Cl **147** *SC* **147.1.1** *P* *L* **26** # 638

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item AUI*

The text and Fig 147-1 do not align to Fig 1-1 of the standard which is intended to comprehensively cover 802.3.

SuggestedRemedy

Remove Fig 147-1 and reference Fig 1-1 or duplicate the 10 Mb/s portion of 1.1 here. Alter the implementation of 10BASE-T1S to align to the 1.1 model.

Response *Response Status* **U**

REJECT.

Consensus not to change. Refer to motion 9 from Unconfirmed_minutes_3cg_0918.pdf

Cl **00** *SC* **0** *P* **0** *L* **0** # 632

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item AUI*

Draft does not conform to the model shown in Figure 22-1 in that there is no AUI specified.

SuggestedRemedy

Include the specification of an AUI to the specification in order to make this new PHY a fully-fledged and compatible member of the family of 10 Mb/s interfaces.

Response *Response Status* **W**

REJECT.

Consensus not to change. Refer to motion 9 from Unconfirmed_minutes_3cg_0918.pdf

Cl **30** *SC* **30.5.1.1.4** *P* **33** *L* **47** # 313

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Big Ticket Item AUI*

If 10BASE-T1S PHY supports CSMA/CD, then it should operate similiarly to 10BASE5, etc WRT to MAU not available/avialable as stated in second paragarph.

SuggestedRemedy

Please add appropriate references of media loopback. Current references are only to AUI

Response *Response Status* **W**

REJECT.

Consensus not to change. Refer to motion 9 from Unconfirmed_minutes_3cg_0918.pdf

Cl **147** *SC* **147** *P* **145** *L* **1** # 659

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item AUI*

There is no AUI defined in the draft. The AUI is an essential element of all 802.3 10 Mb/s PHY specifications. This is particularly true in the case of half duplex applications where it is used as a timing test point for calculating the delay used in CSMA/CD round trip timing sums (Ref: Table 4-2). An AUI definition point is also needed (even if it never appears externally on a piece of equipment) in order to be able to include the cl. 9 repeater in networking configurations. Even though (almost) no one else remembers it or thinks it is relevant, the c. 9 repeater is a valuable tool in the network kit. It has a very, very low transister count when compared to a bridge and much lower delay (~ 9 bit times) and jitter (not dependent on packet length) such that it is a superior element for time sensitive applications in terms of cost and performance.

SuggestedRemedy

Define and specify the AUI (no connector specification required) for the 10BASE-T1S PHY for use as a functional test point, a timing test point and a standardized element edge for IP implementations of the PHY.

Response *Response Status* **W**

REJECT.

Consensus not to change. Refer to motion 9 from Unconfirmed_minutes_3cg_0918.pdf

Cl **98** *SC* **98.2.1.1.2** *P* **59** *L* **16** # 281

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Big Ticket Item AutoNeg*

PHY operates at 10 Mbps onto medium that supports 10 MBps. If the automnegotiation (high speed mode) operates at 16.667 Mb/s, it begs the question why the PHY is not operating at 16.667Mbps. Conversely, getting PHY + Medium to work reliability at 16.667 Mb/s just for the high speed mode not seem useful.

SuggestedRemedy

Delete high speed mode.

Response *Response Status* **W**

REJECT.

High speed mode is the legacy mode for clause 97 and 98 PHYs. This amendment added low speed mode for exactly the readon the commenter stated.

Low Speed Mode is added to enable multi-mode PHYs incorporating 10BASE-T1L as well as 10BASE-T1S to switch. See discussion at http://www.ieee802.org/3/cg/public/adhoc/brandt_012517_3cg_01_adhoc.pdf, http://www.ieee802.org/3/cg/public/Sept2017/Gottron_3cg_01a_0917.pdf, and http://www.ieee802.org/3/cg/public/Nov2017/Graber_3cg_16a_1017.pdf.

Cl **146** *SC* **146.1.2.2** *P* **85** *L* **6** # 559

D'Ambrosia, John — Futurewei, Subsidiary

Comment Type **TR** *Comment Status* **A** *Big Ticket Item AutoNeg*

This is the first mention of 1000 m - over a single balanced pair of conductors up to 1000 m in length. There are different insertion losses for the two operating voltage modes, but the 2.4V p-p appears optional (commenter unable to find that specific text - just that it may support 2.4v or not). Autonegotiation is also noted as being optional. Optional insertion losses / operating modes / AN are a recipe for interoperability problems.

SuggestedRemedy

Two potential solutions - 1) Consider spitting the 10BASE-T1L into two PHYs, where an implementation might support either. 2) Make AN mandatory.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Comment resolved by comment 723 which define compatibility settings and auto-negotiation for the two different tx levels.

Cl **146** *SC* **146** *P* **85** *L* **1** # 338

Yseboodt, Lennart — Signify

Comment Type **ER** *Comment Status* **A** *Big Ticket Item Editorial*

Equations in Clause 146 and 147 do not have a consistent formatting.
Some do not list a unit. Other do list the unit, something in parens, sometimes not.
Accolades are sometimes used, sometimes not.
Some have a "where" clause that defines the parameters used, some do not.

SuggestedRemedy

Consult with Pete Anslow and apply consistent formatting of ALL equations.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Equations for different types of parameters have different formatting in IEEE Std 802.3. Add right hand accolade (}) to multi-line equations in 146.7 and 146.8 (see equation 97-17 in 802.3-2018 for example).

Other than in these two subclauses, clause 146 and clause 147 equations are formatted consistently with 802.3 style in other similar PHY clauses for similar parameters.

Cl **148** *SC* **148.4.6.1** *P* **187** *L* **54** # 605

KIM, YONG — NIO

Comment Type **TR** *Comment Status* **R** *t Item HALF_DUPLEX_802.1*

PLCA Data state diagram (Fig 148-6) introduces a new behavior WRT media loopback when transmitting. Prior to CL148, CL4 half-duplex MAC reflects all TX packets back to RX (reflected by the half-duplex medium). CL4 full-duplex MAC does not reflect any TX back to RX. There is recognized inconsistancy in 802.1 MAC Services defintion (e.g. thought experiment -- how does broadcast frame transmitted by a bridge to a half-duplex medium behave as per std, and how does a system actually behave)? This statemachine introduces a new behavior for the half-duplex MAC, where the TX is not reflected back to RX. An EXISTING system that is not aware of 802.3cg behavior would IGNORE (with half-duplex MAC) RX when it is also TX, when in fact RX is independant transmission that must be received (otherwise packet was transmited to the network and lost silently by being ignored (reflected).

SuggestedRemedy

While the 802.1 MAC services issues has nothing to do with 802.3cg scope, the 802 and 802.3 compatibility is IN scope, because by introducing a different behavior. Existing systems (MACs and Bridges) would potentially not process any RX that is coincidental with its own TX. Please fix it, if fixible. 8802.1 MAC Services maintanance change may be required be reviewed together with this issue.

Response *Response Status* **W**

REJECT.

PLCA is compatible with the clause 4 MAC as specified in 802.3. Maintenance on clause 4 or other Standards is outside the scope of this project. The P802.3cg Task Force Chair will forward this comment to 802.3 Maintenance for consideration.

Cl **146** *SC* **146.8.1** *P* **133** *L* **9** # 617

Kolesar, Paul CommScope

Comment Type **TR** *Comment Status* **A** *Big Ticket Item MDI*

The MDI connector specification is incomplete as it does not specify a form, nor does it delineate MICE operating conditions. The user would benefit by specifying both. Consider liaison input from ISO/IEC/JTC 1/SC 25/WG 3 for single balanced pair MDI specification.

SuggestedRemedy

Add at the end of line 9: For M1I1C1E1 environments (e.g. commercial buildings, data centers), two-pin connectors meeting the requirements of IEC 63171-1 shall be used as the mechanical interface to the single balanced pair cabling. These are depicted (for informational use only) in Figure 146-xx. For M2I2C2E2/M3I3C3E3 environments (e.g. industrial, process control), two pin connectors meeting the requirements of IEC 61076-3-125 shall be used as the mechanical interface to the single balanced pair cabling. These are depicted (for informational use only) in Figure 146-yy."

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Insert new paragraph after the existing 1st paragraph of 146.8.1 as follows:
146.8.1 MDI connectors
<EXISTING 1st PARA>
The mechanical interface to the balanced cabling is a 3-pin connector (BI_DA+, BI_DA-, and optional SHIELD) or alternatively a 2-pin connector with an optional additional mechanical shield connection which conforms to the link segment specification defined in 146.7.

<INSERT NEW PARAGRAPH>
Connectors meeting the requirements of IEC 63171-1 (CD) may be used as the mechanical interface to the balanced cabling for M1I1C1E1 environments. The plug connector is used on the balanced cabling and the MDI connector on the PHY. These connectors are depicted (for informational use only) in Figure 146-XXX and Figure 146-XXX. The assignment of PMA signals to connector contacts for PHYs is shown in XXX.

Editorial license granted to add IEC 63171-1 to 1.3 Normative Refences.

Straw Poll:
I support the proposed resolution (ACCEPT IN PRINCIPLE with the text above):
Y:22
N:5
A:3
(Alternative REJECT - No Consensus for Change - Encourage commenter to build consensus)
Y:4
N:19
A:5

MOTION: TO RESOLVE COMMENT 617 AS ACCEPT IN PRINCIPLE WITH THE NEW PARAGRAPH ABOVE.
M: M. Shariff
S: C. Diminico
Y:23
N:2
A:3
MOTION PASSES

Cl **147** *SC* **147.9.1** *P* **168** *L* **28** # 618

Kolesar, Paul CommScope

Comment Type **TR** *Comment Status* **R** *Big Ticket Item MDI*

The MDI connector specification is incomplete as it does not specify a form, nor does it delineate MICE operating conditions. The user would benefit by specifying both. Consider liaison input from ISO/IEC/JTC 1/SC 25/WG 3 for single balanced pair MDI specification.

SuggestedRemedy

Add at the end of line 28: "For M1I1C1E1 environments (e.g. commercial buildings, data centers), two-pin connectors meeting the requirements of IEC 63171-1 shall be used as the mechanical interface to the single balanced pair cabling. These are depicted (for informational use only) in Figure 147-xx. For M2I2C2E2/M3I3C3E3 environments (e.g. industrial, process control), two pin connectors meeting the requirements of IEC 61076-3-125 shall be used as the mechanical interface to the single balanced pair cabling. These are depicted (for informational use only) in Figure 147-yy."

Response *Response Status* **W**

REJECT.

No Consensus to Change.

MOTION:
Move to REJECT COMMENT 618 with rationale of NO CONSENSUS TO CHANGE
M:Gerrit den Besten
S:Chris Diminico

Y:17
N:1
A:12
MOTION PASSES

Cl **147** *SC* **147.9.1** *P* **168** *L* **28** # 571

Shariff, Masood — Commscope

Comment Type **TR** *Comment Status* **R** *Big Ticket Item MDI*

Clarify and complete the MDI connector specification. Consider liaison input from ISO/IEC/JTC 1/SC 25/WG 3 for single balanced pair MDI specification

SuggestedRemedy

Add at the end of line 28: "For M1I1C1E1 environments (e.g. commercial buildings, data centers), two-pin connectors meeting the requirements of IEC 63171-1 shall be used as the mechanical interface to the single balanced pair cabling. These are depicted (for informational use only) in Figure 147-xx. For M2I2C2E2/M3I3C3E3 environments (e.g. industrial, process control), two pin connectors meeting the requirements of IEC 61076-3-125 shall be used as the mechanical interface to the single balanced pair cabling. These are depicted (for informational use only) in Figure 147-yy."

Response *Response Status* **W**

REJECT.
See comment 618

Cl **22** *SC* **22** *P* **25** *L* **1** # 658

Thompson, Geoff — GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item PLCA*

The proposed changes in this clause are at odds with the statement in the approved criteria on compatibility that states "As a PHY amendment to IEEE Std 802.3, the proposed project will use (the existing) MII"

SuggestedRemedy

Remove clause 148 and related text from the draft. If PLCA is desired as an addition to the standards family it should be placed appropriately at MAC Control or higher within the layer structure and have its own CFI.

Response *Response Status* **U**

REJECT. Group to discuss.

Straw Poll: Reject comment #658 because 1) PLCA is compatible and operates with the CSMA CD MAC, not as a MAC function and 2) PLCA operates as a reconcillation sublayer and does not change the PLS service primitives.

Y: 27
N: 2
A: 7

Cl **22** *SC* **22.2.2.4** *P* **25** *L* **18** # 293

KIM, YONG — NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA*

Unlike LPI that is defined and referenced, PLCA, Beacon, Commit are not. And there is no reference and context wrt "capability is supported and enabled".

SuggestedRemedy

please fix so that readers of (proposed and revised) CL22 could make sense of new proposed terms. Look how LPI did it. Fairly pervasive changes are required to convey the proposed change.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Proposed resolution in Clause_22_r2p0_resolution.pdf. Changes are marked with #293 in the right boxes

Cl **22** *SC* **22.2.2** *P* **25** *L* **37** # 573

Gauthier, Claude NXP (claude.gauthier

Comment Type **TR** *Comment Status* **R** *Big Ticket Item PLCA*

Add optional support for Priority indication when using the PLCA (multi-drop) option. The communication of Priority is all that is needed in the PHY. The Priority value of the current frames come from & goes to IEEE 802.1 where the policy decision of what frames are allowed to be released to the MAC for transmition after each BEACON is decided.

SuggestedRemedy

A presentation documenting the needs, mechanisms & costs will be available before and at the September meeting. Specific details on what codings to use & specifc text changes will follow. In summary the needed changes are: 1) add a new PRIORITY encoding to Tables 22-1 & 22-2 (the MII interface - p25 & p26). A single encoding is all that is needed as the Priority value indication can follow the PRIORITY code. 2) Add PRIORITY 4B/5B encoding to Table 147-1 (p151) or some other mechanism. 3) Update figure 148-3 (p176) to add connections to a "Priority Client" as was done for Energy Efficient Ethernet's Fig 78-1 (p33 of part 6 of 802.3-2015). And 4) Update Fig 148-4 (p181) PLCA Control state diagram and associated text to add in the optional Priority communication phase at the start of each BEACON. The goal here is to reuse as much as possible to minimize gate costs. A register bit will be needed to enable this optional feature, a few PICS added, etc.

Response *Response Status* **U**

REJECT.

No consensus for change.
Comment fails to provide sufficient remedy.

Additionally, the chair charters an ad hoc specifically to investigate and propose a recommended solution within the project scope of IEEE P802.3cg to implement the functionality desired in comment 573 on 802.3cg d2p0 (e.g., at least not requiring a new service interface). The ad hoc will be announced to the 802.3 Working Group community. The ad hoc shall report its progress to the Task Force, and the Task Force shall report this to the 802.3 Working Group at the November plenary.

To reject the comment and charter the ad hoc as above:
Y:25
N:1
A:9

Cl **22** *SC* **22.2.2.8** *P* **26** *L* **5** # 296

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA*

Similar to my comment on 22.2.2.4. Unlike LPI that is defined and referenced, PLCA, Beacon, Commit are not.

SuggestedRemedy

please fix so that readers of (proposed and revised) CL22 could make sense of new proposed terms. Look how LPI did it. Fairly pervasive changes are required to convey the proposed change.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Proposed resolution in Clause_22_r2p0_resolution.pdf. Changes are marked with #296 in the right boxes.

Cl **30** *SC* **30.3.9.2.3** *P* **32** *L* **11** # 309

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA*

aPLCAMaxID -- does not have a range, so am I to read this as Max ID = <integer max value>? Is this max # of nodes consistent w/ PLCA clause, and is it get-set or just get? And why would this object be needed for each DTE?

SuggestedRemedy

Please clarify (range) and justify (why needed for each DTE)

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Change "INTEGER" at 32/16 to "INTEGER VALUE in the following range (inclusive): 0-255"

Change "INTEGER" at 32/27 to "Same as aPLCAMaxID"

Add the following value after "The value of aPLCALocalNodeID is assigned to define the ID of the local node on the PLCA network.",

"Value must be in the range of [0, aPLCAMaxID] (inclusive)."

Cl **147** *SC* **147.3.2.2** *P* **149** *L* **44** # 283
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA*

PLCA is not a part of PCS. It is a part of RS (CL 148). Why are plca_en and other signals are defined and used in CL147 PHY specification, i.e. Fig 147-4 PCS TX state diagram line 11? As per "When PLCA capability is supported and enabled, the RS shall use the combination of TX_EN deasserted,
TX_ER asserted, and TXD<3:0> equal to 0010 or 0011 as shown in Table 22-1 to send respectively a
BEACON or a COMMIT request as explained in Clause 148." the TX state diagram could just be tx_sym <=tx_cmd in SILENT state.

SuggestedRemedy

Eliminate plca related signal use here and everywhere else in this clause (CL147). Let RS layer do its thing, and let PCS and PMA in the PHY do their thing.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Implement changes in Clause 147_r2p0_resolution.pdf tagged with comment #283.

Changes include revising the state machine and deleting plcs_en.

Cl **45** *SC* **45.2.3.58e.3** *P* **48** *L* **45** # 276
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA_EN*

PLCA is not a part of PCS. Need to move this bit to appropirate layer (RS) register

SuggestedRemedy

Please do so.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Move *all* PLCA related bits to a dedicated subclause / address range in Clause 45. This includes registers to be added after accepting #556.

Implement changes marked with #276 in
http://www.ieee802.org/3/cg/public/Sept2018/beruto_02_Cl_45_d2p0_proposed.pdf

Cl **45** *SC* **45.2.3.58e.4** *P* **48** *L* **50** # 277
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA_EN*

PLCA is not a part of PCS. Need to move this bit to appropirate layer (RS) register

SuggestedRemedy

Please do so.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Move *all* PLCA related bits to a dedicated subclause / address range in Clause 45. This includes registers to be added after accepting #556.

Implement changes marked with #277 in
http://www.ieee802.org/3/cg/public/Sept2018/beruto_02_Cl_45_d2p0_proposed.pdf

Cl **45** *SC* **45.2.3.58f.1** *P* **49** *L* **27** # 278
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Big Ticket Item PLCA_EN*

PLCA is not a part of PCS. Need to move this bit to appropirate layer (RS) register

SuggestedRemedy

Please do so.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Move *all* PLCA related bits to a dedicated subclause / address range in Clause 45. This includes registers to be added after accepting #556.

Implement changes marked with #278 in
http://www.ieee802.org/3/cg/public/Sept2018/beruto_02_Cl_45_d2p0_proposed.pdf

Cl **147** *SC* **147.3.7** *P* *L* **1** # 650
Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

PLCA is out of scope for this project and a layer violation for a PHY project.

SuggestedRemedy

Remove the entirety of cl. 147.3.7.

Response *Response Status* **W**

REJECT.

See comment #637 for rationale.

Cl **147** *SC* **147.1** *P* *L* **22** # 637

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

The inclusion of PLCA in this project is (1) a layer violation and (2) out of scope for a Physical Layer project according to clause 1.1 of the standard. Inclusion of PLCA conflicts with paragraph 3 of the responses to the "Compatibility" criteria of the CSD.

SuggestedRemedy

Remove this paragraph from the draft and related text from this project. If PLCA is desired as an addition to the standards family it should be placed appropriately within the layer structure and have its own CFI.

Response *Response Status* **W**

REJECT.

PLCA maps existing MAC PLS primitives to MII, which is in-line with what an RS is supposed to do. PLCA is defined as a reconciliation sublayer, which has been considered part of a Physical Layer specification project. As long as this is the case, the text belongs in the subclause.

Straw Poll: I support rejecting this comment with the rationale above.
Y:25
N: 1
A: 5

Cl **147** *SC* **147.3.2.2** *P* *L* **44** # 645

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

PLCA is out of scope for this project and a layer violation for a PHY project.

SuggestedRemedy

Remove this variable and its descriptive paragraph.

Response *Response Status* **W**

REJECT.

See comment #637 for rationale.

Cl **147** *SC* **147.3.2.2** *P* *L* **50** # 646

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

PLCA is out of scope for this project and a layer violation for a PHY project.

SuggestedRemedy

Remove the remainder of PCLA from this project draft.

Response *Response Status* **W**

REJECT.

See comment #637 for rationale.

Cl **148** *SC* **148** *P* **173** *L* **1** # 656

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

The inclusion of PLCA in this project is (1) a layer violation and (2) out of scope for a Physical Layer project according to clause 1.1 of the standard. Inclusion of PLCA conflicts with paragraph 3 of the responses to the "Compatibility" criteria of the CSD.

SuggestedRemedy

Remove clause 148 and related text from the draft. If PLCA is desired as an addition to the standards family it should be placed appropriately within the layer structure and have its own CFI.

Response *Response Status* **W**

REJECT.

See comment #637 for rationale.

Cl **148** *SC* **148.1** *P* **173** *L* **14** # 657

Thompson, Geoff — GraCaSI S.A.

Comment Type **TR** *Comment Status* **A** *ig Ticket Item PLCA_SCOPE*

According to this text, "PLCA is designed to work on top of CSMA/CD". Therefore it is mispositioned in the stack by being placed within the PHY which is below the CSMA/CD mechanism.

SuggestedRemedy

Remove clause 148 and related text from the draft. If PLCA is desired as an addition to the standards family it should be placed appropriately at MAC Control or higher within the layer structure and have its own CFI.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Proposed resolution in Clause_148_r2p0_resolution.pdf. Changes are marked with #657 in the right boxes.

NOTE: Intention was to specify that PLCA is not a replacement of CSMA/CD but instead it's a method that works in conjuction with CSMA/CD functions.

Cl **148** *SC* **148.1** *P* **173** *L* **15** # 284

KIM, YONG — NIO

Comment Type **TR** *Comment Status* **A** *ig Ticket Item PLCA_SCOPE*

"PLCA is designed to work on top of CSMA/CD and can be dynamically enabled or disabled via management
interface. When disabled, the system operates as specified in Clause 22." makes no sense. Seconmd sentence - CL22 has been modified to add PLCA support. First sentence -- it does NOT work on top of CSMA/CD. PLCA uses Carrier sense and collision detect in completely different manner to perform alternative media access method.

SuggestedRemedy

Delete paragraph (both sentences), or make it technical correct.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Proposed resolution in Clause_148_r2p0_resolution.pdf. Changes are marked with #284 in the right boxes.

Notes:
WRT "When disabled, the system operates as specified in Clause 22" - CL22 has been modified to add PLCA support: Modifications to Clause 22 are not in effect when PLCA is not supported or not enabled. This is clearly stated in references text.

WRT to "PLCA is designed to work on top of CSMA/CD", this is resolved by #657

WRT to "PLCA uses Carrier sense and collision detect in completely different manner to perform alternative media access method":
Carrier Sense has been used in other 802.3 standards to prevent MAC from transmitting, even when the medium is not busy. See also #287.

Cl **148** *SC* **148.4.2** *P* **176** *L* *#* 289

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

RS is defined in CL1 "1.4.425 Reconciliation Sublayer (RS): A mapping function that reconciles the signals at the Media Independent Interface (MII) to the Media Access Control (MAC)-Physical Signaling Sublayer (PLS) service definitions. (See IEEE Std 802.3, Clause 22.)", and consistent with CL22.1.1. Even when MII signals are used to convery signals for EEE, it is still performing reconciliation. PLCA is using signals in RS (collision, carrier-sense, etc) while creating a completely different and new medium access control (MAC) method. PLCA function does not belong in RS.

SuggestedRemedy

Move PLCA outside of RS (which only translates MII signals to PLS signals, for the dataplane as well as control like EEE states, not a new media access control method. And if necessary, revise CSD and objectives as appropirate.

Response *Response Status* **W**

REJECT.

See comment #637 for rationale.

Cl **148** *SC* **148.4.5.1** *P* **181** *L* **50** *#* 604

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *ig Ticket Item PLCA_SCOPE*

PLCA Control state diagram (Fig 148-5) and related text seems to describe Token bus-like medium access control funciton (without details on how the token (BEACON) is initialized, how duplilcate tokens are handled (duplicate nodeID=0), how lost token (null nodeID=0) is handled). This is NOT appropriate function for RS (CL22) layer that conveys (translates) signals between PLS and MII

SuggestedRemedy

Move CL148 function so CL4 MAC Clause where it belongs. Make approporate changes to CRD and objectives list, if deemed needed.

Response *Response Status* **W**

REJECT.

See comment #637 for rationale.

Cl **147** *SC* **147.2** *P* *L* **34** *#* 642

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item Primitives*

The claim is that this PHY uses the MII, the reference to 40.2 is to the GMII

SuggestedRemedy

Change the reference to an MII clause and use the same primitives as existing 10/100 PHYs without alteration.

Response *Response Status* **W**

REJECT.

The reference is identical to that in c96 100BASE-T1. This is a reference to "Service primitives and interfaces", not MII.

Straw poll to reject comment with the above rationale:
Y: 9
N: 0
A: 21

Cl **00** *SC* **13** *P* *L* **3** *#* 661

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item Repeaters*

When we added this note we thought we were through with 10 Mb/s and half duplex forever. That appears not to be the case.

SuggestedRemedy

Remove the note and update clause 13 appropriately to add 10BASE-T1S as a full fledged member of the 10 Mb/s CSMA/CD family.

Response *Response Status* **W**

REJECT.

Consensus not to change. Refer to motion 9 from Unconfirmed_minutes_3cg_0918.pdf

Cl **147** *SC* **147.3.5** *P* *L* **10** # 648

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **R** *Big Ticket Item Repeaters*

Collision detect as described here purports to detect a collision between this station and one other station. It does not descibe any way to detect a collision between any other two or more stations.

SuggestedRemedy

Add collision detection based on energy received. Lack of this aspect constitues a lack of completeness in the basic function of the specified device and therefore the draft. Restart the initial WG Ballot.

Response *Response Status* **U**

REJECT.
PHYs detect activity on the bus, specific detection of collision is not required, nor is the method.

Commenter indicates that his concern is reliable detection of activity with an arbitrary number of transmitters.

Straw Poll:
I support:
REJECT - PHYs detect activity on the bus, specific detection of collision is not required, nor is the method.
Y:7
N:2
A:11

I support:
ACCEPT. (commenter's proposed resolution is: Add collision detection based on energy received. Restart the initial WG Ballot.)
Y:0
N:9

TFTD

Cl **00** *SC* **9** *P* **0** *L* # 304

KIM, YONG NIO

Comment Type **ER** *Comment Status* **A** *Big Ticket Item Repeaters*

CL9 (and CL13 w/ respective consistent texts) starts with a note "NOTE-This repeater is not recommended for new installations. Since September 2011, maintenance changes are no longer being considered for this clause." and overview starts with "This clause specifies a repeater for use with IEEE 802.3 10 Mb/s baseband networks. A repeater for any other IEEE 802.3 network type is beyond the scope of this clause.." 10BASE-T1S with and without PLCA, and 10BASE-T1L relationship with repeater should be stated here or in respective clauses.

SuggestedRemedy

Note is a note, i.e. not a part of the standard but informative text. With no maintainance changes being considered for CL9 and CL13, approporate place to rnote that 10 Mbps system that uses 10BASE-T1x are not compatible w/ repeaters nor system considerations clauses are relevent may be respective clauses. But do somthing so that readers get clear direction and don't get confused.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Task Force agrees that 10BASE-T1L and 10BASE-T1S will not define an AUI or support the use of clause 9 repeaters.

Editorial license to implement changes in motion 8 from Unconfirmed_minutes_3cg_0918.pdf

---

Straw Poll #2:
I agree with the following statement:

A: P802.3cg should define its PHYs to support repeaters and the necessary functionality (e.g., AUI)
B: P802.3cg should define repeaters as out of bounds for all 10BASE-T1 PHY types
C: None of the above, but I have an opinion. (something else should be done with regards to repeaters)

A:6
B:23
C:0
Abstain:9

Cl **146** *SC* **146.9** *P* **133** *L* **52** # 349

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **A** *Big Ticket Item Safety*

"All equipment subject to this clause shall conform to IEC 60950-1 or IEC 62368-1 (for IT and industrial applications), to IEC 61010-1 (for industrial applications only, if required by the given application)."

Single-pair Ethernet is targeted at a wide diversity of applications. Similarly, 4-pair Ethernet has been used in a wide diversity of applications. The scope and goal of an 802.3 standard is to ensure that two PHYs, connected through a compatible medium, can communicate. It is beyond the scope of this standard to list in detail the 'application', 'installation', or 'end user' requirements that go far beyond PHY interoperability. These are generally untestable and inappropriate in this document.

Only when we are referring to basic electrical safety of the end device is it appropriate to enforce compliant to eg. IEC 60950 or the like.

Regardless of how and where the device is used, it should comply to IEC 60950-1 or IEC 62368-1.
Anything more specific is out of scope for this document.

SuggestedRemedy

Replace by:
"All equipment subject to this clause shall conform to IEC 60950-1 or IEC 62368-1."

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Insert Editor's note on line 51, page 133

Editor's Note - The equivalent text in other clauses is under consideration for revision by the maintenance task force. This clause should be revised to align with the output of that effort.

Cl **146** *SC* **146.9.1** *P* **134** *L* **20** # 350

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **A** *Big Ticket Item Safety*

"All equipment subject to this clause may be additionally required to conform to any applicable local, state, or national standards or as agreed to between the customer and supplier."

Customer / supplier relations are out of scope for an 802.3 standard.

SuggestedRemedy

"All equipment subject to this clause may be additionally required to conform to any applicable local, state, or national standards."

Make the same change in Clause 147.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Accomodated by 482 (remove all "customer/supplier agreement" references)

Cl **146** *SC* **146.9.2** *P* **134** *L* **26** # 351

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **A** *Big Ticket Item Safety*

"All cabling and equipment subject to this clause is expected to be mechanically and electrically secure in a professional manner. In industrial applications, all 10BASE-T1L cabling shall be routed according to any applicable local, state or national standards considering all relevant safety requirements."

Out of scope for an 802.3 standard.

SuggestedRemedy

Bump Subclause 146.9.2.1 and 146.9.2.2 up by one level (H4).
Remove subclause 146.9.2.

Make the same change in Clause 147.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Replace "shall be routed" with "is expected to be routed" on P134 L26 and P169 L47

Cl **146** *SC* **146.9.2.1** *P* **134** *L* **31** # 352

Yseboodt, Lennart — Signify

Comment Type **TR** *Comment Status* **A** *Big Ticket Item Safety*

"In industrial applications, all equipment subject to this clause shall conform to the potential environmental
stresses with respect to their mounting location, as defined in the following specifications, where applicable:
a) Environmental loads: IEC 60529 and ISO 4892
b) Mechanical loads: IEC 60068-2-6/31
c) Climatic loads: IEC 60068-2-1/2/14/27/30/38/52/78
Industrial environmental conditions are generally more severe than those found in many commercial envi-
ronments. The targeted application environment(s) require careful analysis prior to implementation."

Out of scope for an 802.3 standard.

SuggestedRemedy

Remove subclause 146.9.2.1.

Same change in Clause 147.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Replace "shall conform to" with "is expected to conform to" on P 134 L31.
Clause 147.10.2.1 is already aligned with this change.

Cl **45** *SC* **45.2.1.174a** *P* **36** *L* **36** # 317

KIM, YONG — NIO

Comment Type **TR** *Comment Status* **A** *EEE*

EEE capability is optional. Clarify what happens if this bit = 1 when the corresponding ability is 0

SuggestedRemedy

Clarify.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accomodated by #719.

Cl **147** *SC* **147.3.1** *P* *L* **3** # 643

Thompson, Geoff — GraCaSI S.A.

Comment Type **TR** *Comment Status* **A** *EZ*

It is not clear from the description whether "PCS Reset" produces a level or a pulse on its output. i.e. does it take a !PCS Reset to complete the reset and release the device for operation.

SuggestedRemedy

Clarify

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
WORK WITH PIER ON THIS
Change this:
====
PCS reset initializes all PCS functions. The PCS Reset function shall be executed whenever one of the following conditions occur:
a) Power on (see 36.2.5.1.3).
B) The receipt of a request for reset from the management entity.
PCS Reset shall set pcs_reset = ON while any of the above reset conditions holds true. All state diagrams take the open-ended pcs_reset branch upon execution of PCS Reset. The reference diagrams do not explicitly show the PCS Reset function.
====
to this:
====
PCS reset initializes all PCS functions. The PCS Reset function shall be executed whenever any of the following conditions occur:
a) Power on causes power_on = TRUE (see 36.2.5.1.3) while pcs_reset = OFF.
B) The receipt of a request for reset from the management entity (see 3.2291.15 in 45.2.3.58e.1), independently from the current state of pcs_reset.
All state diagrams take the open-ended pcs_reset branch upon execution of PCS Reset. PCS Reset shall keep pcs_reset = ON until the complete execution of the PCS Reset function, after which it is set to pcs_reset = OFF. The reference diagrams do not explicitly show the PCS Reset function.
====

Cl **01** *SC* **1.3** *P* **24** *L* **5** # 22

Anslow, Pete Ciena

Comment Type **TR** *Comment Status* **A** *EZ*

There are references in the draft that are not already in the base standard that should be added here. For example: IEC 62368-1 is referenced on page 133, line 52.

SuggestedRemedy

Scrub the draft for references that are not already in the base standard and add them to 1.3

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Master comment 588. Resolve with 588.

Chief Editor to submit Maintenance Request to add references to IEC 60068-2-1:2007, IEC 60068-2-27:2008, IEC 60068-2-30:2005, IEC 60068-2-38:2009, IEC 60068-2-52:2017, IEC 60068-2-64:2008, and IEC 60068-2-78:2012 to next edition of 802.3.

Add the following normative references starting at line 9:

IEC 60068-2-2:2007, Environmental testing - Part 2-2: Tests - Test B: Dry heat.

IEC 60068-2-6:2007, Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal).

IEC 60068-2-14:2009, Environmental testing - Part 2-14: Tests - Test N: Change of temperature.

IEC 60068-2-27:2008, Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock.

IEC 60068-2-31:2008, Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens.

IEC 60079-0: 2014, Explosive atmospheres. Part 1. Equipment protection by flameproof enclosures.

IEC 60079-11: 2011, Explosive Atmospheres - Part 11: Equipment protection by intrinsic safety.

IEC 60529:2013, Degrees of Protection Provided by Enclosures (IP Code).

IEC 61000-4-4:2012, Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test.

IEC 61000-4-5: 2017, Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test.

IEC 61000-4-6:2013, Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields.

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

IEC 61010-1:2017, Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements.

IEC 61156-13:201x, Multicore and symmetrical pair/quad cables for digital communications - Part 13: Symmetrical single pair cables with transmission characteristics up to 20 MHz - Horizontal floor wiring - Sectional specification.

IEC 62368-1:2014, Audio/video, information and communication technology equipment - Part 1: Safety requirements.

ISO 4892:1982, Plastics - Methods of exposure to laboratory light.

Insert the following Editor's note after IEC 61156-13:201x, Editor's Note (to be removed prior to publication): IEC NP 61156-13 is still in development and the specification reference will likely change prior to publication. The references will be considered for inclusion in the draft based on Task Force review of relevancy prior to publication.

Cl **22** *SC* **22.3.3** *P* **28** *L* **1** # 30

Anslow, Pete Ciena

Comment Type **ER** *Comment Status* **A** *EZ*

With a blank placeholder for changes to the Clause 22 PICS, this draft is not ready to move to Sponsor ballot, hence this is a required comment.

SuggestedRemedy

Either remove this PICS section from the draft or populate it with changes.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Master comment 334. Resolve with 334, 631, 452, 8, 609, and 299.

Implement resolution to comment #28 and then Chief Editor to work with Curtis Donahue to identify and enter PICS.

Cl **01** *SC* **1.4** *P* **24** *L* **15** # 265
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *General*

says ..up to at least 1000 m reach while the line 18 (T1S) does not say ..up to at least 25 m reach. Make them consistent.

SuggestedRemedy

Most MAUs do not state reach (due to all other relevant media spec dependancies), but some do. Do what make sense and defend it.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Reach should be specified by 10BASE-T1S and 10BASE-T1L. Accommodated by #368. No additional change required.

Resolution to comment 368 adds reach information to the definition of 10BASE-T1S.

Cl **147** *SC* **147.1.1** *P* **145** *L* **30** # 282
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *General*

AN is not defined for 10BASE-T1S PHY in HD in multidrop mode. How does PHY know it's in that mode? What happens one PHY is not in multidrop mode, connected to the multidrop segment, or connected with null segment? Management is optional. Duplexness is associated with MAC

SuggestedRemedy

Please clarify.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Replace,
"Auto-Negotiation for 10BASE-T1S is defined in Clause 98. MII is defined in Clause 22. Auto negotiation is not defined for 10BASE-T1S PHY operating in half-duplex multidrop mode."

with,
"Auto-Negotiation for 10BASE-T1S is defined in Clause 98 and available only while not in multidrop mode. Selection between multidrop and point-to-point mode is made via the appropriate configuration bit. Optional MDIO is defined in Clause 45. Management is not optional. MII is defined in Clause 22."

Cl **30** *SC* **30.5.1.1.6** *P* **33** *L* # 314
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Jabber*

Jabber function that protets mixing segment is missing.

SuggestedRemedy

Please add in CL147 and also here for its mgmt.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accomodated by #534

Cl **30** *SC* **30.2.5** *P* **30** *L* # 303
KIM, YONG NIO

Comment Type **ER** *Comment Status* **A** *Management*

Table 30-1a would need an entry for oPLCA under DTE. Otherwise the draft is incomplete.

SuggestedRemedy

Please fix it.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accomodated by #32.

Cl **30** *SC* **30.2.2.1** *P* **30** *L* # 302
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

oPLCA would need an entry in CL30.2.2.1. Otherwise the draft is incomplete.

SuggestedRemedy

Please fix it.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Bring 30.2.2.1 into the draft
Add the following:

"Insert oPLCA after the description of oPD as follows:

oPLCA If implemented, oPLCA is contained within oPHYEntity. The oPLCA managed object class provides the management controls necessary to allow an instance of a PLCA RS to be managed."

Cl **30** *SC* **30.2.1** *P* **30** *L* **25** # 301
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

oPLCA 30.3.9 block is misplaced. It is mutually exclusive with oMACMergeEntity and oOMPEmulation and possibly others.

SuggestedRemedy

Please fix it so that they are not mutually exclusive with compatible entities.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Move oPLCA under oPHYentity in Figure 30-3

Jon Lewis to implement change.

Cl **30** *SC* **30.3.9.1.1** *P* **31** *L* **33** # 305
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

States "..A disabled PLCA utilizes Clause 22 reconciliation sublayer without modification. An
enabled PLCA modifies the behavior of the reconciliation sublayer per Clause 148" but Clause 22 is already proposed to be modified with PLCA states and signals. If the intention is to leave CL22 as-is, this draft should not make any modification to CL22 and make this statement. Or do what was inteneded. Current text does not work (not clear).

SuggestedRemedy

Please fix it.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Replace "A disabled PLCA utilizes Clause 22 reconciliation sublayer without modification. An enabled PLCA modifies the behavior of the reconciliation sublayer per Clause 148."

with
"When PLCA is enabled, the reconciliation sublayer is as defined by Clause 148, otherwise, Clause 148 behavior is not enabled."

(note this should not say "clause 22 behavior is performed" because it needs also to apply to non-clause 22 and non-clause 148 situations...)

Cl **30** *SC* **30.3.9.2.1** *P* **31** *L* **43** # 306
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

"Same as aPLCAAdminState" is not appropriate.

SuggestedRemedy

Please be verbose.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Replace, "Same as aPLCAAdminState"

with, "An ENUMERATED VALUE that has the following entries: disabled enabled"

Cl **30** *SC* **30.3.9.2.1** *P* **31** *L* **47** # 307
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

"PLCA" does not seem to be the right in "Setting PLCA to the enabled state". Is PLCA a layer or managed objectd or something else?

SuggestedRemedy

Please use consistent object, or (re-)define PLCA to be consistent.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Replace, "Setting PLCA to the enabled state"

with, "Setting acPLCAAdminControl to the enabled state"

Cl **30** *SC* **30.3.9.2.4** *P* **32** *L* **22** # 311

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

There is no description on how NodeID=0 is assigned (or elected). How each NodeID is assured to be unique. How duplicate NodeID (error condition) is handled.

SuggestedRemedy

Please add details or references to these behaviors.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accomodated by #598 which specifies locally unique NodeID within a collision domain.

Description or requirements of assignment of parameters in the management entity is beyond the scope of this standard.

Cl **30** *SC* **30.3.9.2.5** *P* **32** *L* **41** # 312

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Management*

Is aPLCATransmitOppotunitiyTimer object get or get-set? What are the allowed ranges of values, and what is the unit for these values. This object defintion is incomplete.

SuggestedRemedy

Please add details and add appropriate references.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Insert "aPLCATransmitOpportunity maps to the duration of the timer TO_TIMER. The value of aPLCATransmitOpportunity is an integer number between 1 and 65535, expressed as a the duration of TO_TIMER in bit times. See 148.4.5.4 for further information." after "transmit opportunities." on page 32, line 42.

Cl **147** *SC* **147.9.3** *P* **169** *L* **7** # 364

Matheus, Kirsten BMW AG

Comment Type **TR** *Comment Status* **A** *MDI*

Where do the values for L come from? Unless we use PoDL they seem way to high. It states nowhere if this is optional or for PoDL only

SuggestedRemedy

Needs to be better described in the document.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Editorial license granted to implement changes on page 10 of griffiths_3cg_01a_0918.pdf

Cl **45** *SC* **45.2.1.174d** *P* **40** *L* **44** # 268

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Mixing Segment*

Multidrop mode is not clear. If the TX or RX characteristics change, then it may be clearer to provide control around TX or RX parameters. Multidrop mode seems to indicate MAC/RS type of layer function.

SuggestedRemedy

Please use more direct parameter name as appropiorate.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Add "(see Clause 147)" after "multidrop mode over a mixing segment network" in paragraph 45.2.1.174d.5 at P41 L51.

Cl **146** *SC* **146.3.4.2** *P* **111** *L* **38** # 261

Andre, Szczepanek HSZ Consulting

Comment Type **TR** *Comment Status* **R** *PCS*

"PCS Receive generates the sequence of symbols and indicates the reliable acquisition of the descrambler state by setting the parameter scr_status to OK."

No information is provided anywhere in this clause as to how the side-stream scrambler polynomial LSFR state is acquired.

It is my understanding that Sdn[0] == Scrn[0] during SEND_I allowing the LSFR state to be acquired during the initial PHY control SM "TRAING_MASTER and "WAIT_MASTER_TRAINING" states - exit from these states is dependent on (scr_status =OK") which would appear to confirm this.

However the involvement of the PHY control SM in descrambler acquisition is not stated anywhere.

SuggestedRemedy

Add a SM to show how descrambler lock is achieved.
Create a variant of Figure 146-7 where the LSFR feedback (into Scrn[0]) can be sourced from Sdn[0] under SM control.
The SM would seed the LSFR from Sdn[0] until Sdn[3:0] matches the equivalent of SCn[3:0] (as per 146.3.3.2.2) for at least 32 sequential triple ternary symbol periods.

Or an equivalent implementation

Response *Response Status* **U**

REJECT.

Tutorial information on synchronizing the scrambler is not required for interoperability and is not generally found in 802.3 BASE-T PHY clauses. Clause 40 is the model for these side stream scramblers and contains substantially the same information. Further implementation information of scrambler synchronization is not described.

Clauses 32, 55, 113 and 126 all employ side stream scramblers with similar description.

Cl **22** *SC* **22.2.2.4** *P* **25** *L* **13** # 292

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

The strike outs "Other. shall have no effect upon the PHY". This proposed change could potentially make existing systems non-compliant. So this potentially violates CRD (compatibility) and may cause other issues.

SuggestedRemedy

please fix it.

Response *Response Status* **W**

REJECT.

This text has not been deleted. An additional pair of TXD values have been inserted, which result in the text being moved to page 25, line 21 of draft 2.0.

Cl **22** *SC* **22.2.2.4** *P* **25** *L* **22** # 294

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

The sentence "Other.shall.. upon the PHY"

SuggestedRemedy

Unneceesary text. But if you feel it is necessary, define what "shall have no effect" means, so that it could be added to the PICS and tested.

Response *Response Status* **W**

REJECT.

This is not new text. It is present in clause 22.2.2.4 of 802.3-2018. Removing this sentence may cause backward compatibility issues.

An additional pair of TXD values have been inserted, which result in the text being moved to page 25, line 21 of draft 2.0.

Cl **22** *SC* **22.2.2.5** *P* **25** *L* **46** # 295

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

The proposed sentence "Assertion of the TX_ER signal shall not affect.".potentially make existing systems non-compliant. So this potentially violates CRD (compatibility) and may cause other issues.

SuggestedRemedy

please fix it.

Response *Response Status* **W**

REJECT.

No change is being made to the original clause 22 "shall not affect" text. The modification is the addition of "(with the exception of 10BASE-T1S and 10BASE-T1L)". The idea, which has been discussed in the group, is that we don't want to preclude using TX_ER with new 10BASE-T PHYs, so an exception has been added.

Cl **22** *SC* **22.2.2.11** *P* **26** *L* **33** # 297

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

The proposed new paragraph has optional behavior that may or may not occur. This text does not belong in CL22.

SuggestedRemedy

Please remove the proposed text, or if required, put appropriate missing text WRT its relevancy (actions, signals, etc).

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

This text has been deleted by changes marked #649 in Clause_22_r2p0_resolution.pdf.

Cl **22** *SC* **22.2.2.12** *P* **26** *L* **42** # 298

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

Similar to my comment on 22.2.11. The proposed new paragraph has optional behavior that may or may not occur. This text does not belong in CL22.

SuggestedRemedy

Please remove the proposed text, or if required, put appropriate missing text WRT its relevancy (actions, signals, etc).

Response *Response Status* **W**

REJECT.

Actions and signals are described in clause 148.4.4.1.3, which is referenced by 22.2.2.11 as appropriate.

Cl **30** *SC* **30.3.9.2.2** *P* **31** *L* **52** # 308

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

"Sublayer provided the PHY implements and enables optional Clause 147 PLCA " is not right. PLCA is an optional component to RS as proposed, and is NOT a part of PHY

SuggestedRemedy

Please reference correct layers

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Accoomodate by #595.

Cl **45** *SC* **45.2.145.2** *P* **35** *L* # 315

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

Without regard to my other comment on PLCA in RS layer, PLCA presence should be a part of the Table 45-2 but is missing.

SuggestedRemedy

Please add PLCA as stated (unless PLCA function is deleted from the draft).

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Move *all* PLCA related bits to a dedicated subclause / address range in Clause 45. This includes registers to be added after accepting #556.

Implement changes marked with #315 in http://www.ieee802.org/3/cg/public/Sept2018/beruto_02_Cl_45_d2p0_proposed.pdf

Cl **45** *SC* **45.2.3.58c** *P* **47** *L* **19** # 274

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

If PLCA network does not work with repeaters, and a single multiple access segment cannot go beyond <nn> of nodes, why is the field much greater than necessary? It would be appropirate to set the value range to be the same as the actual segment max, and set the rest of the bits as reserved.

SuggestedRemedy

Please do so.

Response *Response Status* **W**

REJECT.

PLCA does not have a maximum size specified in Clause 148.

Cl **45** *SC* **45.2.3.58c** *P* **47** *L* **25** # 273

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

Does the network segment work fine when nodes initialize with all defaults (in this case nodeID=255)? If so, then please explain how it works in CL147. If not, please explain why the default value matter.

SuggestedRemedy

Please reference appropirate part of CL147 that describes NodeID=255 default operation, or delete, or add other clarifications needed.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Replace "The default value of bits 3.2289.7:0 is 255." with, "The configurarion of local_nodeID is beyond the scope of this standard. When PLCA operation is disabled these values have no effect."

Cl **45** *SC* **45.2.3.58d.1** *P* **47** *L* **44** # 275

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

Default value of 20 bit times seems exceessive for system that initailize with the value, when E2E delay for 25 m is 1.25 BT. Adding RX latency (148.4.5.1) delta, which is not spec'ed but the worst case (one could be at 0 us and another could be at 4 us in 147.11) the value could be 41.25 us for 25 m segment. None of these equate to 20 bit times default.

SuggestedRemedy

Please spec appropriate default for system operation when systems initialize from default.

Response *Response Status* **W**

REJECT.

Commenter does not provide sufficient remedy. The default value for PLCA TO_TIMER was considered by the Task Force.

Cl **148** *SC* **148** *P* **173** *L* # 287

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

CL 4.3.3 variable definition of carrierSense is in conflict with how CL173 PLCA is using carrier sense. "The overall event of activity on the physical medium is signaled to the MAC sublayer by the variable carrierSense". And "var carrierSense: Boolean;
In half duplex mode, the MAC sublayer shall monitor the value of carrierSense to defer its own transmissions when the medium is busy. The Physical Layer sets carrierSense to true immediately upon detection of activity on the physical medium. After the activity on the physical medium ceases, carrierSense is set to false. Note that the true/false transitions of carrierSense are not defined to be precisely synchronized with the beginning and the end of the frame, but may precede the beginning and lag the end, respectively. (See 4.2 for details.) In full duplex mode, carrierSense is undefined." CL173 use of carrier sense is in conflict w/ CL4. These conflicted use are pervasive, e.g. CL148.4.6.1 holds carrier_on active even when there is no activity on the physical medium.

SuggestedRemedy

Either include CL4 carrier sense related maintanance changes as a part of PLCA, or change PLCA to work with CL4 carrier sense as defined.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accomodated by #649.

Cl **148** *SC* **148.1** *P* **173** *L* **10** # 599
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

says "MII. are compatible with the gRS. ". The statement may become true if all approporate changes to CL22 are made to ensure this statement to be true. CL22 conveys PLS signals to MII. CL148 performs medium access control. So they are not compatible prior to changes.. Also not clear is what is being conveyed as "compatible".

SuggestedRemedy

Delete the sentence, and any other occurance of similar statement. If this statement is kept (against this comment), clarify what is meant to be "compatible"

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Proposed resolution in Clause_148_r2p0_resolution.pdf. Changes are marked with #comment number in the right boxes.

Cl **148** *SC* **148.2** *P* **173** *L* **25** # 286
KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

"..round-robin fashion every time the PHY with node ID = 0 signals a BEACON on the medium, indicating the start of a new cycle" -- this specification does not describe how a node ID=0 is selected (or elected), and how the system handles duplicate node id=0 or absense of node id=0. Also not specified are node id conflict (duplicate node id s)

SuggestedRemedy

The draft is not complete without these specifications. Specify these to complete the spec. Ethernet std has management optional, config rules are known, and required protocol to config are specified (e.g. channel traninig)

Response *Response Status* **W**

REJECT.
No consensus to change
Commenter is referred to comment 598 with respect to node ID assignment and management operation.

Cl **148** *SC* **148.2** *P* **173** *L* **29** # 285
KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

"a multidrop network is granted, in turn, a single transmit opportunity" makes little sense.

SuggestedRemedy

Either clarify or delete.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Accomodated by #505.

Cl **148** *SC* **148.4.1.1** *P* **175** *L* **6** # 288
KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

The Figure 148-2 does not belong in CL148. If it becomes desirable to have it, it should be added to CL22 and reivewed for generic model correctness. CL22.1.1 lists summary of major concepts, gRS should be consistent with that

SuggestedRemedy

Delete, or move it to CL22 with modifications to align it to CL22.1.1

Response *Response Status* **W**

REJECT.
The purpose of a RS is to specify mapping between MAC PLS primitives and MII signals, so the figure belongs to C148 which is an RS. See also Figure 90-2 (TSSI).

Cl **148** *SC* **148.4.2** *P* **176** *L* # 290
KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *PLCA*

PLCA is not a generic RS.

SuggestedRemedy

Please correct and clarify.

Response *Response Status* **W**

REJECT.

PLCA is contained within the generic RS as shown in Figure 148-3. Commenter did not provide sufficient explanation or remedy.

Straw poll reject comment with rationale above:
Y: 14
N: 0
A: 13

Cl **148** *SC* **148.4.4.1.2** *P* **178** *L* **51** # 602

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

"thus request, the PHY shall asset the CRS..." has two problems. What PHY is "the PHY", and how does PHY assert CRS in accordance to CL148 state diagram

SuggestedRemedy

Please fix it. If fixable.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
Solved by #603 and #649

Cl **148** *SC* **148.4.4.1.2** *P* **178** *L* **51** # 603

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

"A Commit request shall not.. PHY. RX_DV.." has two problems. What PHY is "the PHY", and how does the PHY know not to assert RX_DV signal in accordance to CL148 state diagram.

SuggestedRemedy

Please fix it. If fixable.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

As stated in the same subclause "PHY specifications are free to map the COMMIT request to any suitable line coding as long as the requirement defined herein are met."

The purpose of this sentence is to ensure that whatever mapping is chosen in specific PHY clauses for the COMMIT request, this one is not interpreted as normal data (asserting RX_DV).

Suggested resolution should clarify this better.

Proposed resolution in Clause_148_r2p0_resolution.pdf. Changes are marked with #comment number in the right boxes.

NOTE: CRS assertion is not to be specified here (it's implicit in CRS definition). See resolution of #649

Cl **148** *SC* **148.4.4.1.3** *P* **179** *L* **8** # 291

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *PLCA*

The reference 22.2.2.8 is part of this draft, so should not be in green font. 22.2.2.8 itself does not clearly describe how, in combination with 148.4.4.1.3, performs early receive indication.

SuggestedRemedy

Please fix font and clarify in CL22 or here.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

This text has been deleted by changes marked #649 in Clause_148_r2p0_resolution.pdf.

Cl **148** *SC* **148.4.5.1** *P* **180** *L* **11** # 570

Laubach, Mark Broadcom

Comment Type **TR** *Comment Status* **A** *PLCA*

"PLCA control variables". Where are these? Suggest xref'ing to the appropriate subclause, e.g. 148.4.5.2. The more signficant problem is that there is I can't find the term "default" and/or "default value" for any variable in 148.4.5.2. Please indicate in 148.4.5.2 what the default value is for each variable or consider providing a table somewhere appropriate with specific variables and their corresponding appropriate default value to make this statement correct.

SuggestedRemedy

Add the appropriate default value for each variable in 148.4.5.2 as referred to by the paragraph at line 11.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.
This text is not supposed to be normative, but rather a description of the normative state diagram in Fig 148-4 and 148-5.

Proposed resolution in Clause_148_r2p0_resolution.pdf. Changes are marked with #comment number in the right boxes.

Cl **148** *SC* **148.4.5.1** *P* **181** *L* **20** # 512

Jones, Peter Cisco

Comment Type **TR** *Comment Status* **R** *PLCA*

Figure 148-4-PLCA Control state diagram (1 of 2) - Need to check local_nodeID greater than MAX_ID - plca_en = ON * local_nodeID != 0 * local_nodeID < MAX_ID

SuggestedRemedy

make suggested change

Response *Response Status* **U**

REJECT.
MAX_ID is not defined for nodes with local_nodeID != 0. Besides it's a variable, not a constant.

The reason for this is to have MAX_ID configured only on the PLCA coordinator node (i.e. the one with local_nodeID = 0) and just don't care on slave nodes, thus minimizing the required system configuration. State diagrams are also designed to take this into account.

Cl **148** *SC* **148.4.5.3** *P* **185** *L* **3** # 516

Jones, Peter Cisco

Comment Type **TR** *Comment Status* **A** *PLCA*

Check MAX_ID range. Both 0 and 255 don't make sense. Range should be 1 - 254

SuggestedRemedy

make suggested change

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Solved by #527

Cl **104** *SC* **104.5.6.4** *P* **77** *L* **29** # 347

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **R** *PoDL*

"When measuring the ripple voltages for a Type E PD as specified by Table 104â?"7 item (3b), the voltage observed at the MDI/PI with the differential probe where f 1 = 3.18 kHz Â± 1% shall be post-processed with transfer function H 2 (f) specified in Equation (104â?"3) where f 2 = 0.1 MHz Â± 1%."

This puts a post-processing requirement on whomever is making the measurement. Requirement must apply at the MDI.

SuggestedRemedy

Rewrite requirement to a measurable effect on the MDI or make informative sentence if not possible.

Response *Response Status* **U**

REJECT.

Language is exactly parallel to the other 3 types of PDs already in IEEE Std 802.3-2018.

Cl **78** *SC* **78.2** *P* **57** *L* **41** # 279

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Power*

Obvious omission of 10BASE-T1S entry.. Why is it not listed? Objectives list still shjows optional EEE. 147.1 says "DME-based 10BASE-T1S is silent during idle symbols making it inherently energy efficient and without the need for a separate low-power-idle (LPI) mode, as is defined in Clause 78".

SuggestedRemedy

Please complete it. Or change the adopted objectives to reflect the draft.

Response *Response Status* **W**

REJECT.

Master comment 711. Resolve with 711, 432, and 280.

As per clause 147.1, 3rd paragrap "DME-based 10BASE-T1S is silent during idle symbols making it inherently energy efficient and without the need for a separate low-power-idle (LPI) mode, as is defined in Clause 78". Hence LPI signalling is not used/applicable for 10BASE-T1S.

Cl **78** *SC* **78.5** *P* **58** *L* **15** # 280

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Power*

Obvious omission of 10BASE-T1S entry.. Why is it not listed? Objectives list still shjows optional EEE. 147.1 says "DME-based 10BASE-T1S is silent during idle symbols making it inherently energy efficient and without the need for a separate low-power-idle (LPI) mode, as is defined in Clause 78".

SuggestedRemedy

Please complete it. Or change the adopted objectives to reflect the draft.

Response *Response Status* **W**

REJECT.

Master comment 711. Resolve with 711, 432, and 279.

As per clause 147.1, 3rd paragrap "DME-based 10BASE-T1S is silent during idle symbols making it inherently energy efficient and without the need for a separate low-power-idle (LPI) mode, as is defined in Clause 78". Hence LPI signalling is not used/applicable for 10BASE-T1S.

Cl **45** *SC* **45.2.1.174a** *P* **36** *L* **34** # 316

KIM, YONG NIO

Comment Type **ER** *Comment Status* **R** *Registers*

Low power ability is missing perhaps, before it could be controlled?

SuggestedRemedy

Is low-power mode a mandatory requirement? If so, provide a reference.

Response *Response Status* **W**

REJECT.

Low power ability corresponding to the control bit at 45.2.1.174a is found at bit 1.2295.8 in Table 45-142b.

Cl **45** *SC* **45.2.1.174a.3** *P* **37** *L* **14** # 634

Thompson, Geoff GraCaSI S.A.

Comment Type **ER** *Comment Status* **A** *Registers*

Clarify that the loopback is a near end loopback and is not dependent on having media connected.

SuggestedRemedy

NEW TEXT: The 10BASE-T1L PMA shall be placed in near-end loopback mode of operation when bit 1.2294.13 is set to a one. When bit 1.2294.13 is set to a one, the 10BASE-T1L PMA shall accept data on the transmit path and return it on the receive path. The default value of bit 1.2294.13 is zero. Bit 1.2294.13 is a copy of 1.0.0 and setting or clearing either bit shall set or clear the other bit. Setting either bit shall enable loopback. Loopback operation shall be independent of media connection or condition.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Replace the contents of clause 45.2.1.174a.3 Loopback (1.2294.13) with, "The 10BASE-T1L PMA shall be placed in near-end loopback mode of operation when bit 1.2294.13 is set to a one. When bit 1.2294.13 is set to a one, the 10BASE-T1L PMA shall accept data on the transmit path and return it on the receive path. The default value of bit 1.2294.13 is zero. Bit 1.2294.13 is a copy of 1.0.0 and setting or clearing either bit shall set or clear the other bit. Setting either bit shall enable loopback. Loopback operation shall be with the MDI open and not connected to media."

Cl **45** *SC* **45.2.1.174a.5** *P* **37** *L* **30** # 269

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Registers*

"This action mauy also initiate. in the same package" is not appropriate in so many levels. Delete

SuggestedRemedy

Delete the sentence and make changes to any related text elsewhere.

Response *Response Status* **W**

REJECT.

This exact same language is found 6 different times in connection with the low power mode of other 802.3 phys in IEEE Std 802.3-2018.

Cl **45** *SC* **45.2.1.174a.5** *P* **37** *L* **32** # 270

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Registers*

"The behavior of the. shjouild not be relied upon" is not appropirate. Having a control defined for a purpose , low power mode, and having no specification tells me that this is purely vendor implementation paramter.

SuggestedRemedy

Delete the sentence and make changes to any related text elsewhere.

Response *Response Status* **W**

REJECT.

This exact same language is found 6 different times in connection with the low power mode of other 802.3 phys in IEEE Std 802.3-2018.

Cl **45** *SC* **45.2.1.174c** *P* **40** *L* **3** # 635

Thompson, Geoff GraCaSI S.A.

Comment Type **TR** *Comment Status* **A** *Registers*

THE TEXT: "The 3 default values for each bit should be chosen so that the initial state of the device upon power up or reset is a 4 normal operational state without management intervention." is an editorial note requiring further definition of the draft. It indicates that the draft was not complete and not qualified for WG ballot.

SuggestedRemedy

Complete definition of these default values as well as other incomplete items. This constitutes a lack of completeness of the draft, restart the initial WG Ballot.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

No change to draft required.

Table 45-142c clearly shows that 0 0 0 for bits 1.2298.15:13 are Normal (non-test) operation. And 45.2.1.174c.1 clearly states, "The default value for bits 1.2298.15:13 is zero."

Cl **45** *SC* **45.2.1.174e** *P* **42** *L* **21** # 271

KIM, YONG NIO

Comment Type **TR** *Comment Status* **A** *Registers*

Multidrop mode is not clear. If the TX or RX characteristics change, then it may be clearer to provide control around TX or RX parameters. Multidrop mode seems to indicate MAC/RS type of layer function.

SuggestedRemedy

Please use more direct parameter name as appropiorate.

Response *Response Status* **W**

ACCEPT IN PRINCIPLE.

Add "(see Clause 147)" after "multidrop mode over a mixing segment network" in paragraph 45.2.1.174e.4 at P42 L52.

Cl **45** *SC* **45.2.3.58a** *P* **45** *L* **12** # 272

KIM, YONG NIO

Comment Type **TR** *Comment Status* **R** *Registers*

"10BASE-T1L PCS shall be placed." "10BASE-T1L shall accept.". are not right -- loopback ability seems optional. Also a "shall accept data" -- what does it mean to "accept data"?

SuggestedRemedy

Please correct and clarify.

Response *Response Status* **W**

REJECT.

The text "PCS shall be placed..." (referring to loopback modes) occurs 10 times in IEEE Std 802.3-2018 and is the normal way of referring to this operation. "shall accept data on the transmit path... And return it on the receive path" occurs 19 times to further describe loopback.

Cl **146** *SC* **146.9.2.2** *P* **134** *L* **43** # 353

Yseboodt, Lennart Signify

Comment Type **TR** *Comment Status* **R** *Safety*

Complete subclause is out of scope for an 802.3 standard & contains untestable requirements.

SuggestedRemedy

Remove subclause 146.9.2.2.
Same change in Clause 147.

Response *Response Status* **U**

REJECT.
Electromagnetic compatibility clauses similar to this are common in 802.3 PHY clauses. This clause is modeled after those for automotive and industrial PHYs.