Change 148.4.4.2.1 to 148.4.4.1.3 and move content accordingly

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter. The comment is out of scope of the recirculation. Moreover the the BEACON indication from the PHY is the PLCA RS response to the MII signal in table 22-1, not a PLCA notification. 148.4.4.1 describes the PLCA conveying a BECON to the PHY. 148.4.4.2.1 describes the PHY indicating via MII to the PLCA RS that a BEACON was received form the line.

Cl **148** *SC* **148.4.4.2.1** *P* **238** *L* **7** # r01-132

Kabra, Lokesh Synopsys, Inc.

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

Missing reference

SuggestedRemedy

Replace "MII signals" with "MII signals as specified in 22.2.2.8."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter. The comment is out of scope of the recirculation, bringing new text, unrelated to changed text into the draft on the recirculation.

Cl **148** *SC* **148.4.4.2.2** *P* **238** *L* **13** # r01-136

Kabra, Lokesh Synopsys, Inc.

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

This sub-section should come under 148.4.4.1 as it is a PLCA notification

SuggestedRemedy

Change 148.4.4.2.2 to 148.4.4.1.4 and move content accordingly

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter. The comment is out of scope of the recirculation. Moreover the the COMMIT indication from the PHY is the PLCA RS response to the MII signal in table 22-1, not a PLCA notification. 148.4.4.1 describes the PLCA conveying a COMMIT to the PHY. 148.4.4.2.2 describes the PHY indicating via MII to the PLCA RS that a COMMIT was received form the line.

Cl **148** *SC* **148.4.4.2.2** *P* **238** *L* **15** # r01-133

Kabra, Lokesh Synopsys, Inc.

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

Missing reference

SuggestedRemedy

Replace "MII signals" with "MII signals as specified in 22.2.2.8."

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter. The comment is out of scope of the recirculation, bringing new text, unrelated to changed text into the draft on the recirculation.

Cl **148** *SC* **148.4.5** *P* **238** *L* **22** # r01-137

Kabra, Lokesh Synopsys, Inc.

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

This section should have the title "Detailed PLCA Functions and state diagrams" and then the various PLCA Control, Data and Status functions as sub-section. Such organization is more logical and adhere to the conventions followed in other 802.3 clauses

SuggestedRemedy

Change title of sub-section to "148.4.5 Detailed PLCA Functions and State Diagrams"
Renumber existing 148.4.5 to 148.4.5.1, 148.4.6 to 148.4.5.2 and 148.4.7 to 148.4.5.3.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The CRG disagrees with the commenter. The comment is out of scope of the recirculation, bringing new text, unrelated to changed text into the draft on the recirculation. The division of state diagrams into subclauses varies across IEEE Std 802.3, and handling control and data state diagrams separately in this state diagram is clear.

Cl **148** *SC* **148.4.5.1** *P* **238** *L* **24** # r01-138

Kabra, Lokesh Synopsys, Inc.

Comment Type **G** *Comment Status* **X** *Editorial*

State Diagrams to be described & figures given after all the relevant State variables, functions, timers, etc are described. This is a more logical sequence.

SuggestedRemedy

Move State diagrams sub-section to last after "Timers" sub-section.

Similar changes applicable for other sub-sections of PLCA Data and PLCA Status functions

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Move state diagram sections for PLCA Control, PLCA Data, and PLCA Status sections with figure (not descriptive text) after their respective description of all variables, timers, function, abbreviations and messages. Editorial license to make minor adjustments to appropriately position state diagrams properly within page breaks in text.

Cl **148** *SC* **148.4.5.1** *P* **239** *L* **29** # r01-1

Beruto, Piergiorgio Canova Tech S.r.l.

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

Wrong symbol for "not equal" operator.

SuggestedRemedy

Where the text says "local_nodeID != 0" change the "!=" expression with a "not equal" sign. Do the same at line 31 on the same page.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.5.1** *P* **241** *L* **22** # r01-86

Beruto, Piergiorgio Canova Tech S.r.l.

Comment Type **T** *Comment Status* **X** *State Diagram*

When the commit_timer expires, the PLCA Control State Diagram transitions from COMMIT to NEX_TX_OPPORTUNITY without waiting for CRS to be de-asserted.
In this unlikely event, there's a chance for the curID counter to resume counting too early.

SuggestedRemedy

In figure 148-3 change the following:
- delete the transition from COMMIT to NEX_TX_OPPORTUNITY state
- add a transition from COMMIT to ABORT state with the following condition: "(!TX_EN) * (!packetPending)"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In figure 148-3 change the following:
- replace the transition from COMMIT to NEXT_TX_OPPORTUNITY state with a transition from COMMIT to ABORT state, with the same exit condition "(!TX_EN) * (!packetPending)"

Cl **148** *SC* **148.4.5.2** *P* **242** *L* **1** # r01-144

Xu, Dayin Rockwell Automation

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

Should the variables be organized in the order of the first letter of variable name. This comment is applicable to 148.4.5.4, 148.4.6.2.

SuggestedRemedy

Organize all variables in the increased order of the first letter of variable names.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Move definition for recv_beacon_timer (P244 L18-23) before recv_timer (P243 L44).
Insert Editor's note at P248 L2 (top of 148.4.6.2): "Editor's Note (to be removed prior to publication): Publication editor to alphabetize the variables in this subclause."

Cl **148** *SC* **148.4.5.2** *P* **242** *L* **5** # r01-123

Kabra, Lokesh Synopsys, Inc.

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

aPLCAReset is not "enabled" nor aPLCAAdminState can be in "normal"

SuggestedRemedy

Change the second sentence of paragraph to
"This signal maps to TRUE when aPLCAReset is in reset and to FALSE when aPLCAReset is normal, but is further qualified."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.5.4** *P* **243** *L* **48** # r01-215

Thompson, Geoffrey Independent Consultant

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

Satisfied (on line 48 of the 3.1 draft) It should probably also be changed on line 39 too.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Editor to mark comment #i-272 closed in the comment database.

Cl **148** *SC* **148.4.6.1** *P* **244** *L* **27** # r01-11

Maguire, Valerie The Siemon Company

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

"Data state diagram" is not a proper noun.

SuggestedRemedy

Replace, "Data State Diagram" with "Data state diagram" in the clause header

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.6.1** *P* **245** *L* **1** # r01-56

Beruto, Piergiorgio Canova Tech S.r.l.

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

Some of the approved changes from comment i-425 on D3.0 did not meet the D3.1 draft.

SuggestedRemedy

At page 245, line 1 change "The variable delay line is a small buffer that aligns a transmission with the transmit opportunity. The variable delay line length is no greater than to_timer x plca_node_count + beacon_timer."
to
"The variable delay line is a small buffer that aligns a transmission with the transmit opportunity."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.6.1** *P* **245** *L* **1** # r01-152

Baggett, Tim Microchip Technology, Inc.

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

Draft 3.0 comment i-425 resolution was to delete the sentence "The variable delay line length is no greater than to_timer x plca_node_count + beacon timer."

Was not deleted in Draft 3.1.

SuggestedRemedy

delete the sentence "The variable delay line length is no greater than to_timer x plca_node_count + beacon timer."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Accommodated by comment r01-56.
Proposed resolution of comment r01-56 is:
"
At page 245, line 1 change "The variable delay line is a small buffer that aligns a transmission with the transmit opportunity. The variable delay line length is no greater than to_timer x plca_node_count + beacon_timer."
to
"The variable delay line is a small buffer that aligns a transmission with the transmit opportunity."
"

Cl **148** *SC* **148.4.6.1** *P* **245** *L* **13** # r01-10

Maguire, Valerie The Siemon Company

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

"Data state diagram" is not a proper noun.

SuggestedRemedy

Replace, "Data State Diagram" with "Data state diagram" in two locations in this paragraph (lines 13 and 14)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.6.1** *P* **246** *L* **35** # r01-192

Law, David Hewlett Packard Enterprise

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

Typo, TXER should read TX_ER.

SuggestedRemedy

Suggest that:

[1] The action 'TXER <= ENCODE_TXER(tx_cmd)' in the RECEIVE state should read 'TX_ER <= ENCODE_TXER(tx_cmd)'.
[2] The action 'TXER <= ENCODE_TXER(tx_cmd)' in the PENDING state should read 'TX_ER <= ENCODE_TXER(tx_cmd)'.
[3] The action 'TXER <= ENCODE_TXER(tx_cmd)' in the PENDING state should read 'TX_ER <= ENCODE_TXER(tx_cmd)'.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.6.1** *P* **246** *L* **43** # r01-94

Koczwara, Wojciech Rockwell Automation

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

There is an ambiguity in exiting the HOLD state.
'a=delay_line_length' (exit to COLLIDE state) can be fulfilled together with conditions for exiting to ABORT, TRANSMIT, or re-entrance to HOLD.
Additionally 'a=delay_line_length' moment could be overlooked in certain implementations.

SuggestedRemedy

HOLD state exits to TRANSMIT, ABORT, and re-entrance to HOLD: Add "* a < delay_line_length" to solve the ambiguity.
HOLD state exit to COLLIDE: change "(a=delay_line_length)" to "(a >= delay_line_length)" [defensive practice].

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In Figure 148-4 in the transition from the HOLD state to the A connector replace
"recv_timer_done + receiving +
(a = delay_line_length)" with "recv_timer_done + receiving +
(a >= delay_line_length)"

Where '>=' is the 'greater or equal sign'.

In Figure 148-4 in the recirculating arc of the HOLD state change "MCD * (!committed) * (!plca_txer) * (!receiving) *
recv_timer_not_done" with "MCD * (!committed) *
(!plca_txer) * (!receiving) *
recv_timer_not_done *
(a < delay_line_length)"

In Figure 148-4 in the transition from the HOLD state to the B connector replace "MCD * committed * (!receiving) *
recv_timer_not_done" with "MCD * committed * (!receiving) *
recv_timer_not_done *
(a < delay_line_length)
"

In Figure 148-4 in the transition from the HOLD state to the ABORT state replace
"recv_timer_not_done * MCD *
(!committed) * plca_txer* (!receiving)" with " MCD *recv_timer_not_done *
(!committed) * plca_txer* (!receiving) *
(a < delay_line_length)"

Cl **148** *SC* **148.4.6.2** *P* **248** *L* **16** # r01-53

Anslow, Peter Ciena

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

"22.2.1.6" should be in Forest green and "22.2.2.5" should be a cross-reference

SuggestedRemedy

Apply character tag External to "22.2.1.6" and make "22.2.2.5" a cross-reference

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.6.4** *P* **249** *L* **30** # r01-193

Law, David Hewlett Packard Enterprise

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

Typo.

SuggestedRemedy

Delete the spurious '. At the end of the 'Restart time' definition.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.6.4** *P* **249** *L* **36** # r01-3

Beruto, Piergiorgio Canova Tech S.r.l.

Comment Type **T** *Comment Status* **D** *PLCA_Timers*

pending_timer lacks a tolerance specification.

SuggestedRemedy

Append "Tolerance: +/- 1/2 bit time" to the description of pending_timer.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.7.2** *P* **250** *L* **22** # r01-194

Law, David Hewlett Packard Enterprise

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

The variable plca_reset is used in Figure 148-5 'PLCA Status state diagram' but is not defined in subclause 148.4.7.2 'PLCA Status variables'.

SuggestedRemedy

Suggest that the following is added to subclause 148.4.7.2 'PLCA Status variables'.

plca_reset
See 148.4.5.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.7.2** *P* **250** *L* **22** # r01-195

Law, David Hewlett Packard Enterprise

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

The variable plca_en is used in Figure 148-5 'PLCA Status state diagram' but is not defined in subclause 148.4.7.2 'PLCA Status variables'.

SuggestedRemedy

Suggest that the following is added to subclause 148.4.7.2 'PLCA Status variables'.

plca_en
See 148.4.5.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **148** *SC* **148.4.7.4** *P* **251** *L* **17** # r01-5

Beruto, Piergiorgio Canova Tech S.r.l.

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

plca_status_timer is missing the tolerance specification

SuggestedRemedy

At line 17 append the following text:
"Tolerance: 1ms past the duration"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
At line 17 append: "Tolerance: timer may expire up to 10 000 BT (nominally 1 ms at 10 Mb/s) greater than the specified duration.

Cl **148** *SC* **148.5.3.4** *P* **254** *L* **28** # r01-154

Baggett, Tim Microchip Technology, Inc.

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

The "CON2" PICS line was deleted. I'm not sure why, and I could not identify any comment which deletion of the line was a resolution.

Was this line deleted by mistake when deleting CON3 as part of i-373 resolution?

SuggestedRemedy

Consider if the CON2 PICS line from Draft 3.0 was accidentally deleted in Draft 3.1

Proposed Response *Response Status* **W**

PROPOSE REJECT.
The CRG disagrees with the commenter.
It is possible the PICS item CON2 was deleted in error, but a check of the draft also shows no reason to re-add it.
The draft contains no requirement referenced by the CON2 (feature = "receiving", subclause 148.4.5.2, "See 148.4.5.2) other than conformance with PLCA Control State Diagram (PICS item CON1).

Cl **98** *SC* **98B.3** *P* **255** *L* **24** # r01-124

Kabra, Lokesh Synopsys, Inc.

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

10BASE-T1L is always "full-duplex". Hence no need to specify this for bit A9

SuggestedRemedy

Replace "10BASE-T1L full-duplex ability" with
"10BASE-T1L capability"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **98** *SC* **98B.3** *P* **255** *L* **28** # r01-125

Kabra, Lokesh Synopsys, Inc.

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

the terms "capability" and "ability" are interchangeably used.
I am not sure about the difference but A22 description and the register 7.526 bit description should be consistent

SuggestedRemedy

Replace "half duplex ability" with "half duplex capability"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.