Cl **0** *SC* **0** *P* *L* # i-123

Anslow, Peter — Ciena Corporation

Comment Type **T** *Comment Status* **D** *late*

The response to comment #46 against D2.0 was:
"In 1.3, update the normative references to ANSI documents as described in <http://www.ieee802.org/3/maint/public/healey_3_0917.pdf> and re-sort. Change all citations of these references to agree with the modifications made to 1.3."
This changed references to "ANSI T1.424?2004" (which is not available) to be references to "ATIS?0600424.2004(S2015)"
However, when looking at each citation of ATIS?0600424 in D3.0, some of them do not make sense. This comment proposes changes to the draft to correct this.
Comment #46 also changed references to "ANSI T1.417?2001" (which is not available) to be references to "ATIS?0600417.2003(S2015)"
Similarly, there are some citations of ATIS?0600417 in D3.0 which are not easy to find, so this comment proposes changes to the draft to correct this.
Discussion of these proposals is contained in an associated presentation:
http://www.ieee802.org/3/maint/public/anslow_1_0118.pdf

SuggestedRemedy

S5, P779, L39 change "Clause 15" to "Annex A"
In Table 62A-4, change the occurrences of "Table 15-1" to "Table A.1"
S5, P787, L23 change "Clause 15" to "Annex A"
S5, P789, L34 change "ATIS-0600424.2004 (S2015)/Trial-Use, part 1, section 13.2" to "ATIS-0600424.2004(S2015), section 12.1"
S5, P789, L35 change "ATIS-0600424.2004 (S2015)/Trial-Use, part 1, section 13.3" to "ATIS-0600424.2004(S2015), section 12.2"
S5, P789, L48 change "ATIS-0600424.2004 (S2015)/Trial-Use, part 1, section 13.2" to "ATIS-0600424.2004(S2015), section 12.1"
S5, P789, L53 change "specified in 62.3.4.1" to "specified in 62.3.4.4"
S5, P790, L1 change "ATIS-0600424.2004 (S2015)/Trial-Use, part 1, section 13.3.1.1 (also 13.3.1.4.2)" to "ATIS-0600424.2004(S2015), section 12.2.1.1"
S5, P790, L2 change "section 13.3.1.4.1" to "section 12.2.1.4.1"
S5, P794, L40 change "ATIS-0600424/Trial-Use M2" to "ATIS-0600424 M2"
S5, P796, L47 change "mask SM9" to "mask SM class 9"
S5, P797, L21 change "mask SM6" to "mask SM class 6"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # i-54

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The style manual (Presentation of data and table format, 13.3.2) says: "Digits should be separated into groups of three, counting from the decimal point toward the left and right. The groups should be separated by a space(...)". In this revision this is sometimes followed (e.g. Table 80-5) and sometimes not (e.g. "14336" in Table 44-2, "0.5852" in Table 44-3).

It also says "All numbers should be aligned at the decimal point". This is usually not followed in 802.3 (e.g. Table 44-2, Table 80-5).

These guidelines seem to target columns that only contain numbers, rather than columns that contain text which includes numbers (since the decimal point alignment is inapplicable in this case).

The style manual does not require numbers outside of tables to be three-digit-grouped, either left or right of the decimal point. In this revision this is sometimes (but not consistently) done for large integers (left of the decimal point), while it seems never to be done for fractions (right of the decimal point).

We should choose a convention for non-table data and stick to it. We should consistently follow the stated table convention in the style manual.

Since the readability of numbers outside of tables is not improved by this grouping, and the guideline does not apply there, it is suggested to avoid the space separation outside of tables.

SuggestedRemedy

Go over all tables and format numbers according to 13.3.2 in the style manual - grouping both left and right of the decimal point, and alignment to the decimal point.

Go over numbers in the text outside of tables and remove the three-digit grouping.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The grouping of digits to the right of the decimal point reduces clarity rather than improves it.

Aligning columns of numbers at the decimal point would adversely impact the formatting of many tables in the draft. Table 78-2 is one example.

The draft adheres to the "IEEE Editorial Style Manual" for text outside tables (uses a space in numbers 10 000 and above).

Cl **00** *SC* **0** *P* *L* # i-53

Berger, Catherine

Comment Type **G** *Comment Status* **D** *bucket*

This draft meets all editorial requirements.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # i-115

Grow, Robert RMG Consulting

Comment Type **T** *Comment Status* **D** *reserved*

Consider replacement of the cases where statements similar to "reserved Type for MAC Control" occur. This is an assignment that already occurs within 802.3

SuggestedRemedy

Search and replace as appropriate. (Commenter will provide a post ballot suggestion for such cases.)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See the response to i-114.

Cl **00** *SC* **0** *P* *L* # i-114

Grow, Robert RMG Consulting

Comment Type **T** *Comment Status* **D** *reserved*

Consider replacement of the cases where statements similar to "reserved for INCITS T11" occur. This is an assignment that will not occur within 802.3

SuggestedRemedy

Search and replace as appropriate. (Commenter will provide a post ballot suggestion for such cases.)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement the changes described in <http://www.ieee802.org/3/maint/public/grow_1_0118.pdf>.

Remove footnote a) from Table 28A-1 which states "For up-to-date information on the allocation of Auto-Negotiation Selector Fields
see http://www.ieee802.org/3/selectors/selectors.html."

Cl **00** *SC* **0** *P* *L* # i-112

Grow, Robert RMG Consulting

Comment Type **TR** *Comment Status* **D** *add_bs_cc*

With recent SASB approval of IEEE Std 802.3bs-2017 and IEEE Std 802.3cc, it is appropriate to merge into this revision.

SuggestedRemedy

Merge approved ammendments 10 and 11 into the revision draft for recirculation.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # i-44

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The convention in most of 802.3 text is that the acronym FEC is preceded by the article "an" rather than "a".

See comment i-19 in
http://www.ieee802.org/3/by/public/comments/8023by_D30_comment_final_responses_by_ID_v2.pdf.

It would be good to align all existing clauses to this convention.

SuggestedRemedy

Change "a FEC" to "an FEC" in the following subclauses:

76.3.2.1.1
76.3.2.4.1
82.7.3
83.1.4
94.2.1.1.1
94.2.3
97.3.2.2.11
101.3.2
101.3.3
102.2.3
102.3.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # i-96

Maytum, Michael
RETIRED

Comment Type **G** *Comment Status* **D** *bucket*

No need to include micros after the T1/T2. designation of an impulse shape: combination of two numbers, the first representing the virtual front time (T1) and the second the virtual time to half-value on the tail (T2)

Note 1 to entry: It is written as T1/T2, both in microseconds, the sign "/ " having no mathematical meaning.

IEC 60099-4

SuggestedRemedy

Remove "micros" after designation of impulse shape.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
While the units are possibly redundant, they are correct and reinforce the impulse shape definition.

Note that comment i-93 suggests that the units of the impulse shape definition in 15.3.4 item c) be corrected and not deleted (replace micrometers with microseconds). The response to i-93 corrects the units and therefore is consistent with this response.

Cl **00** *SC* **0** *P* **0** *L* **0** # i-21

RAN, ADEE
Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

There are numerous state diagrams in the standard that have state boxes that include "if/then" or "if/then/else". This does not follow the conventions of 21.5 or 1.2.1, which is that conditions are placed in parentheses after the action.

Figure 27-4 is an example of using this convention (it is uncommon to have conditions inside states).

State diagrams that use if/then and don't follow the convention may be ambiguous as to where the condition stops applying; in some cases there is an "end" to clarify that, but in others there isn't.

The diagrams that include this issue are:

Section 2: Figure 28-16, Figure 28-17, Figure 28-18;

Section 3: Figure 36-5, Figure 36-6, Figure 36-7a, Figure 37-6, Figure 40-10, Figure 40C-2;

Section 4: Figure 48-7, Figure 55-18;

Section 5: Figure 57-5, Figure 57-6, Figure 61-7, Figure 61-8, Figure 61-18, Figure 61-19, Figure 64-13, Figure 64-28 (which also has a "while" inside a state!), Figure 73-9, Figure 73-11, Figure 77-23, Figure 77-29, Figure 77-30;

Section 6: Figure 82-18;

Section 7: Figure 97-17, Figure 97-18, Figure 98-8, Figure 102-15, Figure 102-17, Figure 103-21, Figure 113-19a;

Section 8: Figure 126-16.

SuggestedRemedy

Consider changing the text in the state boxes to follow the convention, at least where the intended behavior is known.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Figure 27-4 is the "100BASE-TX and 100BASE-FX Transmit state diagram for Port X" of a "Repeater for 100 Mb/s baseband networks". It applies the convention for devices (e.g., repeaters) that have two or more ports. See Section 1, 1.2.1, page 61, line 16.

"State diagrams that are capable of describing the operation of devices with an unspecified number of ports require a qualifier notation that allows testing for conditions at multiple ports. The notation used is a term that includes a description in parentheses of which ports must meet the term for the qualifier to be satisfied (e.g., ANY and ALL)."

It is not clear that this convention is to also be applied to the logical statements that are not defining a subset of the available ports. In addition, 21.5 states that "<dot> and [bracket] are not used to denote any special meaning" which implies state diagrams following the conventions of 21.5 would not employ the "[bracket]" notation used in Figure 27-4.

The aim of the comment appears to be to remove ambiguity in cases where there are conditional statements that do not adhere to the convention. To that end, it would be better to provide specific examples where ambiguity exists so that they may be considered and potentially addressed. Many of the state diagrams cited pertain to long-standing PHY standards for which many interoperable implementations exist in the field. This can be taken to mean that the state diagrams are sufficiently clear.

Cl **1** *SC* **1.2.8** *P* **63** *L* **28** # i-77

Anslow, Peter Ciena Corporation

Comment Type **T** *Comment Status* **D** *bucket*

There has been considerable discussion in the P802.3bt Task Force regarding the meaning of an em dash in a table cell as used by a large number of recent clauses in D3.0. It therefore seems useful to clarify this with the addition of some explanatory text.

SuggestedRemedy

Add a new subclause 1.2.8:
1.2.8 Em dash (--) in a table cell
A table cell containing an em-dash (--) indicates a lack of data for that cell, or:
- For a units cell, that there is no unit for that parameter
- For a maximum cell, that there is no requirement on the maximum value of that parameter
- For a minimum cell, that there is no requirement on the minimum value of that parameter

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.281** *P* **92** *L* **4** # i-41

Nikolich, Paul INDEPENDENT

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

The current definition of 'lane' requires improvement.
Current definition: 1.4.281 lane: A bundle of signals that constitutes a logical subset of a point-to-point interconnect. A lane contains enough signals to communicate a quantum of data and/or control information between the two endpoints.

For example "bundle" is defined as a "group of signals", which is duplicated in "bundle of signals" above.
Per the definition of "bundle", it should be "A bundle that constitutes..."

Where is "quantum of data" defined? I couldn't find it.

Where is "endpoint" defined?

Unfortunately I don't have a good alternative definition.

SuggestedRemedy

Look through the draft and identify the various ways "lane" is used, then develop an appropriate single definition. If a single definition is not feasible, perhaps more than one definition is needed.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace the definition of "lane" with the following.

"A logical subset of the data and control information transmitted from one sublayer (e.g., PCS, PMA) to an adjacent sublayer across the inter-sublayer interface or from one PHY to another across the transmission medium (e.g. optical fiber, optical wavelength, wire pair). Lanes are transmitted in parallel and combine to deliver the full set of data and control information across the interface."

Cl **1** *SC* **1.4.413a** *P* **100** *L* **48** # i-113

Grow, Robert — RMG Consulting

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

Experiences with other standards indicates benefits to clearly defining the term "reserved". Most standards define reserved as being for future defnition in the standard, and that is the predominant usage in this draft revision. Some clauses specify this future use frequently, others define reserved for future use for that clause, others simply use the term for things that will possibly be specified in a future 802.3 project as an assumption.

We though also have a number of uses where reserved is used as a synonym for: assigned, allocated, etc (most frequently in the EPON clauses and related text). Most often, these occurances of "reserved" are for objects specified within Std 802.3, but we also have reserved value ranges for assignment by other standards/standards organizations.

The proposed definition does though not accomodate uses of the term where the allocation is done by another standard or by a registration authority. Other comments propose changes for those uses of reserved where there is an assignment external to this draft.

SuggestedRemedy

Insert new definition:
1.4.x reserved: A key word indicating an object (bit, register, connector pin, encoding, interface signal, enumeration, etc.) only to be defined by this standard. A reserved object shall not be used for any user-defined purpose such as a user- or device-specific function; and such use of a reserved object shall render the implementation noncompliant with this standard.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **8** *SC* **8.3.2.1** *P* **228** *L* **37** # i-89

Maytum, Michael — RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The subclause specifies the requirements for the isolation function. While this is likely achieved with insulation, changing this specific instance of "isolation" to "insulation" or "isolation insulation" does not clarify the requirement.

Cl **8** *SC* **8.3.2.1** *P* **228** *L* **44** # i-85

Maytum, Michael — RETIRED

Comment Type **ER** *Comment Status* **D** *iec60060*

IEC 60060 comes as IEC 60060-1, IEC 60060-2, IEC 60060-3 only part 1 is required

SuggestedRemedy

Change IEC 60060 to IEC 60060-1 (High-voltage test techniques - Part 1: General definitions and test requirements)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
Subclause 1.3 "Normative references" lists IEC 60060 as "IEC 60060 (all parts), High-voltage test techniques." which correctly follows the IEC guidance <http://www.iec.ch/standardsdev/resources/draftingpublications/directives/principles/referencing.htm> for an undated reference to all parts of an IEC standard. This therefore includes all parts of IEC 60060 including IEC 60060-1.

Cl **9** *SC* **9.9.3.1** *P* **278** *L* **36** # i-90

Maytum, Michael — RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **9** *SC* **9.9.3.1** *P* **278** *L* **36** # i-86

Maytum, Michael — RETIRED

Comment Type **ER** *Comment Status* **D** *iec60060*

IEC 60060 comes as IEC 60060-1, IEC 60060-2, IEC 60060-3 only part 1 is required

SuggestedRemedy

Change IEC 60060 to IEC 60060-1 (High-voltage test techniques - Part 1: General definitions and test requirements)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-85.

Cl **12** *SC* **12.10.1** *P* **368** *L* **46** # i-91
Maytum, Michael RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **12** *SC* **12.10.1** *P* **368** *L* **46** # i-87
Maytum, Michael RETIRED

Comment Type **ER** *Comment Status* **D** *iec60060*

IEC 60060 comes as IEC 60060-1, IEC 60060-2, IEC 60060-3 only part 1 is required

SuggestedRemedy

Change IEC 60060 to IEC 60060-1 (High-voltage test techniques - Part 1: General definitions and test requirements)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-85.

Cl **14** *SC* **14.3.1.1** *P* **396** *L* **51** # i-92
Maytum, Michael RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **14** *SC* **14.3.1.1** *P* **397** *L* **3** # i-88
Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

IEC 60950-1:2001 Annex N is going away. IEC 60060-1 is the horizontal IEC standard for 1.2/50 impulses.

SuggestedRemedy

Replace IEC 60950-1:2001 Annex N with IEC 60060-1 as used previously

Proposed Response *Response Status* **W**

PROPOSED REJECT.
There was no consensus to make a change.

There are subclauses titled "Electrical isolation" throughout IEEE Std 802.3 requiring isolation to meet one of the three electrical strength test with references to IEC 60950-1 "Information technology equipment - Safety - Part 1: General requirements". However, IEC 62368-1 "Audio/video, information and communication technology equipment - Part 1: Safety requirements" will soon replace IEC 60950-1, as well as IEC 60065 "Audio, video and similar electronic apparatus - Safety requirements". IEC 62368-1 is not just a merge of these two standards, it is a new standard that has been developed using Hazard-Based Safety Engineering (HBSE), and is more performance oriented.

As a result, the IEEE 802.3 Working Group has an activity that is examining all "Electrical isolation" subclauses throughout IEEE Std 802.3. See <http://www.ieee802.org/3/ad_hoc/isolation/index.html>. It is considered appropriate that this activity should be allowed to complete rather than make this change.

Cl **15** *SC* **15.3.4** *P* **447** *L* **26** # i-94
Maytum, Michael RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **15** *SC* **15.3.4c** *P* **447** *L* **30** # i-93

Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *bucket*

Three uses of microm instead of micros

SuggestedRemedy

change microm to micros

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **15** *SC* **15.3.4c** *P* **447** *L* **32** # i-95

Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *iec60060*

IEC 60060 comes as IEC 60060-1, IEC 60060-2, IEC 60060-3 only part 1 is required

SuggestedRemedy

Change IEC 60060 to IEC 60060-1 (High-voltage test techniques - Part 1: General definitions and test requirements)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-85.

Cl **22** *SC* **22.2.2.8** *P* **56** *L* **20** # i-46

Marris, Arthur Cadence Design Syste

Comment Type **ER** *Comment Status* **D** *bucket*

False carrier cross reference is incorrect. It should be referencing Clause 24.

SuggestedRemedy

Change cross reference from 22.2.4.4.2 to 24.2.4.4.2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **25** *SC* **25.4.6** *P* **228** *L* **28** # i-98

Maytum, Michael RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **25** *SC* **25.4.6** *P* **228** *L* **34** # i-99

Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

IEC 60950-1:2001 Annex N is going away. IEC 60060-1 is the horizontal IEC standard for 1.2/50 impulses.

SuggestedRemedy

Replace IEC 60950-1:2001 Annex N with IEC 60060-1 as used previously

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-88.

Cl **31B** *SC* **31B.4.6** *P* **762** *L* **53** # i-68

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

Comment #15 against D2.0 of the 802.3 revision project changed the format of the table in 31B.4.6. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=3
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to the 802.3bs additions to the table in 31B.4.6.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision, in the table in 31B.4.6:
in the Value/Comment cells, apply footnote a to "453 pause_quanta" and "905 pause_quanta"
in the Support cells, change "N/A [ ] M: Yes [ ]" to "Yes [ ] N/A [ ]"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **31C** *SC* **31C** *P* **763** *L* **52** # i-125

Grow, Robert — RMG Consulting

Comment Type **E** *Comment Status* **D** *late, bucket*

Footnote could use a reference without year. The normative reference is without year.

SuggestedRemedy

Change IEEE Std 802-2014 to IEEE Std 802.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **32** *SC* **32.6.1** *P* **567** *L* **35** # i-100

Maytum, Michael — RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests:
to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **32** *SC* **32.6.1** *P* **567** *L* **40** # i-101

Maytum, Michael — RETIRED

Comment Type **TR** *Comment Status* **D** *iec60060*

IEC 60060 comes as IEC 60060-1, IEC 60060-2, IEC 60060-3 only part 1 is required

SuggestedRemedy

Change IEC 60060 to IEC 60060-1 (High-voltage test techniques - Part 1: General definitions and test requirements)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-85.

Cl **33** *SC* **33.3.4** *P* **660** *L* **8** # i-31

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The detection signature requirements from a PD are stated in great detail starting from the first paragraph, but the concept of detection signature is introduced only in the sixth paragraph. This is not friendly to the first-time readers.

SuggestedRemedy

Move the text starting from "The detection signature is a resistance calculated" (6th paragraph) and ending with "characteristics in Table 33-15" (10th paragraph), inclusive, to the beginning of this subclause.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The text is correct as written. There was no consensus that the suggested remedy improves the text.

Cl **33** *SC* **33.4.1** *P* **670** *L* **9** # i-102

Maytum, Michael — RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests:
to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **33** *SC* **33.4.1c** *P* **13** *L* # i-97

Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

TC 109 publishes the horizontal standard IEC 60664 series "Insulation coordination for equipment within low-voltage systems" the preferred impulse is 1.2/50 and as a starting point for testing the peak of the AC voltage, the DC voltage and impulse peak voltage should all be about the same.
"c) An impulse test consisting of a 1500 V, 10/700 micros waveform, applied 10 times, with a 60 s interval between pulses." This is technically incorrect for two reasons: The peak voltage is way to low and it is applicable to long distance telephone lines. The 1.5 kV 10/700 was the result of an ITU-T global study on telephone lines. As the lightning surge propagates down the line dispersion increases the front time and time to half value, together with lowering the peak voltage. An Ethernet cable is nothing like a long distance telephone line. Hence the more appropriate waveshape is 1.2/50 with a peak voltage of 2.4 kV.

SuggestedRemedy

Replace item "c" of 33.4.1 (1.5 kV, 10/700) with item "c" of 32.6.1 (2.4 kV, 1.2/50)

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-88.

Cl **33** *SC* **33.6.4** *P* **691** *L* **44** # i-32

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"The PSE and PD utilize the LLDPDUs"

LLDPDUs are data blocks sent over the LLDP protocol. They contain many other things, not just PSE and PD stuff.

It would be more adequate to refer to the LLDP protocol. Also, a cross-reference would be useful.

See comment r01-309 against 802.3bt D3.0 (which was accepted with the remedy proposed here for clause 145).

SuggestedRemedy

Change "utilize the LLDPDUs" to "use the LLDP protocol (See Clause 79)".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
33.6 pertains to "Data Link Layer" classification" using "IEEE 802.3 Organizationally Specific TLVs defined in Clause 79".

As TLVs are conveyed using LLDPDUs, and 33.6.2, for example, includes specific requirements for the timing of the transmission of LLDPDUs. This use of "LLDPDUs" is consistent with generanl usage in 33.6. The pointer to Clause 79 is present in the superior subclause.

Cl **36** *SC* **36.2.5.1.3** *P* **72** *L* **40** # i-47

Marris, Arthur Cadence Design Syste

Comment Type **TR** *Comment Status* **D** *bucket*

/LI/ is missing from the list of ordered sets for tx_o_set. P802.3az added /LI/ but failed to update the variable definition in 36.2.5.1.3. This needs to be fixed.

SuggestedRemedy

Change the definition of tx_o_set variable as follows:
tx_o_set
One of the following defined ordered sets: /C/, /T/, /R/, /I/, /LI/, /S/, /V/, or the code-group /D/

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **39** *SC* **39.6.8.1** *P* **170** *L* **10** # i-58

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

In the D3.0 draft, there are 14 instances of "twinaxial cable" and 2 instances of "twinax cable". For consistency, change the two instances of "twinax" to "twinaxial"

SuggestedRemedy

In Figure 39-10 and in 78.1 (page 32, line 15) change "twinax" to "twinaxial"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **40** *SC* **40.6.1.1** *P* **240** *L* **37** # i-103

Maytum, Michael — RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **40** *SC* **40.6.1.1** *P* **240** *L* **44** # i-104

Maytum, Michael — RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

IEC 60950-1:2001 Annex N is going away. IEC 60060-1 is the horizontal IEC standard for 1.2/50 impulses.

SuggestedRemedy

Replace IEC 60950-1:2001 Annex N with IEC 60060-1 as used previously

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-88.

Cl **40** *SC* **40.6.1.3.1** *P* **259** *L* **43** # i-14

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

The title of this subclause, "Receiver differential input signals", does not reflect its content. This subclause specifies the Receiver perfomance as bit error ratio or the observable frame error ratio. A much better title would be "Receiver error ratio".

Also in the similar subclauses:
55.5.4.1
113.5.4.1
126.5.4.1

SuggestedRemedy

Change the titles of the referenced subclauses to "Receiver error ratio".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The was no consensus that the proposed change to the title is an improvement.

This subclause (and similar) does not just pertain to the "receiver error ratio" but the conditions under which that error ratio is achieved. Subclauses that describe "receiver jitter tolerance" and "receiver interference tolerance" are similarly not titled "receiver error ratio" and instead talk about the conditions under which the target error ratio must be achieved.

Cl **43A** *SC* **43A** *P* **345** *L* **8** # i-59

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

This says: "NOTE--The Link Aggregation specification, including Annex 43, Collection and Distribution functions ..." but there has never been an Annex 43

SuggestedRemedy

Change "Annex 43 to "Annex 43A"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45** *P* *L* # i-64

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Generally, text in Clause 45 uses "one" or "zero" when describing the value a bit is set to rather than "1" or "0". However, there are some inconsistencies.
There are 188 instances of "to one" and 27 instances of "to 1".
There are 175 instances of "to zero" and 5 instances of "to 0".

SuggestedRemedy

Change all 27 instances of "to 1" to "to one"
Change 5 instances of "to 0" to "to zero" (not the one in 45.2.1.6.3)
Change all 6 instances of "of 1" to "of one"
Change 3 instances of "of 0" to "of zero" (not the one in 45.4.2)
Change 7 instances of "as 1" to "as one" (not the one in 45.2.1.50)
Change both instances of "0 and 1" to "zero and one"
In 45.2.3.62.4, change "is 1" to "is one"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.69.2** *P* **127** *L* **28** # i-13

RAN, ADEE — Intel Corporation

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

The "PHY short reach mode" was described as an indication bit for short reach in the original 802.3an text. 802.3bq made this bit explicitly _control_ the short reach mode (rather than indicate it), but the text for 10GBASE-T was out of scope so it wasn't changed. The resulting text makes an unnecessary distinction of 25/40GBASE-T.

The bit description should be the same for all MultiGBASE-T, and it should be clear that it controls rather than indicates short reach mode.

Also, there is no reason to assign a default value to a control bit.

SuggestedRemedy

Delete the text that suggests an indication bit:
"If bit 1.131.0 is a one, the PHY is in short reach mode. If bit 1.131.0 is a zero, the PHY is not in short reach mode. The default value for this bit is zero."

And delete the words
"For 25GBASE-T and 40GBASE-T, "

to make the following text refer to all the MultiGBASE-T PHYs.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The reason to assign a default value to a control bit is to define the state of the bit before any writes to it have ocurred. In this case the PHY is defined to be in normal (non-short reach) mode prior to any writes to this bit.

Change the last four sentences of 45.2.1.69.2 from:
"If bit 1.131.0 is a one, the PHY is in short reach mode. If bit 1.131.0 is a zero, the PHY is not in short reach mode. The default value for this bit is zero. For 25GBASE-T and 40GBASE-T, setting this bit to a one puts the PHY in short reach mode, and setting this bit to a zero puts the PHY into normal (non-short reach) mode." to:
"Setting bit 1.131.0 to a one puts the PHY in short reach mode, and setting bit 1.131.0 to a zero puts the PHY into normal (non-short reach) mode. The default value for this bit is zero."

Cl **45** *SC* **45.2.1.113** *P* **156** *L* **43** # i-65

Anslow, Peter — Ciena Corporation

Comment Type **T** *Comment Status* **D** *bucket*

This says "The assignment of bits in the RS-FEC BIP error counter lane 0 is shown in Table 45-209." but it should be Table 45-90.

SuggestedRemedy

Change "Table 45-209" to "Table 45-90"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.1.5** *P* **222** *L* **28** # i-1

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"The speed selection bits 3.0.5:2, when set to 0001, select the use of the 10PASS-TS and 2BASE-TL PCS."

This sentence repeats what is already defined in Table 45-169.

Speed selection has multiple allowed values. This sentence refers only to bits 5:2 and only to the value 0001.

There are many other combinations that are not mentioned. I see no reason to have this combination stand out.

Similar text appears in 45.2.6.1.2 (where it is the only defined value, but still repeats the table definition).

SuggestedRemedy

Delete the quoted sentence in both places.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The reason that the value 0001 is called out specifically here is that while the other values simply set the speed of operation of the PCS, the value 0001 selects the use of a particular PCS type, which may be operating at 100 Mb/s (10PASS-TS) or at up to 5.696 Mb/s (2BASE-TL).

Cl **45** *SC* **45.2.3.14.4** *P* **235** *L* **53** # i-2

RAN, ADEE — Intel Corporation

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

"This bit is a direct reflection of the state of the hi_ber variable in the 64B/66B state diagram and is defined in 49.2.13.2.2 (...) and in 82.2.19.2.2 (...)"

The definitions in these clauses are for the variables, not the bit. The bit in the register reflects the variable.

Also there is no single "64B/66B state diagram" - there is one for Tx and one for Rx. The variable is defined in the text of each subclause, and exists independently from the diagrams. So there is no need to mention the diagram.

In the next paragraph discussing hi_lfer there are references to MultiGBASE-T 64B/65B state diagrams which are also unnecessary.

SuggestedRemedy

Change FROM
"is a direct reflection of the state of the hi_ber variable in the 64B/66B state diagram and is defined in"
TO
"is a direct reflection of the state of the hi_ber variable defined in".

Change FROM
"the state of the hi_lfer variable in the MultiGBASE-T 64B/65B state diagrams defined in"
TO
"the state of the hi_lfer variable defined in"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The definition alone is not enough to fully understand hi_ber operation. The appropriate state diagram is needed also.
Change:
"This bit is a direct reflection of the state of the hi_ber variable in the 64B/66B state diagram and is defined in 49.2.13.2.2 for 10/25GBASE-R and in 82.2.19.2.2 for 40/100GBASE-R." to:
"This bit is a direct reflection of the state of the hi_ber variable in the BER monitor state diagrams as defined in 49.2.13.2.2 for 10/25GBASE-R and in 82.2.19.2.2 for 40/100GBASE-R."

Also, change:
"This bit is a direct reflection of the state of the hi_lfer variable in the MultiGBASE-T 64B/65B state diagrams defined in 126.3.6.2.2 for 2.5GBASE-T and 5GBASE-T, in 55.3.6.1 for 10GBASE-T, and in 113.3.6.2.2 for 25GBASE-T and 40GBASE-T." to:
"This bit is a direct reflection of the state of the hi_lfer variable in the MultiGBASE-T LFER monitor state diagrams as defined in 126.3.6.2.2 for 2.5GBASE-T and 5GBASE-T, in 55.3.6.2.2 for 10GBASE-T, and in 113.3.6.2.2 for 25GBASE-T and 40GBASE-T."

Cl **45** *SC* **45.2.3.14.4** *P* **236** *L* **5** # i-4

RAN, ADEE Intel Corporation

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

hi_lfer is defined in 55.3.6.2.2, not in 55.3.6.1.

SuggestedRemedy

Change cross-reference to 55.3.6.2.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment i-2.

Cl **45** *SC* **45.2.3.14.5** *P* **236** *L* **12** # i-3

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"This bit is a direct reflection of the state of the block_lock variable in the 64B/66B state diagram and is defined in 49.2.13.2.2 (...) and in 82.2.19.2.2 (...)"

For a single-lane PCS (Clause 49) this is true, since there is only one state diagram and only one variable. But in Clause 82 they are per-lane, and the bit in this register is the logical AND of all the variables (the individual variables are reflected by the bits defined in 45.2.3.22).

Also (somewhat nitpicking): the definitions in the PCS clauses are for the variables, not the bit. The bit in the register (defined here) reflects the variable (in 49) or the logical AND of the variables (in 82). There is no single "64B/66B state diagram" - there is one for Tx and one for Rx, and they are instantiated per lane. The variables are defined in the text of each subclause, and exist independently of the diagrams. So there is no need to mention the "diagram".

Also, 25GBASE-R is not mentioned.

Furthermore, the following text in this subclauses discusses block_lock defined in BASE-T clauses, but the sentence above does not state that the bit is also mapped to these variables.

The paragraph should be corrected and clarified to fix all the above.

SuggestedRemedy

Change the paragraph:
FROM
"This bit is a direct reflection of the state of the block_lock variable in the 64B/66B state diagram and is defined in 49.2.13.2.2 for 10GBASE-R and in 82.2.19.2.2 for 40/100GBASE-R. For both the 2.5GBASE-T and 5GBASE-T PCS, the block_lock variable in the 64B/65B state diagram is defined in 126.3.6.2.2. For the 10GBASE-T PCS the block_lock variable in the 64B/65B state diagram is defined in 55.3.2.3. For both the 25GBASE-T and 40GBASE-T PCS, the block_lock variable in the 64B/65B state diagram is defined in 113.3.6.2.2."
TO
"For a 10GBASE-R or 25GBASE-R PCS, this bit is a direct reflection of the state of the block_lock variable defined in 49.2.13.2.2. For a 40/100GBASE-R PCS, this bit reflects the logical-AND of the state of the block_lock<x> variables defined in 82.2.19.2.2. For a MultiGBASE-R PCS, this bit is a direct reflection of the state of the block_lock variable defined in 126.3.6.2.2 for 2.5GBASE-T and 5GBASE-T, in 55.3.2.3 for 10GBASE-T, and in 113.3.6.2.2 for 25GBASE-T and 40GBASE-T."

Consider breaking into separate paragraphs to improve readability.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Apply the suggested remedy as a single paragraph with "logical AND" in place of "logical-AND".

Cl **45** *SC* **45.2.3.22** *P* **242** *L* **23** # i-5

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

MDIO variable names "Block 0 lock" through "Block 19 lock" are inappropriate - it's not a block number that is locked, it's a lane number that achieves block lock (as shown in the description).

The corresponding variable names in 82.2.19.2.2 are block_lock<x>.

Using meaning variable names is preferable.

SuggestedRemedy

Rename the variables to "Block lock 0" through "Block lock 19", changing:
Table 45-186
Table 45-187
45.2.3.22.2 through 45.2.3.22.9
45.2.3.23.1 through 45.2.3.23.12
Table 82-11
Table 91-4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the variables "Block 0 lock" through "Block 19 lock" to "Block lock 0" through "Block lock 19", in:
Table 45-92
Table 45-93
45.2.1.117.1 through 45.2.1.117.8
45.2.1.118.1 through 45.2.1.118.12
Table 45-186
Table 45-187
45.2.3.22.2 through 45.2.3.22.9
45.2.3.23.1 through 45.2.3.23.12

Change "Block x lock" to "Block lock x" in:
Table 82-11
Table 91-4.

Cl **45** *SC* **45.2.3.42** *P* **257** *L* **48** # i-61

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Table 45-206 for register 3.80 and Table 45-207 for register 3.81 do not include the usual row to reserve the unused bits

SuggestedRemedy

Add rows to Table 45-206 for register 3.80 and Table 45-207 for register 3.81 to reserve bits 15:8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.62.5** *P* **273** *L* **28** # i-63

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The text of this subclause starts:
"The 1000BASE-T1 OAM message number to be transmitted." but this isn't a proper sentence.
Similarly, for 45.2.3.64.3

SuggestedRemedy

In 45.2.3.62.5, change "The 1000BASE-T1 OAM message number ..." to "Bits 3.2308.11:8 contain the 1000BASE-T1 OAM message number ..."
In 43.2.3.64.3, change "The 1000BASE-T1 OAM message number ..." to "Bits 3.2313.11:8 contain the 1000BASE-T1 OAM message number ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.3.63** *P* **273** *L* **48** # i-62

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The text of this subclause starts:
"The 8-octet 1000BASE-T1 OAM message data to be transmitted." but this isn't a proper sentence.
Similarly, for 45.2.3.65

SuggestedRemedy

In 43.2.3.63, change "The 8-octet 1000BASE-T1 OAM message ..." to "The 1000BASE-T1 OAM message register contains the 8-octet 1000BASE-T1 OAM message ..."
In 43.2.3.65, change "The 8-octet 1000BASE-T1 OAM message ..." to "The link partner 1000BASE-T1 OAM message register contains the 8-octet 1000BASE-T1 OAM message ..."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.7.11.3** *P* **319** *L* **41** # i-42

RAN, ADEE — Intel Corporation

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

In this subclause:
"Local receiver status bit 7.33.13 shall be set if the local receiver is OK"
In the next subclause:
"Remote receiver status bit 7.33.13 shall be set if the remote receiver status is OK"

In both subclauses, the next sentence includes "receiver is not OK".

The word "status" is missing (the setting should be based on whether the receiver status, not the receiver itself, is OK).

SuggestedRemedy

Change "receiver is OK" to "receiver status is OK".

Change "receiver is not OK" to "receiver status is not OK" here and in 45.2.7.11.4.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
The second cross-reference in 45.2.7.11.3 is also incorrect.
In 45.2.7.11.3, change:
"Local receiver status bit 7.33.13 shall be set if the local receiver is OK as defined in 55.2.2.7. If the local receiver status bit 7.33.13 is zero, the local receiver is not OK as defined in 55.2.2.7.2." to:
"Local receiver status bit 7.33.13 shall be set if the local receiver status is OK as defined in 55.2.2.7. If the local receiver status bit 7.33.13 is zero, the local receiver status is not OK as defined in 55.2.2.7."

In 45.2.7.11.4, "7.33.13" should be "7.33.12" (2 instances), "local receiver" should be "remote receiver" (2 instances) and the second cross-reference is incorrect.
Change:
"Remote receiver status bit 7.33.13 shall be set if the remote receiver status is OK as defined in 55.2.2.8. If the local receiver status bit 7.33.13 is zero, the local receiver is not OK as defined in 55.2.2.8.2." to:
"Remote receiver status bit 7.33.12 shall be set if the remote receiver status is OK as defined in 55.2.2.8. If the remote receiver status bit 7.33.12 is zero, the remote receiver status is not OK as defined in 55.2.2.8."

Cl **46** *SC* **46.1.3** *P* **401** *L* **52** # i-20

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

The second paragraph discusses only 10GBASE PHYs, although this clause is now also used by 2.5GBASE and 5BASE PHYs (added by 802.3bz and also used by P802.3cb).

It seems that this paragraph is informative about the special behavior of the 10GBASE-W PHYs, and does not require anything from the RS. If so, it should be informative in the context of the RS.

SuggestedRemedy

Change this paragraph to an informative note.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This paragraph explains that although the 10GBASE-W PHY transports a payload rate of 9.58464 Gb/s, the rate at the XGMII is 10 Gb/s because of the addition of interpacket gap Idle control characters. This explanation is clearly confined to 10GBASE-W PHYs and therefore not applicable to 2.5GBASE and 5BASE PHYs, so this text seems to be appropriate content for "46.1.3 Rate of operation" without modification.

Cl **46** *SC* **46.1.7** *P* **103** *L* **26** # i-122

Zimmerman, George — Analog Devices Inc., A

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

The changes inserted by 802.3bz were meant to extend the full application of the XGMII to 2.5G and 5Gbps data rates. See 46.1.2 - "Application
*This interface is used to provide media independence so that an identical media access controller may be used with all 2.5GBASE, 5GBASE, and 10GBASE PHY types."
However, many of the statements in 46.1.7 and subclauses did not get 2.5Gbps and 5Gbps added to them. This includes
46.1.7 (mapping of primitives), 46.1.7.3 and 46.1.7.4 (full duplex operation), 46.3.3.3 (Response to received invalid frame sequences).

SuggestedRemedy

Make the following changes:
PROPOSED CHANGE

46.1.7
page 403
line 26
change "Full duplex operation only is implemented at 10 Gb/s;"
to "Full duplex operation only is implemented at 10 Gb/s, 5Gb/s and 2.5Gb/s;"

46.1.7
page 403
line 37
change "Mappings for the following primitives are defined for 10 Gb/s operation:"
to "Mappings for the following primitives are defined for 10 Gb/s, 5Gb/s and 2.5Gb/s operation:"

46.1.7.3
page 405
line 7
change "10 Gb/s operation supports full duplex operation only."
to "10 Gb/s, 5Gb/s and 2.5Gb/s operation supports full duplex operation only."

46.1.7.4
page 405
line 18
change "10 Gb/s operation supports full duplex operation only."
to "10 Gb/s, 5Gb/s and 2.5Gb/s operation supports full duplex operation only."

46.3.3.3 Response to received invalid frame sequences
page 415
line 50
change "The 10 Gb/s PCS is required to either preserve the column alignment of the transmitting RS, or align the Start control character to lane 0. The RS shall not indicate

DATA_VALID to the MAC for a Start control character received on any other lane. Error free 10 Gb/s operation will not change the SFD alignment in lane 3. A 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character."
to "The 10 Gb/s, 5Gb/s and 2.5Gb/s PCS is required to either preserve the column alignment of the transmitting RS, or align the Start control character to lane 0. The RS shall not indicate DATA_VALID to the MAC for a Start control character received on any other lane. Error free 10 Gb/s, 5Gb/s and 2.5Gb/s operation will not change the SFD alignment in lane 3. A 10 Gb/s, 5Gb/s and 2.5Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
46.1.7
page 403
line 26
change: "Full duplex operation only is implemented at 10 Gb/s;"
to: "Full duplex operation only is implemented at 2.5 Gb/s, 5 Gb/s, and 10 Gb/s;"

46.1.7
page 403
line 37
change: "Mappings for the following primitives are defined for 10 Gb/s operation:"
to: "Mappings for the following primitives are defined for 2.5 Gb/s, 5 Gb/s, and 10 Gb/s operation:"

46.1.7.3
page 405
line 7
change "10 Gb/s operation supports full duplex operation only."
to "2.5 Gb/s, 5 Gb/s, and 10 Gb/s operation supports full duplex operation only."

46.1.7.4
page 405
line 18
change "10 Gb/s operation supports full duplex operation only."
to "2.5 Gb/s, 5 Gb/s, and 10 Gb/s operation supports full duplex operation only."

46.3.3.3 Response to received invalid frame sequences
page 415
line 50
change: "The 10 Gb/s PCS is required to either preserve the column alignment of the transmitting RS, or align the Start control character to lane 0. The RS shall not indicate DATA_VALID to the MAC for a Start control character received on any other lane. Error free 10 Gb/s operation will not change the SFD alignment in lane 3. A 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character."
to: "The 2.5 Gb/s, 5 Gb/s, or 10 Gb/s PCS adjacent to this RS is required to either preserve the column alignment of the transmitting RS, or align the Start control character to lane 0. The RS shall not indicate DATA_VALID to the MAC for a Start control character received on any other lane. Error free 2.5 Gb/s, 5 Gb/s, or 10 Gb/s operation will not change the SFD alignment in lane 3. A 2.5 Gb/s, 5 Gb/s, or 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character."

Cl **46** *SC* **46.1.7** *P* **403** *L* **26** # i-119

Mcclellan, Brett — Marvell Semiconductor

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

It was clearly the intention of 802.3bz that an identical MAC be used for 10G, 5G and 2.5G (see 46.1.2). Therefore is was assumed that all normative and optional behavior of 10G also be applied to 5G and 2.5G. However the 802.3bz project did not thoroughly edit every instance of 10Gb/s in Clause 46 to also include 5Gb/s and 2.5Gb/s. The result is that a reader may intrepet that some normative and optional behavior applies only to 10Gb/s and not to 5Gb/s or 2.5Gb/s.
Select references to 10Gb/s should be changed to 10 Gb/s, 5Gb/s and 2.5Gb/s
"46.1.2 Application
*This interface is used to provide media independence so that an identical media access controller may be used with all 2.5GBASE, 5GBASE, and 10GBASE PHY types."

SuggestedRemedy

46.1.7
page 403
line 26
change "Full duplex operation only is implemented at 10 Gb/s;"
to "Full duplex operation only is implemented at 10 Gb/s, 5Gb/s and 2.5Gb/s;"

46.1.7
page 403
line 37
change "Mappings for the following primitives are defined for 10 Gb/s operation:"
to "Mappings for the following primitives are defined for 10 Gb/s, 5Gb/s and 2.5Gb/s operation:"

46.1.7.3
page 405
line 7
change "10 Gb/s operation supports full duplex operation only."
to "10 Gb/s, 5Gb/s and 2.5Gb/s operation supports full duplex operation only."

46.1.7.4
page 405
line 18
change "10 Gb/s operation supports full duplex operation only."
to "10 Gb/s, 5Gb/s and 2.5Gb/s operation supports full duplex operation only."

46.3.3.3 Response to received invalid frame sequences
page 415
line 50
change "The 10 Gb/s PCS is required to either preserve the column alignment of the transmitting RS, or align the Start control character to lane 0. The RS shall not indicate DATA_VALID to the MAC for a Start control character received on any other lane. Error free 10 Gb/s operation will not change the SFD alignment in lane 3. A 10 Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character."
to "The 10 Gb/s, 5Gb/s and 2.5Gb/s PCS is required to either preserve the column alignment of the transmitting RS, or align the Start control character to lane 0. The RS shall not indicate DATA_VALID to the MAC for a Start control character received on any other lane. Error free 10 Gb/s, 5Gb/s and 2.5Gb/s operation will not change the SFD alignment in lane 3. A 10 Gb/s, 5Gb/s and 2.5Gb/s MAC/RS implementation is not required to process a packet that has an SFD in a position other than lane 3 of the column following the column containing the Start control character."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment i-122.

Cl **46** *SC* **46.3.3.3** *P* **415** *L* **50** # i-19

RAN, ADEE — Intel Corporation

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

"The 10 Gb/s PCS" - which one?

There are three different PCSs (BASE-T, BASE-R/W, BASE-X) that this RS supports, and another (clause 76) that it doesn't support (and requires a different RS).

SuggestedRemedy

Change "The 10 Gb/s PCS is required" to "All 10 Gb/s PCSs supported by this RS are required".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment i-122.

Cl **49** *SC* **49.1.5** *P* **488** *L* **2** # i-55

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"The nominal rate of the PMA service interface is 644.53 Mtransfers/s"

This should be exactly 1/16 of the nominal rate of PMD service interface, which is 10.3125 Gb/s.

This yields exactly 644.53125 Mtransfers/s.

Numbers in the standard are exact.

SuggestedRemedy

Change 644.53 to 644.53125.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.4.6** *P* **494** *L* **11** # i-51

Trowbridge, Stephen Nokia

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

Following up to Draft 2.0 comment 37, the same problem exists in clause 49 that if a signal ordered set were to be received on a 10GBASE-R Ethernet PHY, the PCS would send the MII control character 0x5c to the clause 46 RS, which Table 46-4 shows as a reserved value. But the same remedy cannot be used as to comment 37, because the PCS for 10G Fibre Channel (clause 13 in that document) is essentially a reference to IEEE Std 802.3AE-2002, effectively using Ethernet clause 49 as the 10G Fibre Channel PCS. So a different remedy is proposed than to Draft 2.0 comment #37

SuggestedRemedy

Change item (d) in 49.2.4.6 to read:
"Any O code contains a value not in Table 49-1, or the O code 0xF is received on an Ethernet PHY"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **49** *SC* **49.2.13.2.2** *P* **501** *L* **6** # i-6

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

hi_ber is defined as "... ber_cnt exceeds 16". But ber_cnt is defined as "Count up to a maximum of 16" so it can't exceed 16.

According to Figure 49-15, hi_ber is asserted when the count _reaches_ 16, and this causes transition that clears it, so it can't exceed 16.

SuggestedRemedy

Change "exceeds" to "reaches".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Since "ber_cnt = 16" is the condition in the state diagram, change "exceeds" to "equals".

Cl **49** *SC* **49.3.3** *P* **515** *L* **16** # i-60

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

PMA is used in the Status column of item *JTM, so it should be "*PMA" in the Item column.
LPI is used in the Status column of 49.3.6.6, so it should be "*LPI" in the Item column.
Also "AN1*" in 49.3.6.5 should be "*AN1"

SuggestedRemedy

In 49.3.3, change "PMA" to "*PMA" (with an asterisk prefix)
In 49.3.3, change "LPI" to "*LPI"
IN 49.3.6.5, change "AN1*" to "*AN1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **52** *SC* **52.6.2** *P* **589** *L* **9** # i-79

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Typo in the heading row of Table 52-13

SuggestedRemedy

Change "10BGASE-LR" to "10GBASE-LR"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **52** *SC* **52.9.9.3** *P* **604** *L* **25** # i-121

Dawe, Piers J G Mellanox Technologies

Comment Type **E** *Comment Status* **D** *bucket*

Undefined abbreviation.

SuggestedRemedy

Change "ER" to "the extinction ratio" (as in 58.7.11.2).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **55** *SC* **55.1.3** *P* **689** *L* **4** # i-17

RAN, ADEE — Intel Corporation

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

The 10GBASE-T specification includes an option to have MASTER-SLAVE relationship without loop timing in the slave; loop timing is specified as optional (e.g. " The MASTER-SLAVE relationship may include loop timing").

In practice, loop timing is required in order to enable echo and NEXT cancellation and implementations rely on it. Even if a device can operate as a SLAVE and somehow tolerate or cancel its echo and NEXT without loop timing, its partner operates as MASTER may be unable to function when the SLAVE operates at a different frequency. This may cause severe SNR degradation and interoperability problems.

Loop timing is mandatory for EEE operation (see 55.3.5.1). It is also mandatory for the newer 25/40GBASE-T (clause 113) and 2.5/5GBASE-T (clause 126) even without EEE.

As far as I know, no implementation that operates without loop timing exists, and any new implementation that uses non-loop-timing may be incompatible with existing implementations.

To avoid rewriting history, it is suggested to declare non-loop-timing as deprecated.

Note that loop timing is also mentioned in MDIO control registers (45.2.7.10, 45.2.7.11) and in AN pages (55.6.1.2).

SuggestedRemedy

Add a NOTE after the paragraph that defines MASTER-SLAVE relationship (at P689 L9):

NOTE--The option for a SLAVE not to use loop timing is deprecated. It is recommended that a device configured as SLAVE always performs loop timing.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The current 10GBASE-T specification allows two types of PHY - ones that support loop timing and ones that don't.
When two PHYs that support loop timing are interconnected, the issue raised in this comment does not apply.
When a PHY that supports loop timing is connected to one that doesn't, then according to 55.6.2:
"When only one link partner supports loop timing, the device that supports loop timing shall be forced to SLAVE and the other device shall be forced to MASTER." so again, there is no issue.
When two PHYs, neither of which support loop timing, are connected it is reasonable for each of the PHYs to be expected to work with a link partner that does not support loop timing either.

Cl **55** *SC* **55.5.1** *P* **765** *L* **41** # i-105

Maytum, Michael — RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **55** *SC* **55.5.1** *P* **765** *L* **48** # i-106

Maytum, Michael — RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

IEC 60950-1:2001 Annex N is going away. IEC 60060-1 is the horizontal IEC standard for 1.2/50 impulses.

SuggestedRemedy

Replace IEC 60950-1:2001 Annex N with IEC 60060-1 as used previously

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-88.

Cl **55** *SC* **55.5.4.1** *P* **771** *L* **54** # i-16

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"Differential signals (...) are received with a BER less than (...) This specification shall be satisfied by a frame error ratio (...)"

The text here uses "are received" and "shall be satisfied by", whereas the similar 113.5.4.1 and 126.5.4.1 use "shall be received" and "can be verified by".

The normative requirement isn't to satisfy anything.

SuggestedRemedy

Change "are received" to "shall be received".

Change "shall be satisfied" to "can be verified".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment i-15.

Cl **55** *SC* **55.5.4.1** *P* **772** *L* **1** # i-15

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

The text says:
"Differential signals received at the MDI (...) are received with a BER less than 10^-12 and sent to the PCS after link reset completion"

But this BER is achieved only after LDPC decoding which is part of the PCS, so before LDPC decoding the BER is likely higher.

802.3bq used better text for this requirement in 126.5.4.1:

"Differential signals received at the MDI (...) shall be received with a BER less than 10^-12 after LDPC decoding, and sent to the XGMII after link reset completion".

Similar text should be used here.

SuggestedRemedy

Change FROM
"received with a BER less than 10^-12 and sent to the PCS after link reset completion"
TO
"received with a BER less than 10^-12 after LDPC decoding, and are sent to the XGMII after link reset completion".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change:
"... are received with a BER less than 10-12 and sent to the PCS after link reset completion. This specification shall be satisfied by a frame error ratio less than ..." to:
"... shall be received with a BER less than 10-12 after LDPC decoding, and are sent to the XGMII after link reset completion. This specification can be verified by a frame error ratio less than ..."

Cl **57** *SC* **57.4.1** *P* **72** *L* **72** # i-126

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **D** *late, bucket*

Text could use a reference without year. The normative reference is without year.

SuggestedRemedy

Change IEEE Std 802-2014 to IEEE Std 802.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **57** *SC* **57.4.2.1** *P* **73** *L* **45** # i-116
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **D** *bucket*

Not clear, nor does it seem consistent why italics are used on the "reserved" table rows in this clause.

SuggestedRemedy

Remove italics. For consistency, also change:
p. 74, l. 40, and 43
p. 78, l. 8 and 12
p.79, l. 22 and 26
p. 80, l. 5 and 26
p. 81, l. 5
p. 82, l. 37 and 40
p. 90, l. 37, 40, and 50
p. 91, l. 10 and 21

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **64** *SC* **64.3.6.3** *P* **344** *L* **10** # i-117
Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **D** *bucket*

Inconsistent capitalization.

SuggestedRemedy

reserved -> Reserved

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.1** *P* **435** *L* **16** # i-9
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The clause numbers in Table 70-1 do not have active cross-references.

SuggestedRemedy

Make them active cross-references.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.7.1.5** *P* **442** *L* **32** # i-38
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Missing active cross reference to 36A.2.

SuggestedRemedy

Make cross reference active.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **70** *SC* **70.7.2.5** *P* **446** *L* **4** # i-39
RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"This differential input return loss requirement applies to all valid input levels"

This sentence seems to be a residue from copying the similar text in the transmitter, but it is meaningless for the receiver; The receiver does not generate an "input level" the way a transmitter generates an "output level".

This text does not appear in recent receiver specifications (from clause 93 and on).

Also applies to 54.6.4.5, 71.7.2.5, 72.7.2.5, 85.8.4.1, 92.8.4.2; And this text is now copied over to 802.3cb.

SuggestedRemedy

Delete the quoted sentence in all listed clauses.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Remove the sentence "This differential input return loss requirement applies to all valid input levels." here and in 54.6.4.5, 71.7.2.5, 72.7.2.5, 85.8.4.1, and 92.8.4.2.

Cl **71** *SC* **71.1** *P* **452** *L* **19** # i-8
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The clause numbers in Table 71-1 do not have active cross-references (except for 47).

SuggestedRemedy

Make them active cross-references.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **71** *SC* **71.7.1.4** *P* **459** *L* **39** # i-37
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Missing active cross reference to 48A.2.

SuggestedRemedy

Make cross reference active.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **72** *SC* **72.7.1.7** *P* **495** *L* **30** # i-40
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Small font size in "52.9.1.2" and later in 72.7.1.8 in "52.9.1.1"

SuggestedRemedy

fix it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.3** *P* **511** *L* **54** # i-48
Marris, Arthur Cadence Design Syste

Comment Type **TR** *Comment Status* **D** *bucket*

Get rid of the list of PHYs as it is unwieldy and difficult to maintain.

SuggestedRemedy

Change:
Technology-Dependent PHYs include 1000BASE-KX, 10GBASE-KX4, 10GBASE-KR, 25GBASE-KR, 25GBASE-KR-S, 25GBASE-CR, 25GBASE-CR-S, 40GBASE-KR4, 40GBASE-CR4, 100GBASE-CR10, 100GBASE-KP4, 100GBASE-KR4, and 100GBASE-CR4.

To:
Technology-Dependent PHYs are those supported by the Auto-Negotiation process (see Table 73-4).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.7.1** *P* **519** *L* **22** # i-49
Marris, Arthur Cadence Design Syste

Comment Type **TR** *Comment Status* **D** *bucket*

Get rid of the list of PHYs as it is unwieldy, redundant and difficult to maintain.

SuggestedRemedy

Change:
To be able to detect the DME bits, the receiver should have the capability to receive DME signals sent with
the electrical specifications of the PHY (1000BASE-KX, 10GBASE-KX4, 10GBASE-KR, 25GBASE-KR,
25GBASE-KR-S, 25GBASE-CR, 25GBASE-CR-S, 40GBASE-KR4, 40GBASE-CR4, 100GBASE-CR10,
100GBASE-KP4, 100GBASE-KR4, or 100GBASE-CR4).

To:
To be able to detect the DME bits, the receiver should have the capability to receive DME signals sent with
the electrical specifications of the PHY.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **73** *SC* **73.10.2** *P* **532** *L* **48** # i-50
Marris, Arthur Cadence Design Syste

Comment Type **TR** *Comment Status* **D** *bucket*

The timer values are defined in Table 73-7 so there is no need to repeat the values in the link_fail_inhibit_timer definition.

SuggestedRemedy

Change:
The link_fail_inhibit_timer shall expire 40 ms to 50 ms after entering the AN LINK GOOD CHECK state when the link is 1000BASE-KX or 10GBASE-KX4. Otherwise the link_fail_inhibit_timer shall expire 500 ms to 510 ms after entering the AN LINK GOOD CHECK
state.

To:
The link_fail_inhibit_timer shall expire within the timer values given in Table 73-7 after entering the AN LINK GOOD CHECK state.

Also change value of PICS entry in 73.11.4.7 to just read:
The values in Table 73-7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **77** *SC* **77.2.2.7** *P* **681** *L* # i-22

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Why is there a blue outline around figures 77-12 and 77-13?

SuggestedRemedy

Delete the outlines.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **77** *SC* **77.2.2.7** *P* **681** *L* **1** # i-118

Grow, Robert RMG Consulting

Comment Type **E** *Comment Status* **D** *bucket*

For some reason, Table 77-12 and Table 77-13 are marked with blue outine (comparison marking?).

SuggestedRemedy

Verify correct file is in the book and/or that marking is removed from plain text version.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **82** *SC* **82.2.4** *P* **144** *L* **32** # i-23

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **D** *bucket*

"The transmit process must delete idle control characters or sequence ordered sets to accommodate the transmission of alignment markers"

The "must" here is not only against the style guide (it is not an unavoidable situation), but also incorrect.

Other implementations are possible; for example, the RS and PCS may be implemented in a way that causes that room for markers to always be available when needed without any deletions in the PCS.

Allowing the PCS to delete idles or ordered set is sufficient.

SuggestedRemedy

Change "must" to "may".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **82** *SC* **82.2.7** *P* **145** *L* **32** # i-24

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **D** *bucket*

"Room for the alignment markers is created by periodically deleting IPG from the XLGMII/CGMII data stream."

This statement is part of a normative text and is too perscriptive. It suggests that the operation of this PCS involves changes to the IPG and results in frame jitter. But this is not necessarily true.

Other implementations are possible; for example, the RS and PCS may be implemented in a way that causes that room for markers to always be available when needed without any deletions.

The observable behavior that has to be specified is only that the markers are inserted at precise locations, as the following text states.

The proposed change is one way to address this issue; other possible ways are to rephrase using "or functional equivalent" as stated in 108.5.2.2 for a similar function.

SuggestedRemedy

Change "Room for the alignment markers is created" to "If necessary, room for the alignment markers is created".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **82** *SC* **82.2.15** *P* **152** *L* **27** # i-25

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **D** *bucket*

"The difference in rate from the deleted alignment markers is compensated for by inserting idle control characters by a function in the Receive process."

This statement is part of a normative text and is too perscriptive. It suggests that the operation of this PCS involves occasional insertion of idle characters between received frames. But this is not necessarily true.

Other implementations are possible; for example, the RS and PCS may be implemented with a queued (FIFO) interface that does not require any insertion of idle characters.

The observable behavior that has to be specified is only that the markers are deleted from the data stream.

The proposed change is one way to address this issue; other possible ways are to rephrase using "or functional equivalent" as stated in 108.5.3.6 for a similar function.

SuggestedRemedy

Change "The difference in rate from the deleted alignment markers is compensated for by inserting idle control characters by a function in the Receive process" to "If necessary, difference in rate due to deleted alignment markers is compensated for by inserting idle control characters".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change:
"The difference in rate from the deleted alignment markers is compensated for by inserting idle control characters by a function in the Receive process." to:
"If necessary, the difference in rate due to deleted alignment markers is compensated for by inserting idle control characters."

Cl **82** *SC* **82.2.17** *P* **152** *L* **47** # i-26

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **D** *bucket*

"The receive process must insert idle control characters to compensate for the removal of alignment markers"

The "must" here is not only against the style guide (it is not an unavoidable situation), but also incorrect.

Other implementations are possible; for example, the RS and PCS may be implemented with a queued (FIFO) interface that does not require any insertion of idle characters.

Allowing the PCS to insert idles is sufficient.

SuggestedRemedy

Change "must" to "may".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **82** *SC* **82.2.19.2.2** *P* **155** *L* **2** # i-10

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

hi_ber is defined as "... ber_cnt equals or exceeds 97". But ber_cnt is defined as "Count up to a maximum of 97" so it can't exceed 97.

According to Figure 82-15, hi_ber is asserted when the count _reaches_ 97, and this causes transition that clears it, so it can't exceed 97.

SuggestedRemedy

Change "equals or exceeds" to "reaches".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Since "ber_cnt =97" is the condition in the state diagram, change "equals or exceeds" to "equals".

Cl **82** *SC* **82.6** *P* **164** *L* **1** # i-11

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The state diagrams appear in this subclause titled "Auto-Negotiation" but they really belong in 82.2.19.3 titled "State diagrams" (page 160 - 4 pages earlier). Trying to navigate to the diagrams using the PDF table of conents is always frustrating.

SuggestedRemedy

Do whatever is needed to make figures 82-12 through 82-17 appear in 82.2.19.3 and figures 82-18 through 82-19 appear in 82.2.19.3.1.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **82** *SC* **82.7.4.4** *P* **175** *L* **7** # i-27

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

There is a PICS item for "Alignment marker insertion" but no item for the reverse operation, "Alignment marker removal".

A PCS that does not remove the alignment markers may instead try to decode them and as a result insert errors into the XLGMII data stream; this should not be compliant behavior.

SuggestedRemedy

Add new item AM4: "Alignment marker removal", "82.2.15", "Alignment markers are deleted from the data stream", "M".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Insert new item AM3: "Alignment marker removal", "82.2.15", "Alignment markers are removed as described in 82.2.15", "M".

Cl **82** *SC* **82.7.5** *P* **175** *L* **15** # i-28

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Bad subclause hierarchy: 82.7.5, 82.7.5.1, 82.7.6, and 82.7.6.1 through 82.7.6.5 should all be at the same depth, hierarchically below 82.7.4.

SuggestedRemedy

Change heading styles to make these subclauses appear under 82.7.4 (as 82.7.4.5 and on).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **83E** *SC* **83E.3.1.6** *P* **635** *L* **24** # i-33

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

Figure 83E-9: placement of TP1a and TP4a labels relative to the DC blocks is unclear.

In Figure 83E-4 the test points are defined at the edge of the HCB, so the DC blocks should be between the test points and the scope.

Also in Figure 83E-11 and Figure 83E-14..

SuggestedRemedy

Place the TP1a and TP4a labels such that they are center-aligned with the edge of the HCB, in all three figures.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **83E** *SC* **83E.3.3.2.1** *P* **641** *L* **48** # i-120

Dawe, Piers J G — Mellanox Technologies

Comment Type **E** *Comment Status* **D** *bucket*

"The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous": wrong word, here we have signals that are carried on lanes. "Channel" is about things like loss.
Compare e.g. 83E.3.1.6 "All counter-propagating signals shall be asynchronous to the co-propagating signals", 83E.3.2.1, 109B.3.2.1.1 "The input (counter-propagating) signal is asynchronous with the output signal", 109B.3.2.1.2, 120E.3.1.6 "All counter-propagating signals shall be asynchronous to the co-propagating signals", 109B.3.2.1.2.

SuggestedRemedy

Here and in 83E.3.4.1.1 p644, change channels to signals.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **85** *SC* **85.8.3.1** *P* **230** *L* **22** # i-111

Dawe, Piers J G — Mellanox Technologies

Comment Type **E** *Comment Status* **D** *bucket*

Usually, equations for return loss limits and similar are illustrated for the reader's convenience. This one is not.

SuggestedRemedy

Add a figure illustrating Equation (85-1) and a sentence to introduce it. See 92.8.3.2 for an example: "The transmitter differential output return loss is illustrated in Figure 92-5." Preferably, refer to the figure from 85.8.4.1, Receiver differential input return loss, also, because Equation (85-17) is the same as Equation (85-1).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add the following sentence to the end of 85.8.3.1.

"The transmitter differential output return loss is illustrated in Figure 85-3"

Follow this sentence with a new figure (Figure 85-3) that illustrates Equation (85-1) and renumber the subsequent figures accordingly.

This aligns Clause 85 and 92 with respect to the the form of the transmitter and receiver differential return loss definitions.

Cl **85** *SC* **85.8.3.5** *P* **236** *L* **28** # i-35

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"The test fixture of Figure 85-5, or its functional equivalent, is required for measuring (...)"

The figure does not specify the test fixture (there are technical specifications in 85.8.3.6 and 85.8.3.6) and it shows other components, including the text equipment which is also required for the measurements.

The last sentence in this paragrah also states that the test fixture is shown in the figure; this should be sufficient.

SuggestedRemedy

Change "The test fixture of Figure 85-5" to "The test setup illustrated in Figure 85-5".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **85** *SC* **85.8.3.5** *P* **236** *L* **53** # i-34

RAN, ADEE — Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

Figure 85-5 title "Transmitter test fixture" is unsuitable.

The figure includes a region labeled "test fixture", but also a device under test and a block of test equipment. Also, as stated in the text above, this figure also illustrates the setup for measuring receiver return loss at TP3.

In the similar Figure 92-15, the title is "Transmitter and receiver test setup" which is more suitable.

SuggestedRemedy

Change the title of figure 85-5 to "Transmitter and receiver test setup".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **90** *SC* **90.7** *P* **373** *L* **52** # i-52

RAN, ADEE Intel Corporation

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

Following the October 2017 Liaison letter from ITU-T SG15/Q13, an ad hoc was formed to discuss concerns that were raised about Ethernet timing performance.

The ad hoc identified one source of variability in the reported path data delays that could be reduced in PHYs which include a FEC function. This variability is a source of perceived inaccuracy of timestamping, although in fact the sum of the delays in the FEC encoder and FEC decoder is constant.

This perceived inaccuracy can be eliminated if the path data delays in the transmitter and the receiver are reported in a specific manner.

In addition, for PHYs in which the FEC is a separate sublayer, there are no specified registers for the FEC delay reporting.

The recommendation of the ad hoc is to add a recommendation in clause 90 as detailed in the proposed change.

SuggestedRemedy

Insert the following paragraph after the first paragraph of 90.7:

"For a PHY that includes an FEC function, the transmit and receive path data delays may show significant variation depending upon the position of the SFD within the FEC block. However, since the variation due to this effect in the transmit path is expected to be compensated by the inverse variation in the receive path, it is recommended that the transmit and receive path data delays be reported as if the SFD is at the start of the FEC block."

Insert the following paragraph after the "NOTE 2" paragraph:

"NOTE 3--For PHYs that are specified with an FEC sublayer separate from the PCS, the data delay for the FEC sublayer should be included in either the PCS delay registers or the PMA/PMD delay registers of the MMD in which the FEC sublayer is implemented, but not in both."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Removed the word "significant" since it is not quantifiable.

Insert the following paragraph after the first paragraph of 90.7:

"For a PHY that includes an FEC function, the transmit and receive path data delays may show variation depending upon the position of the SFD within the FEC block. However, since the variation due to this effect in the transmit path is expected to be compensated by the inverse variation in the receive path, it is recommended that the transmit and receive path data delays be reported as if the SFD is at the start of the FEC block."

Insert the following paragraph after the "NOTE 2" paragraph:

"NOTE 3--For PHYs that are specified with an FEC sublayer separate from the PCS, the data delay for the FEC sublayer should be included in either the PCS delay registers or the PMA/PMD delay registers of the MMD in which the FEC sublayer is implemented, but not in both."

Cl **91** *SC* **91.5.2.4** *P* **380** *L* **4** # i-43

RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"The incoming bit error ratio can be estimated by dividing the BIP block error ratio by a factor of 1081344"

This sentence is misleading; within this subclause, it is not the _incoming bit error ratio_ that most readers would think it is, but rather the bit error ratio in the data stream from the local PCS to the RS-FEC input. This data path is not described, but in some applications it may create errors.

Unlike errors in the incoming data (from the link partner), any errors in this data stream are neither detected nor corrected. This is not obvious from reading the text.

SuggestedRemedy

Change the quoted text to the following and add an informative note:

The bit error ratio in the data received from the local PCS can be estimated by dividing the BIP block error ratio by a factor of 1081344.

NOTE--The data received from the local PCS is processed by the RS-FEC transmit function without error correction.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **93** *SC* **93.8.1.1** *P* **469** *L* **1** # i-29

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **D** *bucket*

Figure 93-5 does not show the connection between TP0a and the measurement system, which specifically should include AC coupling. This figure is referenced (directly or indirectly) by many other clauses.

The implications of this were discussed in the P802.3cd ad hoc teleconference; see http://www.ieee802.org/3/cd/public/adhoc/archive/ran_112717_3cd_adhoc.pdf.

The figure should be modified to include the test equipment, as shown for example in the similar Figure 92-15.

SuggestedRemedy

Edit figure 93-5 to include a "test equipment" block. The block contents should be the same as the similar block in Figure 92-15, or a reference to the "Test equipment" block in that figure.

Change the figure title from "Transmitter test fixture and test points" to "Transmitter test setup", following Figure 92-15.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Add the following sentence at the end of the first paragraph of 93.8.1.1.
"The connection from TP0a to the test equipment is AC-coupled except for DC common-mode voltage measurements."

Cl **93** *SC* **93.8.2.1** *P* **474** *L* **1** # i-30

RAN, ADEE Intel Corporation

Comment Type **TR** *Comment Status* **D** *bucket*

Figure 93-10 does not show the connection between TP5a and the measurement system, which specifically should include AC coupling. This figure is referenced (directly or indirectly) by many other clauses.

The implications of this were discussed in the P802.3cd ad hoc teleconference; see http://www.ieee802.org/3/cd/public/adhoc/archive/ran_112717_3cd_adhoc.pdf.

Although my recommendation in that presentation was to add the AC coupling requirement in annex 93C, it seems to me now that making the change in this figure would be a cleaner solution, due to symmetry with the transmitter setup in figure 93-5.

SuggestedRemedy

Edit figure 93-10 to include a "test equipment" block. The block contents should be the same as the similar block in Figure 92-15, or a reference to the "Test equipment" block in that figure.

Change the figure title from "Receiver test fixture and test points" to "Receiver test setup", following Figure 92-15.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the first paragraph of 93.8.2.1 to the following.
"Unless otherwise noted, measurements of the receiver are made at the input to a test fixture (TP5a) as shown in Figure 93-10. The connection from the test equipment to TP5a is AC-coupled."

Cl **93** *SC* **93.9.4** *P* **479** *L* **32** # i-45
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

"The 100GBASE-KR4 transmitter shall be AC-coupled to the receiver"

AC coupling is shown as part of the channel in figure 93-2, but this text can be read as a requirement from the transmitter.

Since this subclause is under 93.9 "Channel characteristics" it should include statements about the channel.

SuggestedRemedy

Change the quoted statement to
"The 100GBASE-KR4 channel shall include AC-coupling between the transmitter and the receiver".

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The sentence is correct as written. This subclause informs the reader that common-mode specifications and channel specifications consider the impact of a DC blocking capacitor between TP0 and TP5. In addition, it advises the user that, while AC coupling outside of the TP0 to TP5 range is possible, it is the implementer's responsibility to account for any necessary changes to the common-mode and channel requirements.

When the subclause is read in its entirety, it is clear that the requirements of this standard apply when the DC-blocking capacitors are between TP0 and TP5 (next sentence of the cited paragraph).

Cl **94** *SC* **94.6.4.3** *P* **544** *L* **3** # i-12
RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

PICS item TC16 about Transition time does not correspond to any requirement in the clause.

SuggestedRemedy

Remove this item.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **96** *SC* **96.2** *P* **43** *L* **7** # i-36
RAN, ADEE Intel Corporation

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

Clause 96 is the only one where "FORCE mode" is used in 802.3.

As the term is used in this clause, "FORCE mode" is not really a mode; in three places it is what we usually call management (as can be seen from the definition of the "config" variable in 96.4.7.1) and in one place its use is unclear and probably unnecessary.

It would be helpful for readers to eliminate this term and use the common terminology instead.

In 96.2: "The 100BASE-T1 PHY MASTER-SLAVE relationship is set by FORCE mode (see 96.4.4)"; the referenced "PHY control function" subclause does not define "FORCE mode". In fact, the only definition of "FORCE mode" is in 1.4.254, where it refers again to 96.4.4. And as noted, the relationship is set by management (see also 96.6.2).

In 96.4.4 "FORCE mode" actually refers to the PHY control function, and the text refers to PMA_CONTROL which is not defined for this clause.

In 96.4.5 "FORCE mode" should be "management", since the link_control variable is set by management (see 96.4.7.1).

SuggestedRemedy

In 96.2, change "set by FORCE mode" to "set by management".

In 96.4.4, change FROM
"For the 100BASE-T1 PHY, FORCE mode is used to achieve link acquisition between two 100BASE-T1 link partners. Using FORCE mode, PMA_CONFIG is pre-determined to be MASTER or SLAVE via management control during initialization or via default hardware set-up."
TO
"For the 100BASE-T1 PHY, PHY control is used to achieve link acquisition between two 100BASE-T1 link partners. The config variable is set to either MASTER or SLAVE via management control during initialization or via default hardware set-up."

In 96.4.5, change "FORCE mode is used to set link_control to ENABLE through management control" to "the link_control variable is controlled by management".

Delete the definition of "FORCE mode" in 1.4.254.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Wording alignment for consistency with Clause 97. Second paragraph was rewritten substantially by the author, likely causing changes in interpretation. Alternative version derived from Clause 97 is proposed below.

In 96.2, change "set by FORCE mode" to "established by management".

In 96.4.4, change FROM
"For the 100BASE-T1 PHY, FORCE mode is used to achieve link acquisition between two 100BASE-T1 link partners. Using FORCE mode, PMA_CONFIG is pre-determined to be MASTER or SLAVE via management control during initialization or via default hardware set-up."
TO
"If the Auto-Negotiation process is not implemented or not enabled, PMA_CONFIG MASTER-SLAVE configuration is predetermined to be MASTER or SLAVE via management control during initialization or via default hardware setup."

In 96.4.5, change "FORCE mode is used to set link_control to ENABLE through management control" to "the link_control variable is controlled by management".

Delete the definition of "FORCE mode" in 1.4.254.

Cl **97** *SC* **97.3.2.2.5** *P* **119** *L* **14** # i-84

Carlson, Steven High-Speed Design In

Comment Type **G** *Comment Status* **D** *bucket*

Figure 97-7--PCS detailed transmit bit ordering

scrambler
scr [0:4096]

The value of 0:4096 is incorrect.

SuggestedRemedy

Change to 0:4049

This change was accepted in an earlier review ballot by the 802.3 working group (comment #103, D2.1 ballot) but was accidentally not implemented.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **97A** *SC* **97A.1** *P* **912** *L* **19** # i-83

Carlson, Steven High-Speed Design In

Comment Type **T** *Comment Status* **D** *bucket*

The 1000BASE-T1 link segment
is placed on a reference plane raised 10 cm from the surface of the ground plane.

The value of 10 cm is a typographical error, and should be 10 mm, as shown in Figure 97A-1 and Figure 97A-2 where the height is shown as H = 10 mm + or - 10%

SuggestedRemedy

The 1000BASE-T1 link segment
is placed on a reference plane raised 10 mm from the surface of the ground plane.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **97A** *SC* **97A.3.1** *P* **914** *L* **6** # i-57

Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

"Clause 97A" should be "Annex 97A" on line 6 and line 32

SuggestedRemedy

Change "Clause 97A" to "Annex 97A" on line 6 and line 32

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **98** *SC* **98.5.2** *P* **225** *L* **15** # i-124

Zimmerman, George Analog Devices Inc., A

Comment Type **E** *Comment Status* **D** *late, bucket*

This comment also applies to the PICS entry for 98.5.2 (page 235, line 31). The definition for link_fail_inhibit_timer references the "AN LINK GOOD CHECK" state. This state is not in any state diagram. It appears to be a reference to the "AN GOOD CHECK" state in Figure 98-7, Arbitration state diagram.

SuggestedRemedy

Change "AN LINK GOOD CHECK" to "AN GOOD CHECK" (2 instances) in definition of link_fail_inhibit_timer on page 225 line 15, and in associated PICS item SD11 (p. 235 line 31)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **101** *SC* **101.4.4.4.3** *P* **377** *L* **41** # i-81
Anslow, Peter Ciena Corporation

Comment Type **E** *Comment Status* **D** *bucket*

"i.e," should be "i.e.,"
Same issue in 120B.3.2 in IEEE Std 802.3bs-2017 when this is included in the draft.

SuggestedRemedy

change "i.e," to "i.e.," here and in 120B.3.2 in IEEE Std 802.3bs-2017 when this is included in the draft.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **107** *SC* **107.1.2** *P* **579** *L* **22** # i-56
RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **D** *bucket*

The referenced subclause 49.2.13.3 is the "State diagrams" subclause, which does not define hi_ber at all. hi_ber is defined in 49.2.13.2.2, ber_cnt is defined in 49.2.13.2.4 and and 125us_timer is defined in 49.2.13.2.5.

Actually, the difference is in the behavior of the BER monitor process, whose stated diagram is mentioned in the referenced subclause.

SuggestedRemedy

Change FROM

hi_ber is asserted if ber_cnt reaches 97 in a 2 ms period. This differs from the definition in 49.2.13.3 which defines hi_ber as occurring if ber_cnt reaches 16 in a 125 (greek mu)s period.

TO

The BER Monitor process asserts hi_ber if ber_cnt reaches 97 in a 2 ms period. This differs from the specification in 49.2.13.3, where it asserts hi_ber if ber_cnt reaches 16 in a 125 (greek mu)s period.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
As stated in the comment, the behavior that hi_ber is asserted when ber_cnt reaches 16 in a 125 us period is defined in Figure 49-15 "BER monitor state diagram". Since this figure resides in 49.2.13.3 "State diagrams", the text in the draft is correct as it is.

Cl **113** *SC* **113.3.5.1** *P* **729** *L* **30** # i-18
RAN, ADEE Intel Corporation

Comment Type **T** *Comment Status* **D** *bucket*

"An EEE-capable PHY shall support loop timing and loop timing shall be enabled on the slave PHY"

This text is a remnant from clause 55 where loop timing was optional. Loop timing is not optional in clause 113, so this goes without saying.

(clause 126 doesn't have this text)

SuggestedRemedy

Delete the quoted sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **113** *SC* **113.5.1** *P* **768** *L* **45** # i-107
Maytum, Michael RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests: to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **113** *SC* **113.5.1** *P* **768** *L* **52** # i-108
Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

IEC 60950-1:2001 Annex N is going away. IEC 60060-1 is the horizontal IEC standard for 1.2/50 impulses.

SuggestedRemedy

Replace IEC 60950-1:2001 Annex N with IEC 60060-1 as used previously

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-88.

Cl **114** *SC* **114** *P* **812** *L* **1** # i-82

Healey, Adam — Broadcom Ltd.

Comment Type **T** *Comment Status* **D** *add_bs_cc*

Amendments IEEE Std 802.3bs-2017 and IEEE Std 802.3cc-2017 were approved by the IEEE-SA Standards Board on 6 December 2017. The revision should include all approved amendments.

SuggestedRemedy

Incorporate approved amendments IEEE Std 802.3bs-2017 and IEEE Std 802.3cc-2017 into the revision.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5.6** *P* *L* # i-73

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

Comment #140 against D2.0 of the 802.3 revision project added "variable" after some variable names. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=37
When the IEEE Std 802.3cc-2017 amendment is included in the revision, equivalent changes need to be made to Clause 114.

SuggestedRemedy

When the IEEE Std 802.3cc-2017 amendment is included in the revision,
In 114.5.6, change:
"set the PMD_global_transmit_disable to one" to:
"set the PMD_global_transmit_disable variable to one"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5.6** *P* *L* # i-76

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

Comment #142 against D2.0 of the 802.3 revision project corrected the function name for PMD global transmit disable. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=38
When the IEEE Std 802.3cc-2017 amendment is included in the revision, equivalent changes need to be made to Clause 114.

SuggestedRemedy

When the IEEE Std 802.3cc-2017 amendment is included in the revision,
In 114.5.6, change:
"PMD_global_transmit_disable function" to:
"PMD global transmit disable function"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.7.2** *P* *L* # i-71

Anslow, Peter — Ciena Corporation

Comment Type **T** *Comment Status* **D** *add_bs_cc*

Comments #128 and #130 against D2.0 of the 802.3 revision project removed TIA-455-127-A-2006 from the references section of the base standard. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=33
When the IEEE Std 802.3cc-2017 amendment is included in the revision, equivalent changes need to be made to Clause 114.

SuggestedRemedy

When the IEEE Std 802.3cc-2017 amendment is included in the revision,
In 114.7.2:
change the subclause title to "Wavelength and side mode suppression ratio (SMSR)"
in the text change "wavelength" to "wavelength and SMSR" and delete "TIA-455-127-A or"
In 114.12.4.5 COM2:
change "Center wavelength" to "Center wavelength and SMSR"
delete "TIA/EIA-455-127-A or"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **119** *SC* **119.2.3.1** *P* *L* # i-69

Anslow, Peter — Ciena Corporation

Comment Type **T** *Comment Status* **D** *add_bs_cc*

Comment #37 against D2.0 of the 802.3 revision project removed Fsig from Table 82-1. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=7
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to 119.2.3.1.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision, in 119.2.3.1 change:
"The control characters, /Q/ and /Fsig/, for ordered sets are labeled as O0 since they are only valid on the first octet of the 200GMII/400GMII." to:
"The control character /Q/ for a sequence ordered set is labeled as O0 since it is only valid on the first octet of the 200GMII/400GMII."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **120B** *SC* **120B** *P* *L* # i-67

Anslow, Peter — Ciena Corporation

Comment Type **T** *Comment Status* **D** *add_bs_cc*

Comment #116 against D2.0 of the 802.3 revision project changed "<beta>" to "2" in Equation (93A-46). See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=30
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to the 802.3bs text.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision:
In 120B.3.2, remove the phrase "<beta> is 2, " from the second sentence of the fourth item (and also remove the comma after "ps").
In 120D.3.2.1, remove the phrase "<beta> is 2, " from the second sentence of item d) (and also remove the comma after "ps").
In 120D.4.1, remove the phrase ", <beta> is 2" from the first sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **120B** *SC* **120B.3.2** *P* *L* # i-80

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

There is an error in the approved amendment IEEE Std 802.3bs-2017 that should be corrected when IEEE Std 802.3bs-2017 is included in the revision.
In 120B.3.2, there is a reference to 83D.3.1.3 in "with the transmit equalizer turned off (i.e, Local_eq_cm1 and Local_eq_c1 both equal to zero, see 83D.3.1.3)." which does not exist. The two variables in question are defined in 83D.3.1.1 Transmitter equalization settings.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision, in 120B.3.2, change "83D.3.1.3" to be a cross-reference to "83D.3.1.1"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **120D** *SC* **120D** *P* *L* # i-66

Anslow, Peter — Ciena Corporation

Comment Type **T** *Comment Status* **D** *add_bs_cc*

Comment #132 against D2.0 of the 802.3 revision project changed the name of COM parameter f_z to be "Continuous time filter, zero frequency for g_DC = 0". See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=35
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to the 802.3bs tables.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision:
In Table 120D-8, change the name of f_z to be "Continuous time filter, zero frequency for g_DC = 0" in Table 120D-8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **121** *SC* **121.5.7** *P* *L* # i-72

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

Comment #140 against D2.0 of the 802.3 revision project added "variable" after some variable names. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=37
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to Clauses 121, 122, 123, and 124.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision,
In 121.5.7, 122.5.7, 123.5.7, and 124.5.7, change:
"set the PMD_global_transmit_disable to one" to:
"set the PMD_global_transmit_disable variable to one"
In 121.5.8, 122.5.8, 123.5.8, and 124.5.8, change:
"set each PMD_transmit_disable_i to one" to:
"set each PMD_transmit_disable_i variable to one"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **121** *SC* **121.5.7** *P* *L* # i-75

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

Comment #142 against D2.0 of the 802.3 revision project corrected the function name for PMD global transmit disable. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=38
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to Clauses 121, 122, 123, and 124.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision,
In 121.5.7, 122.5.7, 123.5.7, and 124.5.7, change:
"PMD_global_transmit_disable function" to:
"PMD global transmit disable function"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **121** *SC* **121.5.8** *P* *L* # i-74

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **D** *add_bs_cc*

Comment #141 against D2.0 of the 802.3 revision project corrected the function name for PMD lane-by-lane transmit disable. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=38
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to Clauses 121, 122, 123, and 124.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision,
In 121.5.8, 122.5.8, 123.5.8, and 124.5.8:
change "The PMD_transmit_disable_i" to "The PMD lane-by-lane transmit disable"
move the phrase in brackets from the first sentence to requirement a) after "PMD_transmit_disable_i variable"
in the last sentence change "PMD_transmit_disable_i function" to "PMD lane-by-lane transmit disable function"
In 121.12.4.2 M3, 122.12.4.2 M3, 123.12.4.2 M3, and 124.12.4.2:
change "PMD_lane_by_lane_transmit_disable function" to "PMD lane-by-lane transmit disable function"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **121** *SC* **121.8.2** *P* *L* # i-70

Anslow, Peter Ciena Corporation

Comment Type **T** *Comment Status* **D** *add_bs_cc*

Comments #128 and #130 against D2.0 of the 802.3 revision project removed TIA-455-127-A-2006 from the references section of the base standard. See: http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=33
When the IEEE Std 802.3bs-2017 amendment is included in the revision, equivalent changes need to be made to Clauses 121, 122, 123, and 124.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision,
In 121.8.2, 122.8.2, and 124.8.2:
change the subclause title to "Wavelength and side mode suppression ratio (SMSR)"
in the text change "wavelength" to "wavelength and SMSR" and delete "TIA/EIA-455-127-A or"
In Table 121-10: replace the em-dash with a cross-reference to subclause 121.8.2
In Table 122-15: replace the em-dash with a cross-reference to subclause 122.8.2
In Table 124-10: replace the em-dash with a cross-reference to subclause 124.8.2
In 123.8.2, and 123.12.4.4 OM2, delete "TIA/EIA-455-127-A or"
In 121.12.4.4 OM2, 122.12.4.7 OM2, and 124.12.4.4 OM2:
change "Center wavelength" to "Center wavelength and SMSR"
delete "TIA/EIA-455-127-A or"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **122** *SC* **122.8.5.2** *P* *L* # i-78

Anslow, Peter Ciena Corporation

Comment Type **T** *Comment Status* **D** *add_bs_cc*

There are errors in the approved amendment IEEE Std 802.3bs-2017 in Table 122-9, 122-10, and Table 122-16 that should be corrected when IEEE Std 802.3bs-2017 is included in the revision.
For IEEE 802.3 single-mode optical PMD clauses, the optical return loss of the transmitter compliance channel usually matches the Optical return loss tolerance (max) value in the transmit characteristics table.
Also, in the IEEE Std 802.3bs-2017 amendment, because of the increased sensitivity of the PAM4 modulation format to MPI, the Optical return loss tolerance (max) value was calculated from coherent addition of the worst case discrete reflectances allowed in the channel.
For Clause 122 in draft D2.0, the values for 200GBASE-FR4 and 400GBASE-FR8 were 17.8 dB and those for 200GBASE-LR4 and 400GBASE-LR8 were 15.7 dB in both places. These values were correctly derived from one -26 dB reflectance from the receiver combined with 4 or 6 -35 dB reflectances in the channel for the FR or LR cases respectively.
However, in D2.1 a more complicated set of requirements for discrete reflectances in the channel were introduced. This allowed 10 x -40 dB reflections for FR and 10 x -38 dB reflections for LR. This changed the worst case combined reflection values to 16.5 dB and 15.1 dB for FR and LR respectively. Unfortunately, while the values in Table 122-9 and 122-10 were changed accordingly, the values in Table 122-16 were not.
In D3.2 a further small change was made to the maximum reflectances in the channel so that for FR the worst case was 10 x -41 dB reflections and for LR it was 8 x -37 dB reflections. See http://www.ieee802.org/3/bs/public/adhoc/smf/17_05_16/anslow_01_0517_smf.pdf This again changed the worst case combined reflection values, this time to 17.1 dB and 15.6 dB for FR and LR respectively. Unfortunately, none of the values in Table 122-9, Table 122-10, or Table 122-16 were changed accordingly and these errors were then propagated through to the approved version.

SuggestedRemedy

When the IEEE Std 802.3bs-2017 amendment is included in the revision,
In Table 122-9:
change "RIN16.5OMA (max)" to "RIN17.1OMA (max)"
change "RIN15.1OMA (max)" to "RIN15.6OMA (max)"
change the Optical return loss tolerance (max) values for FR4 and LR4 from 16.5 dB and 15.1 dB to 17.1 dB and 15.6 dB, respectively

In Table 122-10:
change "RIN16.5OMA (max)" to "RIN17.1OMA (max)"
change "RIN15.1OMA (max)" to "RIN15.6OMA (max)"
change the Optical return loss tolerance (max) values for FR8 and LR8 from 16.5 dB and 15.1 dB to 17.1 dB and 15.6 dB, respectively

In Table 122-16:
change the Optical return loss for 200GBASE-FR4 or 400GBASE-FR8 from 17.8 dB to

17.1 dB
change the Optical return loss for 200GBASE-LR4 or 400GBASE-LR8 from 15.7 dB to 15.6 dB

In 122.8.7:
in the title change "(RIN16.5OMA and RIN15.1OMA)" to "(RIN17.1OMA and RIN15.6OMA)
in a) change "16.5 dB for 200GBASE-FR4 and 400GBASE-FR8 and 15.1 dB for 200GBASE-LR4 and 400GBASE-LR8"
to "17.1 dB for 200GBASE-FR4 and 400GBASE-FR8 and 15.6 dB for 200GBASE-LR4 and 400GBASE-LR8"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **126** *SC* **126.5.1** *P* **97** *L* **37** # i-109

Maytum, Michael RETIRED

Comment Type **T** *Comment Status* **D** *insulation*

Isolation is a function. The isolation insulation is the thing that has to withstand the test voltage. Insulation: that part of an electrotechnical product which separates the conducting parts at different electrical potentials -- IEC 60664-1

SuggestedRemedy

Change This isolation shall withstand at least one of the following electrical strength tests:
to The isolation insulation shall withstand at least one of the following electrical strength tests:

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-89.

Cl **126** *SC* **126.5.1** *P* **97** *L* **44** # i-110

Maytum, Michael RETIRED

Comment Type **TR** *Comment Status* **D** *isolation*

IEC 60950-1:2001 Annex N is going away. IEC 60060-1 is the horizontal IEC standard for 1.2/50 impulses.

SuggestedRemedy

Replace IEC 60950-1:2001 Annex N with IEC 60060-1 as used previously

Proposed Response *Response Status* **W**

PROPOSED REJECT.
See the response to comment i-88.