Cl **FM** *SC* **FM** *P* **1** *L* **26** # I-43

Grow, Robert — Robert M Grow Consulting

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

Don't forget to update copyright year here and next page, and in the footer when producing the next draft

SuggestedRemedy

Update framemaker variable and inspect front pages to update copyright year as necessary.

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **3** *L* **19** # I-96

Dawe, Piers J G — NVIDIA

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

This heading "Notice and Disclaimer of Liability Concerning the Use of IEEE Standards Documents" doesn't follow the style guide

SuggestedRemedy

Take out the gratuitous capitals, ask staff to fix the template

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P* **26** *L* **39** # I-108

Dawe, Piers J G — NVIDIA

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

Don't say that a clause "adds" something, the text dates and the reader isn't concerned with the state of the standard in the past. Say it includes or specifies, as elsewhere in this description, and as in the middle sentence quoted here.

SuggestedRemedy

Change:
Clause 150 and Clause 151 add 400 Gb/s Physical Layer specifications. Clause 153 and Clause 154 specify 100 Gb/s operation over DWDM channels. Clause 157 through Clause 160 add 10 Gb/s, 25 Gb/s, and 50 Gb/s bidirectional Physical Layer specifications.
to
Clause 150 and Clause 151 include additional 400 Gb/s Physical Layer specifications. Clause 153 and Clause 154 specify 100 Gb/s operation over DWDM channels. Clause 157 through Clause 160 include 10 Gb/s, 25 Gb/s, and 50 Gb/s bidirectional Physical Layer specifications.

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* *L* # I-19

Ran, Adee — Cisco Systems, Inc.

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

*** Comment submitted with the file ran_3dc_01_0122.pdf attached ***

802.3 has multiple instances of the terms “signal stream” and “electrical stream”, mostly in specific subclauses (PMD transmit and receive functions), and a few additional instances.

In all cases, these terms refer to continuously modulated electrical or optical signals. But in communication parlance, “stream” typically denotes a series of discrete entities (bits, symbols, frames, blocks…). The appropriate term for PMD inputs or outputs is simply “signal”.

Additionally, one of the PMD Transmit function subclauses, 85.7.2, lacks a sentence that appears in other subclauses, probably due to an incorrect text inheritance.

Four instances of "signal stream" are in AUI-C2M annexes and should be changed to different terms, either "clean signal" or "clean pattern".

The text should be corrected for clarity and consistency. The usage of these undefined terms seems to have been inherited by multiple projects, and to continue in currently running ones.

SuggestedRemedy

The accompanying presentation ran_3dc_01_0122 lists the instances of "signal streams" and "electrical streams" and the proposed changes to correct the issues above.

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* *L* # I-33

Ran, Adee Cisco Systems, Inc.

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

URLs in the draft have various font styles, sometimes in adjacent lines.

The standard appearance of URLs is blue underlined text. Places which are in different style should be brought to this format.

SuggestedRemedy

Apply blue+underline format to the URLs in the following locations:
P182 L54
P206 L1
P217 L48
P241 L54
P242 L54
P1587 L51
P1638 L1
P1643 L11
P2665 L53
P2997 L54
P4713 L53
P4900 L31
P5514 L18
P5518 L53
P6279 L54
P6280 L50, 51, 52, 53, 54
P6398 L53
P6584 L54
P6965 L54
P6966 L54
P6967 L54
P6976 L49

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* *L* # I-3

Berger, Catherine Editorial Coordination

Comment Type **GR** *Comment Status* **X**

Interspersed normative and informative text is not allowed. As such, neither clauses nor subclauses shall be labeled as informative. Currently you have many subclauses labeled as “(informative)”. These labels will need to be removed and all subclauses with the main body of the text will be considered normative as per their placement in the document. Anything that really needs to be informative only should be set in a note or appear in an annex to the document.

SuggestedRemedy

Remove "informative" labels in the main text of the document. If something is truly informative and you don't want it to be included as normative text, please set that information as a NOTE or move to an annex

Proposed Response *Response Status* **O**

Cl **0** *SC* **0** *P* *L* # I-4

Berger, Catherine Editorial Coordination

Comment Type **G** *Comment Status* **X**

Have you looked at the list of Normative References recently. It is a fairly extensive list. Does a user of IEEE Std 802.3 really need to have all those documents on hand to be able to implement this standard?

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P* **178** *L* **43** # I-89

Maytum, Michael None-Retired

Comment Type **GR** *Comment Status* **X**

The IEEE SA Standards Style Manual requires that in IEEE standards normative references are those documents that contain material that must be understood and used to implement the standard. Further, reference to unpublished drafts may be used as normative references for compliance as long as they are; dated, readily available and retrievable
It is required to meet the SELV requirements in IEC 60364-7-716:20XX, yet the current draft fails the IEEE SA Standards Style Manual requirements of dated, readily available and retrievable.
Following the IEC 64/2413/CDV Brazil, France, Germany, Norway, Portugal, Russian Federation, Spain and United Kingdom all cast negative votes. Comment results were that SELV and PELV voltages will be aligned and it appears wire current capability will be based on temperature rise and not current value. The IEC, ANSI Webstores do not list IEC 60364-7-716. You cannot test for compliance if the document isn't available.

SuggestedRemedy

Remove all body text compliance requirements mentioning IEC 60364-7-716:20XX. Pages 1386, 1403, 4415, 4427 and 5800.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P* **179** *L* **21** # I-104

Dawe, Piers J G NVIDIA

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

IEC 60793-1-42:2007 (chromatic dispersion) is withdrawn

SuggestedRemedy

Change 2007 to 2013

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P* **181** *L* **18** # I-103

Dawe, Piers J G NVIDIA

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

IEC 61280-1-4 is referred from Table 68-3, 10GBASE-LRM transmit characteristics, Table 68-6, Test-pattern definitions and related subclauses, Table 86-6, 40GBASE-SR4 or 100GBASE-SR10 optical transmit characteristics, Table 95-6, 100GBASE-SR4 transmit characteristics, Table 138-8, Transmit characteristics [for 50GBASE-SR, 100GBASE-SR2, 200GBASE-SR4, 400GBASE-SR8] and Table 150-7, Transmit characteristics [for 400GBASE-SR4.2] and Table 167-7, Transmit characteristics [for 100GBASE-VR1, 200GBASE-VR2, 400GBASE-VR4, 100GBASE-SR1, 200GBASE-SR2, and 400GBASE-SR4, in draft]. None of these mentions is dated. In the normative references there are two dated entries, for the 2003 and 2009 editions. 2009 is current, and says it is an improvement on 2003.

SuggestedRemedy

As there is no guidance that the 2003 version is preferred in some circumstance - delete the 2003 entry.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P* **181** *L* **53** # I-32

Ran, Adee Cisco Systems, Inc.

Comment Type **G** *Comment Status* **X**

There is no document in the URL in footnote 12.
The footnote mentions a draft "At the time IEEE Std 802.3-2015 was published", which is irrelevant for this revision.

IEC 61076-3-113 is a reference in two places, 54.8.1 MDI connectors and 85.11.1.2 Style-2 40GBASE-CR4 MDI connectors. I think the specification is equivalent to SFF–8470, for which a document is openly available at https://members.snia.org/document/dl/25914.

SuggestedRemedy

Delete footnote 12.

Consider replacing the reference to IEC 61076-3-113 with a reference to SFF-8470, or adding a note that the two are equivalent.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4** *P* *L* # I-90

Maytum, Michael None-Retired

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

The IEEE Standards Dictionary Online only defines the acronym for safety extra low voltage, not the definition. People need to find what the term means,

SuggestedRemedy

To guide users ELV definitions should be added to qualify the term meaning. Some existing IEC definitions are:
extra low voltage (ELV)
Non-primary circuits complying with the following under normal conditions
* not exceeding 33 V r.m.s. a.c. or 70 V d.c.;
* separated from hazardous low voltage by at least basic insulation.

safety extra low voltage (SELV)
Non-primary circuits complying with ELV limits and the following provisions:
* shall be separated from hazardous low voltage by reinforced/double insulation;
* there shall be no provision for an earth connection.

Protective extra low voltage (PELV)
Non-primary circuits complying with ELV limits and the following provisions:
* shall be separated from hazardous low voltage by reinforced/double insulation;
* may be connected to functional earth, the protective (earth) conductor, or have provision for an earth connection.

functional extra low voltage (FELV)
Non-primary circuits complying with ELV limits and the following provisions:
* separated from hazardous low voltage by at least basic insulation.
* may be connected to functional earth, the protective (earth) conductor, or have provision for an earth connection.
Note 1 to entry: FELV does not fulfil the reinforced/double insulation safety requirements for SELV or PELV.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4.298** *P* **208** *L* **8** # I-98

Dawe, Piers J G NVIDIA

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

This says "DWDM channel: The transmission path from a transmitting DWDM PHY (TP2) to a receiving DWDM PHY (TP3)" yet 1.4.216, black link approach, implies that the DWDM channel is from TP2 to TP3, and Clause 154 makes clear that TP2 is the output end of a single-mode fiber patch cord (TP2), between 2 m and 5 m in length, not at the MDI.
It is important not to mislead test engineers in a definitions section that should be used by test engineers working on all optical PMD types.

SuggestedRemedy

Change "The transmission path from a transmitting DWDM PHY (TP2) to a receiving DWDM PHY (TP3)" to "The transmission path from TP2 after a transmitting DWDM PHY, to TP3 at a receiving DWDM PHY."

Proposed Response *Response Status* **O**

Cl **3** *SC* **3.2.6** *P* **242** *L* **16** # I-76

Thompson, Geoffrey GraCaSI S.A.

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

When trying to deal with another comment, I noticed a prominent "challenge" in a different portion of the draft.

The selectability of line 16 forward on page 242 of the draft doesn't work in a straightforward manner. You sort only select from the bottom of the page up. Trying to select from line 17 on doesn't work.

SuggestedRemedy

Make all text in the draft selectable.

Proposed Response *Response Status* **O**

Cl **3** *SC* **3.4** *P* **244** *L* **53** # I-75

Thompson, Geoffrey — GraCaSI S.A.

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

Also line 16. The referenced footnote seems like a hangover from the days when EtherType based frames were "outside" the scope of the standard. Now that Type based operation is fully legitimate within the standard and is, in fact, fundamental to the operation of several 802.1 standards it is time to elevate the note or a derivative thereof to fully normative text.

SuggestedRemedy

Delete the footnote "31" designation in line 16 and adjust the value of subsequent footnote designations accordingly.

Delete footnote "31" and replace it with the following as main body text: Invalid MAC frames may be ignored, discarded, or used in a private manner. The use of such frames by clients other than LLC or MAC control is beyond the scope of this standard.

Proposed Response *Response Status* **O**

Cl **6** *SC* **6.4** *P* **13** *L* **16** # I-22

Fieldsend, Andrew — None - Self-funded

Comment Type **G** *Comment Status* **X**

This paragraph (and the relevant definitions) indicate that pulverise and shred are now deprecated methods due to improvements in reconstruction technology. However, the definitions (in section 3.1) of both pulverise and shred do not specify the size of the resulting "small particles" (in fact, pulverise allows for grinding to a powder) so it is not clear why these methods are inappropriate as their definitions also fit the definition of disintegrate on line 10. (The definition of disintegrate in section 3.1 also does not specify the size of the component parts to which the device should be reduced.)

SuggestedRemedy

I am unable to suggest a proposed change as the comment may affect other areas of the document, and am raising this issue for clarification.

Proposed Response *Response Status* **O**

Cl **6** *SC* **6.4** *P* **13** *L* **18** # I-23

Fieldsend, Andrew — None - Self-funded

Comment Type **G** *Comment Status* **X**

The second part of this paragraph should refer to the entire range of options rather than just the deprecated pulverise and shred options from the first part of the paragraph.

SuggestedRemedy

Separate this into two paragraphs, starting the second paragraph at the sentence beginning "Depending on the..." on line 18.

Proposed Response *Response Status* **O**

Cl **22** *SC* **22.2.4.2** *P* **722** *L* **26** # I-42

Grow, Robert — Robert M Grow Consulting

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

The draft is inconsistent in capitalization of "register". There is an inconsistent practice of captilizing the word when combined with a register number. This is most significant in Clause 45, but applies to other clauses as well. (Inconsistencies go back to Clause 22 so this has existed for a long time.) The unnecessary capitalization is on references to a specific register. E.g., "Register 0" in Clause 22 or "Register 1.0" in Clause 45. Less frequently the capitalization is when associated with the register name The inconsistency in Table 22-6 is easy to see.

SuggestedRemedy

Search and replace the unnecessary capitalization. Unfortunately, a global search and replace won't work because sometimes, the word "Register" leads a sentence and needs to be capitalized, but a search and replace can be done by an editor for the >1000 occurances of the unnecessary capitalization.

Proposed Response *Response Status* **O**

Cl **28** *SC* **28.2.3.4.7** *P* **947** *L* **28** # I-2

Lusted, Kent — Intel Corporation

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

Per clause 73.7.7.1 Next Page Encoding, the IEEE 802.3dc D3.0 states “The Next Page shall use the encoding shown in Figure 73–7 and Figure 73–8 for the NP, Ack, MP, Ack2, and T bits. These bits shall function as specified in 28.2.3.4.”

In 28.2.3.4.7, the Toggle function is described. Specifically, “The initial value of the Toggle bit in the first Next Page transmitted is the inverse of bit 11 in the base link codeword and, therefore, may assume a value of logic one or zero”

Therein lies the confusion. Is bit 11 equal to the C0 or the C1 field in the AN73 Link Codeword Base Page?

If one indexes the AN73 page per Figure 73-6, then bit 11 = D11 which is C1 because the Base Page starts with D0. However, if one reads the text just above the figure (in section 73.6 'Link codeword encoding'), it is says D0 shall be the first bit transmitted. In that case, the eleventh transmitted bit is actually D10 (which is C0 in the Base Page)

Clarification is needed that bit 11 = D11 (C1 in the link codeword base page).

SuggestedRemedy

In 28.2.3.4.7, change:
“The initial value of the Toggle bit in the first Next Page transmitted is the inverse of bit 11 in the base link codeword and, therefore, may assume a value of logic one or zero”

to:
“The initial value of the Toggle bit in the first Next Page transmitted is the inverse of bit 11 (e.g. D11) in the base link codeword and, therefore, may assume a value of logic one or zero”

Proposed Response *Response Status* **O**

Cl **28B** *SC* **28B** *P* **6362** *L* **6** # I-88

Lusted, Kent — Intel Corporation

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

the current title for this Annex is "IEEE 802.3 Selector Base Page definition" and implies that it is relevant content for all Auto-Negotiation implementations. However, the details in this Annex are specific to AN over twisted pair, not the Cl 73 AN for backplane and copper cable PMD types. To improve the clarity, the Annex title should be updated to reflect the relationship with twisted pair PMD types.

SuggestedRemedy

Change Annex title to "IEEE 802.3 Selector Base Page definition for Auto-Negotiation on twisted-pair". Consider a note in the Annex to distinguish twisted-pair types (using Cl 28 AN) from those using Cl 98 AN for single differential-pair media

Proposed Response *Response Status* **O**

Cl **28B** *SC* **28B.3** *P* **6363** *L* **26** # I-78

Lusted, Kent — Intel Corporation

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

Items in the list use the term "full duplex" ambiguously. Full duplex can mean either the PMD technical details (transmit and receive on the same physical set of wires) or it can mean that the MAC sublayer meets the requirements of the second list in Clause 4.1.1 (p245, line 44). Several of the PHY types listed are full duplex PMDs with half duplex MAC mode (e.g. item g in the list) which is confusing

SuggestedRemedy

for items in the list that use "full duplex", change "full duplex" to "full duplex MAC mode".

Make similar changes to the third sentence in the first paragraph after the list.

Proposed Response *Response Status* **O**

Cl **28B** *SC* **28B.3** *P* **6363** *L* **41** # I-79

Lusted, Kent — Intel Corporation

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

The first paragraph after the list says that 10BASE-T is the lower common denominator and there has the lowest priority. However, an implemention (particularly devices supporting much higher rates) may not have 10BASE-T capability while the spec suggests that it will be the lowest common denominator between two devices (which may not be true).

SuggestedRemedy

Remove the sentence "10BASE-T is the lowest common denominator and therefore has the lowest priority."

Proposed Response *Response Status* **O**

Cl **28B** *SC* **28B.3** *P* **6363** *L* **41** # I-81

Lusted, Kent — Intel Corporation

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

While the rationale for the priority heirarchy of the list in the subclause is straightforward, not all of the guiding principles are listed. Specifically, the preference for higher speeds at the top and lower speeds at the bottom is only given by the statement that 1000BASE-T has a higher priority than 100 Mb/s technologies. Additionally, nothing is said about rates >1Gb

SuggestedRemedy

Consider rewriting the first few sentences of the paragraph to be something like:
"The rationale for this hierarchy is straightforward. First, higher rates are always higher in priority than lower rates. Second, full duplex solutions are always higher in priority than their half duplex counterparts. Third, higher priority is given to PHY types that run on broader spectrum of copper cabling. For example, 100BASE-T2 is ahead of...."

Proposed Response *Response Status* **O**

Cl **28C** *SC* **28C.5** *P* **6367** *L* **26** # I-77

Lusted, Kent — Intel Corporation

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

The first sentence of the second paragraph in the sub-clause is confusing because both hexidecimal and binary representation of values are used in the text for different parts of the OUI/CID (i.e. manufacturer's IEEE-assigned OUI/CID vs. manufacturer-selected user-defined user code). Adding to the confusion is the use of both binary and hexidecimal values in the top part of Figure 28C-1 for the OUI/CID values.

SuggestedRemedy

Change the binary representation of the value of the manufacturer-selected user-defined user code in the text to the hexidecimal representation (e.g. "CE-1F-C")

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.3.2.1.2** *P* **1050** *L* **6** # I-51

Grow, Robert — Robert M Grow Consulting

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

Though someone my want to quote Emerson to me about my desire for consistency, I note that we are generating increasing inconsistency in the sort order of MIB items. Please note that at line 6, sort order is clause number in the Description column; but 1000BASE items following don't have any discernable order, then 2.5GBASE appears to be alphanumeric in the first column. Looking at aMAUType, one examining will see 50GBASE followed by 50/25GBASE followed by 50GBASE spread over almost two pages.

Looking at proposed amendments 3-5 to the 20xx revision, I cannot discern a consistent insert order in these amendments (nor for the"yet to be assigned a number" amendment project I chair).

SuggestedRemedy

As we revisit lower data rates for new applications, the number of entries for aPhyType, aPhyTypeList, and aMAUType will increase. We need to make clear what the insert point is for new enumerations of these attributes and make it available to editors (e.g., Extension: Attribute enumeration sort order on the "tools and resources" page)

Re-sort the enumerations in D3.0 as required by the convention chosen.

Beacuse we no longer have enumeration values included in our specifications, I favor a alphanumeric sort order consistent with our modification of IEEE Style consistent with 1.4. My second choice would be to insert at the end of the xxBASE grouping, but this would be difficult to do for amendments added since dropping the enumeration values.

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.5.1.1.33** *P* **1112** *L* **38** # I-110

Anslow, Peter IEEE, Independent for this ballot

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

IEEE Std 802.3ct-2021 made changes to the text of 30.5.1.1.33. The first two sentences of the BEHAVIOUR DEFINDED AS: section now read:
"A read-only value that indicates if a PHY that supports RS-FEC across the MDI supports the optional PCS FEC error indication bypass ability (see 119.2.5.3). For a PHY that does not support RS-FEC across the MDI, this attribute is not applicable."
This text now makes no sense.
A normal 200G or 400G Ethernet PHY supports PCS FEC (see Clause 119) across the MDI and would not support RS-FEC (e.g., Clauses 91, 108, 134) across the MDI. The second of the two sentences quoted above means that the aPCSFECBypassIndicationAbility is not applicable to the PHYs it was intended for.
A PHY that does support RS-FEC (e.g., Clauses 91, 108, 134) across the MDI would not support PCS FEC (see Clause 119) and therefore would never support the optional PCS FEC error indication bypass ability in 119.2.5.3.

SuggestedRemedy

Change:
"A read-only value that indicates if a PHY that supports RS-FEC across the MDI supports the optional PCS FEC error indication bypass ability (see 119.2.5.3). For a PHY that does not support RS-FEC across the MDI, this attribute is not applicable." to:
"For 200/400GBASE-R, a read-only value that indicates if a PHY that supports PCS-FEC across the MDI supports the optional PCS FEC error indication bypass ability (see 119.2.5.3). For a PHY that does not support PCS-FEC across the MDI, this attribute is not applicable."

Proposed Response *Response Status* **O**

Cl **30** *SC* **30.6.1.1.8** *P* **1117** *L* **3** # I-34

Ran, Adee Cisco Systems, Inc.

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

"A SEQUENCE that meets the requirements of the description on http://www.ieee802.org/3/selectors/selectors.html"

This is a normative definition. The URL points to a 802.3 web page which contains a table, that in turn states that "the IEEE 802.3 standard contains the normative requirements". This looks like a circular reference.

Annex 28A contains an identical description and table and is within the standard document, so should be used in this definition instead of an external URL.

SuggestedRemedy

Change the quoted sentence to
"A SEQUENCE that meets the requirements of the selector field definitions in Annex 28A".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.1.1** *P* **1311** *L* # I-74

Maytum, Michael None-Retired

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

b) Safety—A PSE designed to the standard does not introduce non-SELV (Safety Extra Low Voltage) power into the wiring plant.
This statement does not reflect industry practice where the PoE injector and network powered device, such as a camera or network bridge, are sold as a system. The injector is commonly PELV and a fixed voltage supply as the intended load is known. In addition, the network powered device often has a functional earth.

SuggestedRemedy

Change the text to reflect industry practice to
Safety—A PSE designed to the standard only supplies SELV (Safety Extra Low Voltage) or PELV (Protective Extra Low Voltage) power into the wiring connecting to the network powered device.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.3.7.2.1** *P* **1155** *L* **50** # I-26

Ran, Adee — Cisco Systems, Inc.

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

Equation (33–10) is in extremely small print compared to other equations.

SuggestedRemedy

Enlarge the equation to match other equations.

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1** *P* **1369** *L* **12** # I-30

Maguire, Valerie — The Siemon Company

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

Incomplete implementation of the accepted resolution to comment #108 against draft 2.0.

SuggestedRemedy

Replace, "inserted as connection" with "inserted as a connection".

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.4.9.1.1** *P* **1369** *L* **34** # I-25

Ran, Adee — Cisco Systems, Inc.

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

Equation (33–17) has a stray period after the number 100.

SuggestedRemedy

Delete the period

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.7.1** *P* *L* # I-69

Maytum, Michael — None-Retired

Comment Type **GR** *Comment Status* **X**

Having worked on SELV, PELV and FELV systems I fail to see how an Ethernet PSE interface linked to another network powered Ethernet device is other than an FELV system. (Mains powered injectors and network powered devices are the exception) The isolation transformer used for SELV and PELV provides double fault protection against the hazardous voltage applied to one winding by reinforced or double insultation. Also such transformers should be marked with concentric square symbol on the safety label. To my knowledge hazardous voltages like AC mains do not occur on Ethernet transformer windings. Ethernet transformer manufactures would have an additional burden by 802.3 imposing an SELV/PELV construction requirement. Looking at old ballot comments the main reason given for using a wired Ethernet isolation transformer as to avoid earth loops.

SuggestedRemedy

I propose that TC64 be asked for an interpretation on this. The IEC does not harmonise its stance on ELV. This is very evident from the Web posting https://ict-surge-protection-essays.co.uk/downloads/whats-going-on-electric-shock-and-extra-low-voltage-elv-related-terms-and-definitions/

Proposed Response *Response Status* **O**

Cl **33** *SC* **33.8.3.5** *P* **1399** *L* **10** # I-31

Maguire, Valerie — The Siemon Company

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

It’s unclear why “connection” and “telecommunications outlet” appear in quotes in the PICS. Per Merriam-Webster, scare quotes (also called shudder quotes) are quotation marks used to express skepticism or derision concerning the use of the enclosed word or phrase (like putting the text "so-called" in front of the word). Unless there's another purpose, the use of quotes here doesn't seem correct.

SuggestedRemedy

Replace, <Midspan PSE inserted as a “connection” or “telecommunications outlet”>, with <Midspan PSE inserted as a connection or telecommunications outlet>

Proposed Response *Response Status* **O**

Cl **40** *SC* **40.3.1.3.5** *P* **1586** *L* **51** # I-36

Ran, Adee — Cisco Systems, Inc.

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

"If tx_error_n=1 when the condition (tx_enable_n * tx_enable_n-2) = 1, error indication is signaled by means of symbol substitution"

The phrasing "when the condition <condition>, <statement>" is broken language. It should be either "when the condition <condition> is satisfied, <statement>" or preferably just "when <condition>, <statement>".

In this case, "If tx_error_n=1 when (tx_enable_n * tx_enable_n-2) = 1, error indication is signaled by means of symbol substitution" is clear.

Occurs 7 times in this subclause, once in 40.3.1.3.6, as well as in the corresponding PICS.

SuggestedRemedy

Change "when the condition" to "when" in:

P1586 L51
P1587 L24, L25, L39, L42, L45, L47
P1593 L38

In PICS, 40.12.4, the following items: PCT7, PCT11, PCT12, PCT14, PCT15, PCT16, PCT17

Proposed Response *Response Status* **O**

Cl **44** *SC* **44.1.4.4** *P* **1716** *L* **17** # I-53

Grow, Robert — Robert M Grow Consulting

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

10 Gigabit introduced tables for the various PHY Types operating at that data rate. There appears to be no consistent order for inclusion within this table. This is perhaps another case where consistency might be valuable as we now frequently have projects that address multiple data rates.

SuggestedRemedy

Pick a sort order for this table. Consider if sort order should be consistent with clause 30 aPHYType and aPHYTypeList.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P* **1725** *L* **24** # I-100

Dawe, Piers J G — NVIDIA

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

capability registers vs. ability registers. In Section 4, ability appears 1331 times (including in the contents), nearly all in Clause 45. capability appears 445 times, about 2/3 in 45, mostly related to EEE and timeSync, I believe.

SuggestedRemedy

For Clause 45 register names, change "capability" to "ability".

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.72.3** *P* **2030** *L* **23** # I-7

Zimmerman, George — ADI, APL Group, Cisco, CommScope, Marvell, SenT

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

Bit 3.2291.8 is a copy of bit 0.8 - however, bit 3.2291.8 has the OPPOSITE control sense (for 3.2291.8, half = 1, and for 0.8, half = 0). Additionally, the bit only has meaning when the PHY CAN do full duplex, but there is no text indicating that the bit has no effect when the PHY cannot do full duplex, and no way to indicate whether the PHY does full duplex. The proposed remedy does this in a way that is backwards compatible to PHYs in the market not able to do full duplex. Note that unless someone has built a full-duplex PHY, all implementations should be compatible since the reserved bit should be read as zero.

SuggestedRemedy

Add a bit to the PCS status register (bit 3.2292.6, currently reserved)
Insert a new row, and adjust reserved row in the 10BASE-T1S PCS Status Register (3.2292), table 45-299, 4.2.3.73, p. 2030, line 42:
Add 3.2292.6 Full-duplex capability 1 = PHY capable of full-duplex operation 0 = PHY not capable of full-duplex operation Status R/O

On page 2031, line 7, Add 4.2.3.73.2 Full-duplex capability (3.2292.6)
When read as a one, bit 3.2292.6 indicates that the 10BASE-T1S PHY is capable of full-duplex operation. When read as a zero, bit 3.2292.6 indicates that the 10BASE-T1S PHY is not capable of full-duplex operation.

Change 4.2.72.3 (duplex mode), p 2030, line 21 As follows:
Change “This bit shall be ignored when the Auto-Negotiation enable bit 7.512.12 is set to one or when bit 3.2292.6 indicates the PHY is not capable of full-duplex operation. If a PHY reports via bit 3.2292.6 that it is capable of operating in full-duplex mode, the value of bit 3.2291.8 shall correspond to the mode in which the PHY can operate, and any attempt to change the setting of bit 3.2291.8 shall be ignored. If the PHY reports via bit 3.2292.6 that it is not capable of operating in full-duplex mode, the value of bit 3.2291.8 is undefined.

Bit 3.2291.8 is an inverted copy of bit 0.8 (see Table 22-7) and setting or clearing either bit shall clear or set the
other bit, when the PHY reports via bit 3.2292.6 that it is capable of operating in full-duplex mode.”

Proposed Response *Response Status* **O**

Cl **49** *SC* **49.3** *P* **2319** *L* **19** # I-113

Anslow, Peter — IEEE, Independent for this ballot

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

The Support column of the Clause 49 PICS does not contain entries that are appropriate to the entries in the Status column.
The first incorrect row is for item *JTM.

SuggestedRemedy

In the Clause 49 PICS for items with status of:
"M" change the Support entry to "Yes [ ]"
"O" change the Support entry to "Yes [ ] No [ ]"
"Something:M" change the Support entry to "Yes [ ] N/A [ ]"
"Something:O" change the Support entry to "Yes [ ] No [ ] N/A [ ]"
"O.Number" change the Support entry to "Yes [ ] No [ ]"

Proposed Response *Response Status* **O**

Cl **52** *SC* **52.5.1** *P* **2388** *L* **43** # I-101

Dawe, Piers J G — NVIDIA

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

The old references in Clause 52, 53 and 58 should be replaced with current ones as used in the very similar Clause 158 (for SMF) or 167 (for MMF)

SuggestedRemedy

For encircled flux, change ANSI/TIA/EIA-455-203-2001 to IEC 61280-1-4. Remove ANSI/TIA/EIA-455-203-2001 from the normative references.
For chromatic dispersion, change ANSI/TIA/EIA-455-175A-92 to IEC 60793-1-42 in 52.9.10.2, 53.8.1.1, 53.9.10.2 and 58.7.9.2. Remove ANSI/TIA/EIA-455-175A-92 from the normative references.

Proposed Response *Response Status* **O**

Cl **52** *SC* **52.8.1 8** *P* **2398** *L* **8** # I-28

Ran, Adee
Cisco Systems, Inc.

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

The second row of Table 52–19 has SJ value expressed as 2×10^5/f + S - 0.05, but this expression depends on the units of f (which are not specified) and the result has a dimension of time, not a number of UI (as the column heading suggests).

This issue exists in many similar tables - Table 53–11, Table 87–13, Table 88–13, Table 89–12, Table 95–11, Table 114–10, Table 121–12, Table 138–13, Table 150–12, Table 158–12, Table 159–10, Table 86A–7 (with different expressions, but all lacking the unit of f).

The common understanding is that f is in Hz in all of the above tables.

It is suggested to state the value as "2×10^5 Hz / f" here, and similarly in other tables with the appropriate values. This would be clear for readers and technically correct.

SuggestedRemedy

Change "10^5 / f" to "10^5 Hz / f" in Table 52–19.

Apply similar changes in Table 87–13, Table 88–13, Table 89–12, Table 95–11, Table 114–10, Table 121–12, Table 138–13, Table 150–12, Table 158–12, Table 159–10, Table 86A–7.

In Table 53–11 add "Hz" in the numerator of the ratio 93750 / f.

Proposed Response *Response Status* **O**

Cl **52** *SC* **52.9.3** *P* **2400** *L* **17** # I-107

Dawe, Piers J G
NVIDIA

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

The reference for average optical power measurement is out of date, the current revision is TIA-455-95-B (2019) FOTP-95 Absolute Optical Power Test for Optical Fibers and Cables. We may need to keep its successor if we can't find an IEC one that covers multimode: IEC 61280-1-1 is for single-mode.

SuggestedRemedy

Here and in 52.15.3.9, 53.13 and 53.15.4.5, change "ANSI/TIA/EIA-455-95" to "IEC 61280-1-1 or ANSI/TIA-455-95-B".
In 1.3, change "ANSI/TIA/EIA-455-95-1986" to "ANSI/TIA-455-95-B-2019".
A similar change could be made in 38.6.2, 38.12.4.5

Proposed Response *Response Status* **O**

Cl **52** *SC* **52.13** *P* **2414** *L* **34** # I-102

Dawe, Piers J G
NVIDIA

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

The old references in clauses 52 and 53 and others should be replaced with current ones as used in more recent clauses.
If the current IEC standards address the right "method"s....

SuggestedRemedy

Here and in 53.13, change:
Insertion loss measurements of installed fiber cables are made in accordance with ANSI/TIA/EIA-526-14A/method B, and ANSI/TIA/EIA-526-7/method A-1.
to:
Insertion loss measurements of installed fiber cables are made in accordance with IEC 61280-4-1, Method 2 for multimode cabling and IEC 61280-4-2 for single-mode cabling.
In MMF clauses, change ANSI/TIA/EIA-526-14A/method B to IEC 61280-4-1.
In SMF clauses, change ANSI/TIA/EIA-526-7/method A-1 to IEC 61280-4-2.
In 75.9.1 and similar/related places, change IEC 61280-4-2:2000 to IEC 61280-4-2.
In 1.3, change IEC 61280-4-2:2000 to IEC 61280-4-2:2014.
Delete the entry for IEC 61280-4-1:2003, change IEC 61280-4-1:2009 to IEC 61280-4-1:2019/AMD1:2021.

Proposed Response *Response Status* **O**

Cl **52** *SC* **52.14.4** *P* **2417** *L* **46** # I-60

Ran, Adee
Cisco Systems, Inc.

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

"NOTE—Compliance testing is performed at TP2 and TP3 as defined in 52.4.1, not at the MDI"

While it is true that compliance testing for transmitters is performed at TP2 (which is not the same as the MDI) and not at the MDI, TP3 is at the MDI, and for receiver compliance testing, the MDI is where the signal is applied; TP3 is the end of the Fiber optic cabling (channel) which is typically replaced by test equipment in receiver testing. Thus, claiming that receiver compliance testing is not done at the MDI is incorrect and confusing.

In contrast, some newer clauses use text specific to transmitter compliance testing. For example in 86.10.3.3: "NOTE—Transmitter compliance testing is performed at TP2 as defined in 86.5.1, not at the MDI". This text is correct, and it appears in 15 clauses (86, 87, 88, 89, 95, 121, 122, 123, 124, 139, 140, 151, 154, 159, 160).

The NOTE that is not specific to transmitters still appears in 11 places, listed below. As can be seen, the old version was inherited by some new clauses, and persist in the currently running P802.3db. It should be changed to be specific to transmitters, for consistency and correctness.

52.4.1
53.14.3
58.9.4
59.9.4
60.11.4
75.9.4
112.10.3
138.10.3
141.9.4
150.10.3
158.11.3

SuggestedRemedy

Change the notes in the 11 subclauses listed in the comment to match the text in 86.10.3.3, keeping the references to the definition of TP2 for each clause respectively.

Proposed Response *Response Status* **O**

Cl **69** *SC* **69.1.1** *P* **3018** *L* **13** # I-1

Brown, Matthew
Huawei Technologies Canada

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

It is not necessary to specify the BER requirements for the various backplane physical layers in the backplane introduction clause since it is explicitly specified in each of the backplane PMD clauses. Also, with the addition of FEC and error burst considerations a fuller context is required. Finally, with each new generation of Ethernet rates the BER target has changed, requiring this backplane introduction clause to be updated needlessly.

SuggestedRemedy

Delete "providing a bit error ratio (BER) better than or equal to10–12 at the MAC/PLS service interface or 200Gb/s providing a BER better than or equal to 10–13 at theMAC/PLS service interface".

Proposed Response *Response Status* **O**

Cl **70** *SC* **70.9.1** *P* **3037** *L* **16** # I-91

Wienckowski, Natalie
General Motors Company

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

Change text referencing J.2 to match other reference statements.

SuggestedRemedy

Change: shall conform to J.2
To: shall conform to the general safety requirements as specified in J.2
Also change on P3056L16, P3092L16, P3522L52, P3795L12, P3850L47, P4965L34, P5227L10, P5387L33, P5416L51, P5444L12, P5482L20, P5880L30, P6090L28

Proposed Response *Response Status* **O**

Cl **73** *SC* **73.6.4** *P* **3107** *L* **4** # I-80

Lusted, Kent
Intel Corporation

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

In the first paragraph of the subclause, there are references to "Auto-Negotiation for Backplane Ethernet". However, this clause is AN for backplane and copper cable assemblyper the title.

SuggestedRemedy

Change "Auto-Negotiation for Backplane Ethernet" to "Auto-Negotiation for Backplane and Copper Cable Assembly"

Proposed Response *Response Status* **O**

Cl **73A** *SC* **73A.2** *P* **6570** *L* **46** # I-85

Lusted, Kent — Intel Corporation

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

In the second sentence, the order of the bits U0 to U10 is not consistent with the other U bits in the sentence, or other adjacent sentences. Furthermore, the order of the U0 to U10 is opposite of the D bits next to it.

SuggestedRemedy

In the second sentence, change "bits U0 to U10" to "bits U10 to U0"

Proposed Response *Response Status* **O**

Cl **73A** *SC* **73A.2** *P* **6570** *L* **51** # I-86

Lusted, Kent — Intel Corporation

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

*** Comment submitted with the file 73A.2_message_code5_OUI_issue.pdf;73A.2_message_code5_OUI_issue.pptx attached ***

There is a specification gap between the IEEE 802.3 Annex 73A.2 and the Ethernet Technology Consortium (ETC) for the unformatted code field of the Unformatted Next Page for message code 5.

The IEEE text in 73A.2 specifies that user-defined user code values are located in bits D8:D0, D26:D16 (U8:U0, U21 to U11 respectively) and that remaining unformatted code field bits shall be sent as zero and ignored on receipt.

The IEEE text in Annex 28C (which was likely the original source for Annex 73A) states that up to three unformatted code fields can be transmitted in each extended unformatted page, the first in U0:10, second in U11:21, third in U27:27. (see p6365, line 25).

The Ethernet Technology Consortium uses Next Page Message code 5 to exchange various capabilities defined in their specification.

Two issues exist. First, the ETC spec assumes three user-code fields while Annex 73A.4 defines two. (note that Annex 28C has three user-code fields) Second, the ETC uses bit D43 (U38) for functionality which should be a reserved zero bit per the IEEE 802.3 Annex 73A.2 text.

Given that implementations are already in the field and compatible with each other based on assimilating information from Annex 28C, Annext 73A, and the ETC spec, a clarification of the IEEE 802.3 specification would be helpful.

SuggestedRemedy

Change the last two sentences of the first paragraph (begging with "The unformatted code field of the Unformatted Next Page…" and ending with "ignored on receipt" in the subclause to be:
"The unformatted code field of the Unformatted Next Page shall contain the remaining least significant 2 bits of the OUI or CID (bits 1:0) in bits 10:9 (U10 and U9) with OUI or CID bit 1 in bit 10 (bit U10) with the bits 8:0, 26:16, 43:32 (bits U8 to U0, U21 to U11, U38 to U27) as a user-defined user code value that is specific to the OUI or CID transmitted. The remaining unformatted code field bits in the Message Next Page and the Unformatted Next Page shall be sent as zero and ignored on receipt."

Update FIgure 73A-1 as required.

see accompanying presentation.

Proposed Response *Response Status* **O**

Cl **73A** SC **73A.2** P **6571** L **1** # I-82

Lusted, Kent — Intel Corporation

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

The first sentence of the second paragraph in the sub-clause is confusing because both hexidecimal and binary representation of values are used in the text for different parts of the OUI/CID (i.e. manufacturer's IEEE-assigned OUI/CID vs. manufacturer-selected user-defined user code). Adding to the confusion is the use of both binary and hexidecimal values in the top part of Figure 28C-1 for the OUI/CID values.

SuggestedRemedy

Change the binary representation of the value of the manufacturer-selected user-defined user code in the text to the hexidecimal representation (e.g. "CE-1F-C")

Proposed Response *Response Status* **O**

Cl **73A** SC **73A.2** P **6571** L **5** # I-83

Lusted, Kent — Intel Corporation

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

global broadcast bit "g" should be italics

SuggestedRemedy

change to italics

Proposed Response *Response Status* **O**

Cl **73A** SC **73A.2** P **6571** L **34** # I-84

Lusted, Kent — Intel Corporation

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

hyperlink to registers 7.2 and 7.3 don't work.

SuggestedRemedy

Make links to registers 7.2 and 7.3

Proposed Response *Response Status* **O**

Cl **76A** SC **76A.1** P **6584** L **54** # I-112

Anslow, Peter — IEEE, Independent for this ballot

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

In footnote 10, "The tables in the annex are ..." should be "The tables in this annex are ...".

SuggestedRemedy

Change "The tables in the annex are ..." to "The tables in this annex are ...".

Proposed Response *Response Status* **O**

Cl **78** SC **78.1** P **332** L **47** # I-8

Parsons, Earl — CommScope, Inc.

Comment Type **G** *Comment Status* **X**

In this table the row for 100GBASE-KR2 should be above the row for 100GBASE-CR10.

SuggestedRemedy

Move the row for 100GBAE-KR2 above 100GBASE-CR10.

Proposed Response *Response Status* **O**

Cl **78** SC **78.1.4** P **3327** L **47** # I-114

Anslow, Peter — IEEE, Independent for this ballot

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

Comment #65 against P802.3cj D2.0 defined the order of items in Table 78-1. See: http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14 According to this, 100GBASE-KR2 was inserted in the wrong place by IEEE Std 802.3cd-2018

SuggestedRemedy

Move the row for 100GBASE-KR2 to be after the row for 100GBASE-KP4 and before the row for 100GBASE-CR2

Proposed Response *Response Status* **O**

Cl **78** *SC* **78.1.41** *P* **3326** *L* **23** # I-52

Grow, Robert — Robert M Grow Consulting

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

Table 78-1 does not seem to have a consistent logical order other than grouping by data rate. 10BASE are in clause order, 1000BASE are in neither clause order or PHY Type name alphanumeric order, etc. With 25GBASE hitting a dozen entries with amendments in process, perhaps there should be a convention for order of these EEE PHY Type names..

SuggestedRemedy

Pick a sort order for this table. Consider if sort order should be consistent with clause 30 aPHYType and aPHYTypeList.

Proposed Response *Response Status* **O**

Cl **80** *SC* **80.1.4** *P* **339** *L* **36** # I-9

Parsons, Earl — CommScope, Inc.

Comment Type **G** *Comment Status* **X**

To maintain consistency, the SR entries should be in order of decreasing lanes. 100GBASE-SR4 and 100GBASE-SR2 should be swapped.

SuggestedRemedy

Move the row for 100GBASE-SR2 to be below the row for 100GBASE-SR4.

Proposed Response *Response Status* **O**

Cl **80** *SC* **80.1.4** *P* **3390** *L* **48** # I-54

Grow, Robert — Robert M Grow Consulting

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

This table may have once been organized by clause order in the description, but that no longer appears to be the case, only grouping of data rates is consistent.

SuggestedRemedy

Pick a sort order for this table as well as Table 80-2 through Table 80-5. Consider if sort order should be consistent with clause 30 aPHYType and aPHYTypeList.

Proposed Response *Response Status* **O**

Cl **83** *SC* **83.3** *P* **3495** *L* **16** # I-29

Ran, Adee — Cisco Systems, Inc.

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

*** Comment submitted with the file image.png;ran_3dc_02_0122.pdf attached ***

The terms "ingress " and "egress" appear in several places without being defined in 802.3, and with inconsistent meaning.

In most places, their are used with the implied meaning of direction, "towards the MAC" and "towards the medium", respectively. This should be defined explicitly.

In a few other cases they are used with other meanings that is usually expressed with other terms. In these cases, it would be preferable to use the more common terms instead.

SuggestedRemedy

Add definitions in 1.4 for ingress/egress:
1.4.x Egress: the direction of data and signals from the MAC towards the media.
1.4.y Ingress: the direction of data and signals from the media towards the MAC.

Change “egress” and “egress power” to “PSD mask” 62.3.5.1.3 (both heading and body) and in 62.4.4.2 (PICS item 10PPMD-27).

Change “egress” to “transmission” and “ingress” to “reception” in 90.1 and 90.4.1.2.

See accompanying presentation ran_3dc_02_0122.

Proposed Response *Response Status* **O**

Cl **83E** *SC* **83E.3.1** *P* **6649** *L* **1** # I-106

Dawe, Piers J G — NVIDIA

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

P802.3ck believes that these table titles are better without the brackets.

SuggestedRemedy

Remove the brackets: Table 83E-1 (at TP1a), Table 83E-3 (at TP4), Table 120E-1 (at TP1a), Table 120E-3 (at TP4)

Proposed Response *Response Status* **O**

Cl **90** *SC* **90.1** *P* **3679** *L* **12** # I-41

Zimmerman, George — ADI, APL Group, Cisco, CommScope, Marvell, SenT

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

"with the gRS sublayer defined in 90.5" is the first use of gRS that I can find in the draft. Therefore gRS should be spelled out.

SuggestedRemedy

Change "with the gRS sublayer defined" to "with the generic Reconciliation Sublayer (gRS) defined"

Proposed Response *Response Status* **O**

Cl **91** *SC* **91.5.2.6** *P* **3696** *L* **32** # I-37

Nicholl, Shawn — Xilinx

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

In Figure 91-4 tx_scrambled is inserted into an area of 2x10 bits. However, tx_scrambled is 257 bits wide. This causes confusion. The diagram should be clarified.

SuggestedRemedy

Figure 119-5 and Figure 119-7 are very similar to Figure 91-4 and are the basis for the following proposed changes to Figure 91-4:
- Remove the arrow from the diagram
- Add shading to the final cell/column of the table (i.e. for the rows pertaining to FEC lane 0-3). The shading should be different colour from the 5-bit pad shading.
- Replace "tx_scrambled" with "Resumption of 257-bit blocks" or "Resumption of 257-bit tx_scrambled blocks"
- If "Resumption of 257-bit tx_scrambled blocks" is chosen, then propose to make similar text change to Figure 119-5 and Figure 119-7
- Alongside the new text, add an "=" (equal symbol) and a rectangle that is shaded the same colour as the newly shared area
- Note that this diagram is consistent with latest P802.3ck/D3.0 Figure 161-3 and ideally will remain consistent with Figure 161-3

Proposed Response *Response Status* **O**

Cl **96** *SC* **96.5.4.2** *P* **3928** *L* **32** # I-35

Ran, Adee — Cisco Systems, Inc.

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

The footnote numbering is restarted here (footnote 1), previous footnote was numbered 161 (page 3884).

SuggestedRemedy

Correct footnote numbering in section 7.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.8.1** *P* *L* # I-70

Maytum, Michael — None-Retired

Comment Type **G** *Comment Status* **X**

Jacques Peronnet, International Electrotechnical Commission (IEC) TC64 Chairman, oversaw the publication of Electrical installation guide 2018. In clause 8.1 Extra Low Voltage (ELV) the guide covers SELV (Safety Extra Low Voltage), PELV (Protection by Extra Low Voltage) and FELV (Functional Extra-Low Voltage).
SELV is used in situations where the operation of electrical equipment presents a serious hazard (swimming pools, amusement parks, etc.). This measure depends on supplying power at extra-low voltage from the secondary windings of isolating transformers especially designed according to national or to international (IEC 61558-1, 3rd Edition, September 2017 - Safety of transformers, reactors, power supply units and combinations thereof - Part 1: General requirements and tests) standard. SELV circuits shall be insulated from other non-SELV circuits (excluding FELV) by double or reinforced insulation.
PELV is for general use where low voltage is required, or preferred for safety reasons, other than in the high-risk locations requiring SELV. PELV is like SELV, but the secondary circuit may earthed at one point.
FELV has an output voltage of ELV, but not all the requirements relating to SELV or PELV are fulfilled, appropriate measures described in IEC 60364-4-41 must be taken to ensure both basic and fault protection, according to the location and use of these circuits

SuggestedRemedy

This raises the question is IEC 60364-7-716 the right standard to specify the safety requirents of Ethernet isolating transformers.

Proposed Response *Response Status* **O**

Cl **104** *SC* **104.9.4.4** *P* **4424** *L* **33** # I-5

Zimmerman, George — ADI, APL Group, Cisco, CommScope, Marvell, SenT

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

PICS entry COMEL2 says PDTA:M, Requirement says it refers to PD type E

SuggestedRemedy

Change PDTA:M to PDTE:M

Proposed Response *Response Status* **O**

Cl **105** *SC* **105.1.3** *P* **4431** *L* **19** # I-55

Grow, Robert — Robert M Grow Consulting

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

This table may have once been organized by clause order in the description, but that no longer appears to be the case, only grouping of data rates is consistent. Table 105.2 does not have the same order of PHY Types. In Table 105-3, it isn't clear why 25GBASE-T is in the middle of the 25GBASE-R PMDs.

SuggestedRemedy

Pick a sort order and apply as appropriate to Table 105-1 through 105-3. Consider if sort order should be consistent with clause 30 aPHYType and aPHYTypeList.

Proposed Response *Response Status* **O**

Cl **108** *SC* **108.5.1.1** *P* **4465** *L* **8** # I-111

Anslow, Peter — IEEE, Independent for this ballot

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

The second paragraph of 108.5.1.1 contains:
"It forms a bit stream from the primitives by concatenating requests with the bits of each primitive in order to form tx_data-group<0> to tx_data-group<15> (see Figure 49–6)."
This is somewhat confusing as Figure 49–6 does not contain tx_data-group<0> to tx_data-group<15>, but rather rx_data-group<0> to rx_data-group<15>.

Same issue for the second paragraph of 74.7.4.1.1.

SuggestedRemedy

Add the following note after the second paragraph of 108.5.1.1:
NOTE--Figure 49-6 shows rx_data-group<0> to rx_data-group<15> because the processing in that figure is in the Rx path. However, the reverse gearbox in this subclause is in the Tx path so it uses tx_data-group<0> to tx_data-group<15>.

Add the same note after the second paragraph of 74.7.4.1.1.

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P* **4809** *L* **33** # I-10

Parsons, Earl — CommScope, Inc.

Comment Type **G** *Comment Status* **X**

To maintain consistency move the column for 200GBASE-SR4 PMD to be between 200GAUI-4 C2M and 200GBASE-DR4 PMD in Table 116-4.

SuggestedRemedy

Move the column for 200GBASE-SR4 PMD to be between 200GAUI-4 C2M and 200GBASE-DR4 PMD in Table 116-4.

Proposed Response *Response Status* **O**

Cl **118** *SC* **118.1.3** *P* **4831** *L* **25** # I-49

Ran, Adee
Cisco Systems, Inc.

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

"A 200GMII Extender may use any of the following physical instantiations of the 200GAUI-n:"
200GAUI-n is a collective term for the family of electrical interfaces listed in the subsequent list. Item b in 120.1.4 says "200GAUI-n is a physical instantiation of the connection between two adjacent 200GBASE-R PMA sublayers". Talking about "physical instantiations of the 200GAUI-n" does not make sense.

Figure 118-1 should be referenced to explain where the 200GAUI-n is placed.

Similarly for the 400GMII Extender in the next paragraph.

SuggestedRemedy

Change the quoted sentence to:
"A 200GMII Extender may use any of the following electrical interfaces for the connection between its PMA sublayers, as shown in Figure 118–1:"

Change the first sentence of the second paragraph to:
"A 400GMII Extender may use any of the following electrical interfaces for the connection between its PMA sublayers, as shown in Figure 118–1:"

Proposed Response *Response Status* **O**

Cl **119** *SC* **119.2.4.4.1** *P* **4853** *L* **41** # I-44

Ran, Adee
Cisco Systems, Inc.

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

The expression "every 81 920 × 257-bit blocks" is uncommon. The multiplication symbol is typically read as "times", but it does not make sense in this sentence.

A common phrasing in the standard is "<n> <k>-bit blocks" where n itself may be an expression involving multiplication (for example in 82.2.19.2.2 "n × 16384 66-bit blocks" and in 91.5.2.6: "every 20 × 16384 66-bit blocks"), but with no multiplication symbol between the number of blocks n and the block-length number k. The numbers constituting n are usually written with no thousands separator to avoid confusion. It is suggested to use this convention consistently.

There are several similar expressions in clause 119:
119.2.4.4.1 P4853 L41 (this one)
Figure 119–6, 6 instances
Figure 119–8, 6 instances
119.2.4.4.2, P4856 L2
119.2.4.6 P4856 L48
119.2.5.5 P4862 L36 and L42

In addition, there are some instances of "<n> <k>-bit blocks" with thousands separators in the number n. These separators reduce clarity and would better be removed.
133.2.1 P5251 L10 (twice)
133.2.2 P5251 L22 (twice)
133.2.4 P5252 L20
134.5.2.7 P5263 L5
152.5.3.6 P6136 L39

SuggestedRemedy

Edit the listed instances to have no multiplication symbol between the number of blocks and the block-length number, and no thousands separators in the numbers.

Proposed Response *Response Status* **O**

Cl **119** *SC* **119.2.4.4.1** *P* **4854** *L* **3** # I-38

Nicholl, Shawn Xilinx

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

In Figure 119-6 "200GBASE-R alignment marker insert period" tx_scrambled is mentioned in several places -- for an area of 36x257-bit and also in an area of 40x257-bit. However, tx_scrambled is 257 bits wide.

SuggestedRemedy

Propose to make the following change(s) to Figure 119-6:
- Replace (in two places) "am_txmapped 4x257-bit blocks" with "am_txmapped (4x257 bits)"
- Replace (in two places) "tx_scrambled 36x257-bit blocks" with "36x257-bit tx_scrambled blocks"
- Replace "tx_scrambled 40x257-bit blocks" with "40x257-bit tx_scrambled blocks"
- Note that this diagram is consistent with latest P802.3ck/D3.0 Figure 161-4 and ideally will remain consistent with Figure 161-4
- Note that Figure 119-8 "400GBASE-R alignment marker insert period" should be similarly modified to retain consistency with Figure 119-6

Proposed Response *Response Status* **O**

Cl **120** *SC* **120.5.7.2** *P* **4894** *L* **18** # I-99

Dawe, Piers J G NVIDIA

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

This text has been modified recently. Now there are requirements "If the PMA is connected to the service interface of a PMD that uses the PMD control function". There is no indication as to which PMDs use the PMD control function, or whether it depends on PMD type, an option, or what. There is a parenthetical reference to 136.8.11 which describes the PMD control function at great length but does not say which PMDs use it. 136.8.11 says "The PMD shall implement... (not "use", nor "support"), so a Clause 136 PMD (50GBASE-CR, 100GBASE-CR2, and 200GBASE-CR4) might. But it's not definite, and one cannot tell whether any or all of the many other PHY, XS and AUI types that use the Clause 120 PMA don't, do, or sometimes do "use the PMD control function". String searches on such a vast document are impractical, especially to attempt to prove a negative.
Notice that the criterion is "uses the PMD control function" which the text does not tie to precoding ability.
Further, there are multiple definitions of "PMD control function", for example in 72.6.10 and 92.7.12, so "the PMD control function" is an unsatisfactory identifier. The reader could believe they don't apply because they relate to different PMA types, but the draft is making work for the reader who must then trust that what he thinks is sensible is what the draft means but doesn't say clearly enough.
Same problem in 135.5.7.2.

SuggestedRemedy

Change "a PMD that uses the PMD control function (136.8.11)" to "a 200GBASE-CR4 or 200GBASE-KR4 PMD when training is not disabled by the management variable mr_training_enable (see 136.7 and 136.8.11),".
Change "a PMD that supports the PMD control function but training is disabled" to "a 200GBASE-CR4 or 200GBASE-KR4 PMD when training is disabled".

Proposed Response *Response Status* **O**

Cl **121** *SC* **121.8.3** *P* **4922** *L* **10** # I-105

Dawe, Piers J G NVIDIA

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

Figure 53-6, Optical power measurement test set-up, is very basic and appears in a subclause that describes how to do a lane-by-lane optical power measurement of a WDM transmitter by enabling / disabling the wavelengths. A transmitter for parallel fibres is likely to be tested differently, with a breakout cable. For a serial non-WDM transmitter, the figure is harmless but doesn't help much, and Clause 52 does not refer to this figure or another. Nor do 86.8.4.2 for 40GBASE-SR4 and 100GBASE-SR10, or 95.8.3 for 100GBASE-SR4. A similar comment has been submitted to P802.3db where there should be a quorum of expertise to advise on the issue.

SuggestedRemedy

For the other parallel optics PMDs, delete ", per the test setup in Figure 53-6" in 121.8.3, 124.8.3, 138.8.3 and 150.8.3.

Proposed Response *Response Status* **O**

Cl **121** *SC* **121.8.5.3** *P* **4927** *L* **18** # I-109

Dawe, Piers J G NVIDIA

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

This "filter bandwidth of 13.28125 GHz" is ambiguous in a sentence about noise spectrum, in the context of equalization and an optical signal. Is it noise bandwidth, -3 dBe bandwidth, or -6 dBe bandwidth?

SuggestedRemedy

Align with the "a 3 dB bandwidth of approximately 13.28125 GHz with a fourth-order Bessel-Thomson response" in 121.8.5.1 (and one in 121.8.7): change "with a bandwidth" to "with a -3 dB bandwidth".

Proposed Response *Response Status* **O**

Cl **121** *SC* **121.8.5.4** *P* **4928** *L* **3** # I-61

Ran, Adee Cisco Systems, Inc.

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

"The reference equalizer for 200GBASE-DR4 is a 5 tap, T spaced, feed-forward equalizer (FFE), where T is the symbol period."

"5-tap" and "T-spaced" are compound adjectives, and should be written with a hyphen, just like "feed-forward".

Similar text is used in 122.8.5.4, 138.8.5.1, 140.7.5.1, 150.8.5.1, and 160.7.5.4.

SuggestedRemedy

Change to "5-tap" and "T-spaced" in the 6 instances listed in the comment.

Proposed Response *Response Status* **O**

Cl **125** *SC* **125.3** *P* **5022** *L* **25** # I-56

Grow, Robert Robert M Grow Consulting

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

In Table 105-3, the PMDs are listed after the BASE R PJMA (mostly), the opposite convention is used hear with the PMD preceding the PMA.

SuggestedRemedy

Pick a sort order for this this and similar sublayer delay tables.

Proposed Response *Response Status* **O**

Cl **126** *SC* **126.2.2.11.1** *P* **5039** *L* **27** # I-46

Wu, Mau-Lin MediaTek Inc.

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

For 'TRUE', 'PHY is in state PCS_Data (see Figure 126-26)". There is no reasons why "PCS", instead of "PHY", is checked for "False, PCS is not in state PCS_Data (see Figure 126.26)". This shall be a typo.

SuggestedRemedy

Change to
"FALSE PHY is not in state PCS_DATA (see Figure 126-26)."

Proposed Response *Response Status* **O**

Cl **126** *SC* **126.2.2.12.1** *P* **5039** *L* **51** # I-47

Wu, Mau-Lin MediaTek Inc.

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

For 'TRUE', 'PHY is currently performing a fast retrain". There is no reasons why "PCS", instead of "PHY", is checked for "False, PCS is not currently performing a fast retrain". This shall be a typo.

SuggestedRemedy

Change to
"FALSE PHY is not currently performing a fast retrain."

Proposed Response *Response Status* **O**

Cl **126** *SC* **126.3.4** *P* **5056** *L* **34** # I-45

Wu, Mau-Lin MediaTek Inc.

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

*** Comment submitted with the file Comments to IEEE 802.3-2021, D3.0.pdf attached ***

The derived sequences of 'Sdn' is not correct due to the parenthesis put at the wrong locations.

SuggestedRemedy

Change the 'derived sequences' of 'Sdn' to
Sdn = Scrn[9]+(Scrn[14]+(Scrn[19]+Scrn[24])), where the '+' symbol above shall be replaced by '+' surrounded by circle, which means XOR operation.
The detailed information is included in the "supporting documents".

Proposed Response *Response Status* **O**

Cl **128** *SC* **128.9.1** *P* **5195** *L* **29** # I-92

Wienckowski, Natalie General Motors Company

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

Change text referencing J.2 to match other reference statements.

SuggestedRemedy

Change: conform to the general safety requirements in J.2
To: conform to the general safety requirements as specified in J.2
Also change on P5929L24

Proposed Response *Response Status* **O**

Cl **131** *SC* **131.1.3** *P* **5234** *L* **37** # I-57

Grow, Robert Robert M Grow Consulting

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

No consistent order for the PHY Types in Tables 131-1 through Table 131-3.

SuggestedRemedy

Pick a sort order consistent with other introductory clauses.

Proposed Response *Response Status* **O**

Cl **131** *SC* **131.4** *P* **5239** *L* **24** # I-58

Grow, Robert Robert M Grow Consulting

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

This table is another in the group of delay constraints tables where we are consistent from clause to clause (clauses 105 and 125).

SuggestedRemedy

Pick a sort order for this this and similar sublayer delay tables.

Proposed Response *Response Status* **O**

Cl **136** *SC* **136.8.11.7.1** *P* **5326** *L* **33** # I-40

Slavick, Jeff — Broadcom Inc

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

The definition of lost_training_lock states "or the detection of a non-compliant input signal has occurred for 1ms". The original intent of this phrase was to identify if the remote end has stopped transmission of the training frames (e.g. squelched its transmitter). However, when the transmitter is in the transmit disable state (136.8.7) it is providing a specification compliant signal. We don't want to monitor for a signal that is below the Transmitter steady-state voltage minimum and above the Differential pk-pk output voltage with Tx Disabled (see Table 136-11) .

In addition the "or" implies that you must do both a 20ms monitor of loss of frame_lock AND detect the signal is no longer transmitting, since the variable is to assert if EITHER of the scenarios occur.

Lastly, this variable is used to exit out of the TRAINING_LOCAL and TRAINING_REMOTE states in which you are constantly receiving training frames, so the remote end would only squelch if it were to go to the QUIET state or be reset. The faster you follow along, the more robust the system will be (you enter QUIET before the remote end can return to TRAIN_LOCAL). Thus, mandating a 1ms delay upon squelch detection does not provide any improvement to the system.

SuggestedRemedy

Change the definition of lost_training_lock to be:

Boolean variable that indicates disruption in the reception of training frames from the link partner. When use_quiet_in_training is TRUE and the PMD control function (see Figure 136–7) is in TRAIN_LOCAL or TRAIN_REMOTE states, this variable is set to TRUE if local_tf_lock is FALSE continuously for a period of 20 ms, and may also be set to TRUE upon detection of an input signal consistent with a transmitter operating in the QUIET operating mode (see 136.8.2). It is set to FALSE otherwise.

Proposed Response *Response Status* **O**

Cl **136** *SC* **136.9.3.1.5** *P* **5336** *L* **32** # I-50

Ran, Adee — Cisco Systems, Inc.

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

'A coefficient may be set to zero by asserting a coefficient request of “no equalization” for that coefficient' - but c(0) will be set to 1 this way.

The requirements to set to zero are only for c(-2), c(-1) and c(1).

SuggestedRemedy

Change the quoted sentence to:
'Any of the coefficients c(-2), c(-1), or c(1) may be set to zero by asserting a coefficient request of “no equalization” for that coefficient'.

Proposed Response *Response Status* **O**

Cl **137** *SC* **137.9.2** *P* **5360** *L* **39** # I-59

Ben-Artsi, Liav — Marvell Semiconductor, Inc.

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

To measure some of the characteristics described herein and in the referenced table 120D-1 an appropriate measurement environment and setting needs to be formed. One needs to measure in a specific bandwidth and one may also need to manipulate the transmit output waveform according to allowed equalization capabilities.
No such measurement environment was described in the text nor was the option to manipulate Tx equalization during Tx compliance measurements.
For reference In a paragraph preceding table 120D-1 it is stated that: “The transmit output waveform may optionally be manipulated…” and "A test system with a fourth-order Bessel-Thomson low-pass response with 33 GHz 3 dB bandwidth is to be used..."

SuggestedRemedy

-Append to the first sentence of 137.9.2 (The transmitter shall meet the specifications given in Table 120D–1): “with a measurement system as specified in 120D.3.1”.
-Append to exception a): Linear fit pulse peak is measured with transmit equalization off (preset 1, see 136.9.3.1.3).
-Append to exception b): The state of the transmit equalization may be manipulated and controlled by the PMD control function specified in 136.8.11, or by equivalent means.

Proposed Response *Response Status* **O**

Cl **138** *SC* **138.5.2** *P* **5378** *L* **10** # I-20

Ran, Adee
Cisco Systems, Inc.

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

"The four optical power levels in the signal stream in order from lowest to highest shall correspond to tx_symbols zero, one, two, and three, respectively"

"tx_symbols" is undefined. Tx_symbol is the parameter of the service interface primitive PMD:IS_UNITDATA_i.request. The sentence above refers to the possible values of this parameters.

The corresponding text in other clauses refers to the values of tx_symbol. For example, in 121.5.2: "The highest optical power level in each signal stream shall correspond to tx_symbol = three and the lowest shall correspond to tx_symbol = zero".

The same issue exists in similar text in 139.5.2, 140.5.2, 150.5.2, 160.5.2, and in corresponding PICS items.

The text could be changed to match that of 121.5.2, but to prevent possible misunderstanding, the proposed change is more subtle.

SuggestedRemedy

Change "correspond to tx_symbols zero, one, two, and three, respectively" to "correspond to tx_symbol values zero, one, two, and three, respectively".

Implement in 138.5.2, 139.5.2, 140.5.2, 150.5.2, 160.5.2, and in PICS items in 138.11.4.1, 139.13.4.1, 140.12.4.1, 150.11.4.1, 160.12.4.1.

In addition, change PICS item F6 in 151.13.4.1 to match the text in 151.5.2 (which does not require correction).

Proposed Response *Response Status* **O**

Cl **138** *SC* **138.5.3** *P* **5378** *L* **19** # I-21

Ran, Adee
Cisco Systems, Inc.

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

"The four optical power levels in each signal in order from lowest to highest shall correspond to rx_symbols zero, one, two, and three, respectively"

"rx_symbols" is undefined. Rx_symbol is the parameter of the service interface primitive PMD:IS_UNITDATA_i.indication. The sentence above refers to the possible values of this parameters.

SuggestedRemedy

Change "correspond to rx_symbols zero, one, two, and three, respectively" to "correspond to rx_symbol values zero, one, two, and three, respectively".

Implement in 138.5.3, 139.5.3, 140.5.3, 150.5.3, 160.5.3, and in PICS items in 138.11.4.1, 139.13.4.1, 140.12.4.1, 150.11.4.1, 160.12.4.1.

In addition, change PICS item F9 in 151.13.4.1 to match the text in 151.5.3 (which does not require correction).

Proposed Response *Response Status* **O**

Cl **138** *SC* **138.6** *P* **5380** *L* **16** # I-24

Ran, Adee
Cisco Systems, Inc.

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

"There are no lane assignments (within a group of transmit or receive lanes) for 100GBASE-SR2, 200GBASE-SR4, or 400GBASE-SR8 <...> there is no need to define the physical ordering of the lanes, as the RS-FEC sublayer is capable of receiving the lanes in any arrangement."

RS-FEC is a sublayer only in 100GBASE-SR2. In 200GBASE-SR4 and 400GBASE-SR8, the PCS sublayer is capable of receiving the lanes in any arrangement.

SuggestedRemedy

Change "as the RS-FEC sublayer is capable" to "as the RS-FEC and PCS sublayers are capable".

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.2** *P* **5514** *L* **19** # I-16

Kramer, Glen — Broadcom Corporation

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

The subclause caption does not convey the intended meaning. This section describes the process of FEC encoding.

SuggestedRemedy

Replace "FEC encoder processing" with "FEC encoding process"

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.2** *P* **5516** *L* **11** # I-15

Kramer, Glen — Broadcom Corporation

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

*** Comment submitted with the file FEC_Encoding_process.pdf attached ***

The bullet list that describes the FEC encoding process states that parity bits are first interleaved first and then punctured. This is not correct. The figure 142-5 properly shows that the parity bits are first punctured and then interleaved. This order is also implied by the fact that only 10 seed values are provided for parity circulants in table 142-6. The parity consists of 12 circulants before puncturing and 10 circulants after puncturing.

SuggestedRemedy

Modify the FEC encoding process description as shown in FEC_encoding_process.pdf

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.3** *P* **5516** *L* **38** # I-11

Kramer, Glen — Broadcom Corporation

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

Typo in the sentence "Note that the interleaver and de-interleaver area reverse mapping (permutation) of each other." The word "area" probably was intended to be "are a". Note that almost the same sentence is repeated on line 51 on the same page.

SuggestedRemedy

Eliminate the repetition by deleting the following two sentences on lines 38-39: "Note that the interleaver and de-interleaver area reverse mapping (permutation) of each other. That is,
the Omega and reverse Omega networks are just the reverse of the data flow of each other."

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.4.3** *P* **5518** *L* **1** # I-17

Kramer, Glen — Broadcom Corporation

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

*** Comment submitted with the file New_figure_142-8.pdf attached ***

Figure 142-8 lacks the necessary details to allow a succesul implementation. Neither this figure, nor the surrounding text explain whether the 8 stages go from left to right or from right to left. Also, no explanation is given for which bits in a 256-bit block are controlled by each 2x2 switch.

SuggestedRemedy

Modify figure 142-8 as shown in the attached file New_figure_142-8.pdf. The new figure clarifies the order of switch stages that matches the model used to produce the test vectors shown in Annex 142C. Also, mapping of bits to switches is illustrated.

On page 5517, add the following sentence at the end of the first paragraph, after the words "...and
each switch has two inputs and two outputs as shown.":
"The inputs and outputs of switch i (i = 0...127) are connected to bits ix2 and ix2+1 of a 256-bit data chunk." (To editor: all four occurrences of 'i' are in italics)

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.2.5.1** *P* **5521** *L* **44** # I-97

Dawe, Piers J G — NVIDIA

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

"a FEC" appears 10 times, "an FEC" 51 times

SuggestedRemedy

Make them all the same

Proposed Response *Response Status* **O**

Cl **142** *SC* **142.3.1** *P* **5529** *L* **27** # I-14

Kramer, Glen — Broadcom Corporation

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

There is a mistake in Figure 142-12. The box that shows "Parity bit interleaver" (lower left side) should actually say "Information bit interleaver"

SuggestedRemedy

Modify as indicated.

Proposed Response *Response Status* **O**

Cl **142A** *SC* **142A.1** *P* **6976** *L* **19** # I-13

Kramer, Glen — Broadcom Corporation

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

*** Comment submitted with the file 8023dc_142A_1_clean.pdf;8023dc_142A_1_diff.pdf attached ***

The text shows the 128-bit sequence that is used to control 128 switches. However, there is no indication which bit is intended for which switch. It is ambiguous whether the least-significant bit (bit on the left side) controls switch 0 or switch 127.

The model that was used to generate the test vectors shown in Annex 142A had the least-significant bit controlling switch 0 and the most significant bit controlling switch 127. Also, for each subsequent stage, the bit sequence was rotated left, not right as implied on lines 26 and 33.

SuggestedRemedy

Modify the subclause 142A.1 as shown in the attached files 8023dc_142A_1_clean.pdf and 8023dc_142A_1_diff.pdf.

The proposed new text also uses the bit sequence format similar to what is done in subclause 142.1.3.1

Proposed Response *Response Status* **O**

Cl **142A** *SC* **142A.2** *P* **6978** *L* **16** # I-12

Kramer, Glen — Broadcom Corporation

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

In Table 142A-2, the second row that shows the bit order shall be part of the table header.

SuggestedRemedy

Make the line between rows 2 and 3 thick. Make sure the rows 1 and 2 are repeated on every page where the table header is repeated.

Apply the same change to tables 142A-3 through 142A-6.

Proposed Response *Response Status* **O**

Cl **142A** *SC* **142A.2** *P* **6982** *L* **32** # I-18

Kramer, Glen — Broadcom Corporation

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

*** Comment submitted with the file 8023dc_142A_corrected_test_vectors.pdf;ldpc_tv4_post_enc_pre_intlv.txt;ldpc_tv5_post_enc_post_intlv.txt attached ***

In the table 142A-4, the last vector TV3[56] is incorrect. It does not match the vecor produced from TV2[56] using the described deinterleaving process. (Vectors TV3[0] through TV3[55] are all correct.)

As a result of the incorrect TV3[56], all the TV4 and TV5 vectors are inorrect as well.

SuggestedRemedy

The attached file 8023dc_142A_corrected_test_vectors.pdf shows the correct test vectors.
Machine-readable files are also attached:
ldpc_tv4_post_enc_pre_intlv.txt
ldpc_tv5_post_enc_post_intlv.txt

The new vector values are confirmed by two independent implementations.

Proposed Response *Response Status* **O**

Cl **146** *SC* **146.8.6** *P* **5880** *L* # I-62

Maytum, Michael — None-Retired

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

PELV is mentioned, but not explained

SuggestedRemedy

On page 232 add
PELV Protective Extra Low Voltage

Proposed Response *Response Status* **O**

Cl **147** *SC* **147.3.2.7** *P* **5902** *L* **17** # I-6

Zimmerman, George — ADI, APL Group, Cisco, CommScope, Marvell, SenT

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

According to the documents from 802.3cg, and to have consistency with the clause 148 behavior for COMMIT, (and seeing the entry condition to the COMMIT state being tx_cmd = COMMIT), the intent is for the PHY to transmit a COMMIT/SYNC symbol. Usually this happens, if you enter SILENT through the "B" branch (for burst mode, where COMMIT was originally defined), because tx_cmd = COMMIT on entry to SILENT. However, if SILENT is entered any other way, e.g., through reset, or from a pending packet out of the COMMIT state in Fig 148-4, the PLCA control SD), tx_sym will not get set to COMMIT by the SILENT, and when tx_cmd = COMMIT is set, and the COMMIT state is entered, this won't be fixed either. Hence we need to set tx_sym to COMMIT in the COMMIT state, just to close these sneak paths and get the correct, expected behavior.

SuggestedRemedy

insert "tx_sym <= COMMIT" into the "COMMIT" state

Proposed Response *Response Status* **O**

Cl **148** *SC* **148.4.4.6** *P* **5949** *L* **20** # I-39

Zimmerman, George — ADI, APL Group, Cisco, CommScope, Marvell, SenT

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

When the state diagram enters RESYNC from any path other than DISABLE (e.g., by invalid_beacon_timer_done), the values of tx_cmd and committed are not reset, and unknown commands may be sent. Since expiration of this timer can happen in any state, this can cause unknown and undesired behavior.

SuggestedRemedy

Insert "tx_cmd <= NONE" and "committed <= FALSE" into RESYNC state in Figure 148–3—PLCA Control state diagram, part a

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.3.2.3** *P* **5992** *L* **13** # I-94

Wienckowski, Natalie — General Motors Company

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

Need to correct source of alert_detect. The source is correctly shown in Figure 149-2.

SuggestedRemedy

Change: The quiet-refresh cycle continues until the link synchronization detect asserts alert_detect
To: The quiet-refresh cycle continues until the PMA Receive function asserts alert_detect

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.1** *P* **6026** *L* **44** # I-93

Wienckowski, Natalie — General Motors Company

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

Remove send_s_sigdet signal that doesn't exit LINK SYNCRONIZATION state.

SuggestedRemedy

Remove send_s_sigdet dashed line and name.

Proposed Response *Response Status* **O**

Cl **149** *SC* **149.4.1** *P* **6026** *L* **44** # I-95

Wienckowski, Natalie — General Motors Company

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

Add missing alert_detect in Figure 149-26.

SuggestedRemedy

Add dotted line from PMA receive up to PMA SERVICE INTERFACE labeled alert_detect.

Proposed Response *Response Status* **O**

Cl **J** *SC* **J.1** *P* **6317** *L* # I-66

Maytum, Michael None-Retired

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

The J.1 test procedure should only be used for equipment having a single wired Ethernet port. Recent multiport equipment testing showed a J.1 problem. One test house found the tested port withstood a 6 kV 1.2/50 voltage impulse. A second test house found the port broke down with a 2 kV impulse. The 2 kV test house got a lower breakdown voltage because it terminated the untested ports. This gave a path to earth and the actual breakdown was initially inter-port. Ethernet ports tend to be grouped together and have multiple link connections. In the end, the 6 kV test house conceded it was realistic to test with the untested ports terminated. Terminations on untested wired Ethernet ports are necessary to unify testing as several manufacturers have now replaced the Bob Smith termination network with alternative design techniques.

SuggestedRemedy

Either state that J.1 testing only applies to equipment with a single Ethernet port or state when testing, untested Ethernet ports shall be terminated using a network such as defined in IEC 61156-1, Multicore and symmetrical pair/quad cables for digital communications - Part 1: Generic specification. For more details see https://ict-surge-protection-essays.co.uk/downloads/whats-going-on-termination-of-untested-wired-ethernet-twisted-pairs/

Proposed Response *Response Status* **O**

Cl **J** *SC* **J.1** *P* **6317** *L* # I-65

Maytum, Michael None-Retired

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

The three test voltages a) or b) or c) could be used by a manufacturer for verifying an isolating transformer. However, the voltages of a) and b) do not represent conditions that occur in the field and should not be used to verify the entire wired Ethernet interface which may have components that suffer hazardous breakdown under non-impulse conditions. IEC 60664-1, Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests warns “While tests with AC and DC voltages of the same peak value as the impulse test voltage specified in Table F.6 verify the withstand capability of clearances, they more highly stress solid insulation because the voltage is applied for a longer duration. They can overload and damage certain solid insulations. Technical committees should therefore consider this when specifying tests with AC or DC voltages as an alternative to the impulse voltage test given in 6.4.5.”. In addition, test voltages a) and b) do not have defined prospective short-circuit currents leading to possible damaging high currents.

SuggestedRemedy

Limit the test voltages a), b) for verifying transformer isolation and use impulse test voltage c) for transformer isolation verification and port withstand voltage testing. Equipment resistibility standards use impulse testing for wired Ethernet port voltage withstand testing and J.1 should recognise that.

Proposed Response *Response Status* **O**