Cl **FM** *SC* **FM** *P* **1** *L* **1** # 77

Zimmerman, George — CME Consulting, Inc.

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

Amendment is to IEEE Std. 802.3-2015 as amended by (list to be added by publication editor prior to sponsor ballot)

SuggestedRemedy

Change text at line 2 as per comment (the list itself is really long and subject to the order of the draft).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **2** # 7

Remein, Duane — Huawei

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

"Amendment of .. " Should list all pervious amendments.

SuggestedRemedy

Change to "Amendment of IEEE Std 802.3™-2015 as amended by IEEE Std 802.3bw™-2015, IEEE Std 802.3by™-2016,
IEEE Std 802.3bq™-2016, IEEE Std 802.3bp™-2016, IEEE Std 802.3br™-2016, IEEE Std 802.3bz™-2016, and IEEE Std 802.3bn™-2016" (There might possibly be other, check with Pete Anslow for the full list)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **25** # 28

Anslow, Pete — Ciena

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

The initial text should list the other amendments (as announced so far).
This draft is for Working Group ballot, not Task Force review.

SuggestedRemedy

Change "This draft is an amendment of IEEE Std 802.3-2015." to:
"This draft is an amendment of IEEE Std 802.3-2015 as amended by IEEE Std 802.3bw-2015, IEEE Std 802.3by-2016, IEEE Std 802.3bq-2016, IEEE Std 802.3bp-2016, IEEE Std 802.3br-2016, IEEE Std 802.3bn-2016, IEEE Std 802.3bz-2016, IEEE Std 802.3bu-201x, and IEEE Std 802.3bv-201x."
Also, change "Draft D2.0 is prepared for Task Force review." to: "Draft D2.1 is prepared for Working Group ballot recirculation."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **28** # 74

Chalupsky, David — Intel

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

draft is for working group ballot

SuggestedRemedy

replace "Task Force Review" with "Working Group ballot"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **28** # 78

Zimmerman, George — CME Consulting, Inc.

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

This draft is for initial working group ballot, not task force review

SuggestedRemedy

Change text from "for Task Force Review" to "Working Group ballot recirculation" (assuming it is on draft 2.1)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **2** *L* **1** # 76

Zimmerman, George — CME Consulting, Inc.

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

Abstract seems to be missing the word "adds": "This amendment to IEEE Std 802.3-2015 Physical Layer (PHY) specifications and"

SuggestedRemedy

Insert the word "adds" to read: "This amendment to IEEE Std 802.3-2015 adds Physical Layer (PHY) specifications and"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **7** *L* **13** # 29

Anslow, Pete — Ciena

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

"P802.3cc Task Force name" should be "P802.3cc 25 Gb/s Ethernet over single-mode fiber Task Force"

SuggestedRemedy

Change "P802.3cc Task Force name" to "P802.3cc 25 Gb/s Ethernet over single-mode fiber Task Force" in two places

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **7** *L* **16** # 8

Remein, Duane — Huawei

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

Missing list of WG participants

SuggestedRemedy

Get list from Mr. Law (or Pete Anslow) and incorporate in draft.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **10** *L* **25** # 79

Zimmerman, George — CME Consulting, Inc.

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

802.3bq is approved, and should be 802.3bq-2016, as well as a number of other amendments already approved

SuggestedRemedy

Get the latest list of approved amendments and amendments ahead of this draft and insert into the section. Editor's note to remain, as it is relevant to drafts that are concurrent with this one.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **10** *L* **31** # 10

Remein, Duane — Huawei

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

I agree with the Editors note that you should list all amendment here.

SuggestedRemedy

Please update to current amendment list (get from Pete Anslow)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **FM** *SC* **FM** *P* **10** *L* **31** # 30

Anslow, Pete — Ciena

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

Insert the summaries for Amendments 4 (IEEE Std 802.3bp-2016) through 9 (IEEE Std 802.3bv-201x)

SuggestedRemedy

Insert the summaries for Amendments 4 (IEEE Std 802.3bp-2016) through 9 (IEEE Std 802.3bv-201x)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* *L* # 101

Kimber, Mark — Semtech

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

(Error)

SuggestedRemedy

(Error)

Proposed Response *Response Status* **W**

(Error)

Cl **00** *SC* **0** *P* **1** *L* **28** # 99

Thompson, Geoff — GraCaSI S.A.

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

Descriptive paragraph says this is for Task Force review. This is a Working Group Ballot.

SuggestedRemedy

Change from: "Task Force". Change text to: "Working Group".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **00** *SC* **0** *P* **1** *L* **31** # 9

Remein, Duane — Huawei

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

Update copyright date

SuggestedRemedy

to 2017 in FM and footer of all Masters

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Updated to 2017, but final year depends on completion date.

Cl **00** *SC* **0** *P* **2** *L* **1** # 100

Thompson, Geoff — GraCaSI S.A.

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

Abstract text is not a whole sentence

SuggestedRemedy

Make abstract words into a sentence.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.178a** *P* **15** *L* **16** # 1

Ran, Adee — Intel

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

While having a definition for DGD is a good idea, this definition is unclear and not very helpful for a reader.

What are "fractions of a pulse"?
What are the "two principal state of polatization"?
Are the fractions transmitted in two polarization states or received in two polarization states?
Is this a characteristic of a medium or of a transmitter?
"At reception" seems like a definition of a point in time, but it's actually two points in time separated by the DGD.

I assume that it is the difference in propagation time over an optical medium, between two perpendicular polarization modes (e.g. x and y). This does not involve a pulse or its fractions, a transmitter or or a receiver, just propagation time which is a basic physical property.

SuggestedRemedy

Consider rephrasing. Alternatively if this definition is based on some external document, refer to that document.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The wording in the definition is identical to what was previously a foot note in prior standards. Since the wording of the footnote was sufficient to explain DGD, there is no need to enhance the explanation in the definition.

Cl **30** *SC* **30.5.1.1.2** *P* **16** *L* **12** # 80

Zimmerman, George — CME Consulting, Inc.

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

Usually items are inserted in lists in alphanumerical (or similar order) - this one has LR after SR and before ER... Commenter notes that other 802.3-2015 entries for BASE-xR PHYs are kind of messed up in ordering too.

SuggestedRemedy

Reorder alphanumerically and change the insertion point as appropriate

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Would like to confirm with some other editors. See Comment #31.

Cl **30** *SC* **30.5.1.1.2** *P* **16** *L* **12** # 31

Anslow, Pete — Ciena

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

IEEE Std 802.3bq-2016 has inserted an entry for 25GBASE-T after the entry for 25GBASE-SR. In order to be clear, the editing instruction needs to account for this.

SuggestedRemedy

Add "and before the entry for 25GBASE-T (as inserted by IEEE Std 802.3bq-2016)" to the end of the editing instruction.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Need to confirm order of insertion. See Comment #80.

Cl **45** *SC* **45.2.1.6** *P* **17** *L* **10** # 81

Zimmerman, George — CME Consulting, Inc.

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

There is no editing instruction "Add" - should be "Insert" (also on page 21 line 1)

SuggestedRemedy

per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.6** *P* **17** *L* **10** # 11

Remein, Duane — Huawei

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

Not quite all changes rows are shown as the reserved row will also change.

SuggestedRemedy

Change editing instruction: "Change the PMA/PMD type selection row in Table 45–7 to add 25GBASE PMDs as follows (only Bits, Name, R/W and, added Description text in row is shown). Change “reserved" line(s) as appropriate for values defined by this and other approved amendments:" Note this is quoted from most recent amendment with PMD name changed.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #11, #20 address same point. Confirm definitions before adding.

Cl **45** *SC* **45.2.1.6** *P* **17** *L* **17** # 20

Lusted, Kent — Intel

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

In table 45-7, the PMA/PMD control 2 register bit definitions does not list the reserved values.

There already is an editors note to add these bit definitions "later". Now is a great time to do it! :)

SuggestedRemedy

Add the reserved bit definitions to Table 45-7

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #11, #20 address same point. Confirm definitions before adding.

Cl **45** *SC* **45.2.1.7.4** *P* **17** *L* **26** # 32

Anslow, Pete — Ciena

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

IEEE Std 802.3bq-2016 has inserted a row for 25GBASE-T after the row for 25GBASE-SR. In order to be clear, the editing instruction needs to account for this.

SuggestedRemedy

Change "as follows" to "and before 25GBASE-T (as inserted by IEEE Std 802.3bq-2016) as follows".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.7.5** *P* **17** *L* **40** # 33

Anslow, Pete — Ciena

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

IEEE Std 802.3bq-2016 has inserted a row for 25GBASE-T after the row for 25GBASE-SR. In order to be clear, the editing instruction needs to account for this.

SuggestedRemedy

Change "as follows" to "and before 25GBASE-T (as inserted by IEEE Std 802.3bq-2016) as follows".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.8** *P* **17** *L* **53** # 34

Anslow, Pete Ciena

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

IEEE Std 802.3bq-2016 has inserted a row for 25GBASE-T after the row for 25GBASE-SR. In order to be clear, the editing instruction needs to account for this.

SuggestedRemedy

Change "as follows" to "and before 25GBASE-T (as inserted by IEEE Std 802.3bq-2016) as follows".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **45** *SC* **45.2.1.14b** *P* **18** *L* **26** # 94

Dudek, Mike Cavium

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

According to the text below the 25GBASE-LR ability should be bit 1.19.5 and the 25GBASE-ER ability should be bit 1.19.6

SuggestedRemedy

Make the changes in Table 45-17b.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Comment #35, #94 address same point.

The bits in 45.2.1.14b.aa and 45.2.1.14b.ab have been updated to match Table 45-17b.

Cl **45** *SC* **45.2.1.14b.aa** *P* **18** *L* **36** # 35

Anslow, Pete Ciena

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

25GBASE-ER ability is bit 1.19.7 and 25GBASE-LR ability is bit 1.19.6

SuggestedRemedy

In the title and text of 45.2.1.14b.aa change 1.19.6 to 1.19.7 (in 3 places).
In the title and text of 45.2.1.14b.ab change 1.19.5 to 1.19.6 (in 3 places).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Comment #35, #94 address same point.

The bits in 45.2.1.14b.aa and 45.2.1.14b.ab have been updated to match Table 45-17b.

Cl **78** *SC* **78.1.4** *P* **19** *L* **7** # 36

Anslow, Pete Ciena

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

IEEE Std 802.3bq-2016 has inserted a row for 25GBASE-T after the row for 25GBASE-SR. In order to be clear, the editing instruction needs to account for this.

SuggestedRemedy

Change "as follows" to "and before 25GBASE-T (as inserted by IEEE Std 802.3bq-2016) as follows".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **78** *SC* **78.1.4** *P* **19** *L* **8** # 82

Zimmerman, George CME Consulting, Inc.

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

Footnote b is also inserted, and needs to be added to the editing instruction

SuggestedRemedy

Change instruction to include "and insert new footnote b" so that it reads: "Insert new rows into Table 78–1 after 25GBASE-SR (as inserted by IEEE Std 802.3by-2016), and insert new footnote b, as follows
(unmodified rows not shown):

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Footnote b already exists in Table 78-1 of IEEE Std 802.3™-2015.

Cl **99** *SC* *P* **7** *L* **13** # 51

Jones, Peter Cisco

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

Text says

David Lewis, IEEE P802.3cc Task Force name Task Force Chair
Kohichi R. Tamura, IEEE P802.3cc Task Force name Task Force Editor-in-Chief

SuggestedRemedy

remove the repeated "Task Force name" from these two lines.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.1.1** *P* **20** *L* **7** # 37

Anslow, Pete — Ciena

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

The first paragraph of 105.1.1 has been modified by IEEE Std 802.3bq-2016

SuggestedRemedy

In the editing instruction change "(as added by IEEE Std 802.3by-2016)" to "(as added by IEEE Std 802.3by-2016 and modified by IEEE Std 802.3bq-2016)"
In the text, take account of the addition of ", and 25GBASE-T" by 802.3bq and remove the underline from the final "."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.1.1** *P* **20** *L* **11** # 90

Hidaka, Yasuo — Fujitsu Laboratories of

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

25GBASE-T has been added by 802.3bq-2016.

SuggestedRemedy

Use the original text in 802.3bq which strikes out "and" before "25GBASE-SR" and inserts ", and 25GBASE-T" after "25GBASE-SR".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.1.1** *P* **20** *L* **12** # 75

Chalupsky, David — Intel

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

since 802.3cc is an amendment to IEEE Std 802.3™-2015 as amended by IEEE Std 802.3bw™-2015, IEEE Std 802.3by™-2016, IEEE Std 802.3bq™-2016, IEEE Std 802.3bp ™-2016, IEEE Std 802.3br™-2016, IEEE Std 802.3bn™-2016, and IEEE Std 802.3b™-2016 you might as well start with the most recent text. in this case 802.3bq added 25GBASE-T to this paragraph.

SuggestedRemedy

add "25GBASE-T" to this sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Added 25GBASE-T to all appropriate parts of changes to Clause 105.

Cl **105** *SC* **105.1.1** *P* **20** *L* **12** # 19

Lewis, Jon — Dell EMC

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

On the bottom line of the paragraph you have 2 spaces before 25GBASE-SR once the edits are complete: 25GBASE-KR-S, and 25GBASE-SR

SuggestedRemedy

Remove one space.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.1.3** *P* **21** *L* **1** # 38

Anslow, Pete — Ciena

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

IEEE Std 802.3bq-2016 has inserted a row for 25GBASE-T after the row for 25GBASE-SR. In order to be clear, the editing instruction needs to account for this.

SuggestedRemedy

Change "as follows" to "and before 25GBASE-T (as inserted by IEEE Std 802.3bq-2016) as follows".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.2** *P* **21** *L* **17** # 39

Anslow, Pete — Ciena

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

Table 105-2 has been modified by IEEE Std 802.3bq-2016

SuggestedRemedy

In the editing instruction change "(as inserted by IEEE Std 802.3by-2016)" to "(as inserted by IEEE Std 802.3by-2016 and modified by IEEE Std 802.3bq-2016)"
In Table 105-2, change the heading "Clause" to "Clause/Annex"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.3.5** *P* **22** *L* **5** # 40

Anslow, Pete — Ciena

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

"Modify" is not a valid editing instruction.

SuggestedRemedy

Change "Modify" to "Change"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **105** *SC* **105.5** *P* **22** *L* **12** # 41

Anslow, Pete — Ciena

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

The insertion by 802.3bq is "25GBASE-T PHY" not "25GBASE-T PMD".
Also, the 25GBASE-T entry in this table is different from the other PMD entries because it includes several other sublayer functions such as PCS, FEC and PMA. Consequently, and to be consistent with previous tables the new entries would be better above 25GBASE-T.

SuggestedRemedy

Change the editing instruction to: "Insert two new rows below 25GBASE-SR PMD in Table 105-3 (as added by IEEE Std 802.3bq-2016) and above 25GBASE-T (as inserted by IEEE Std 802.3bq-2016) as follows:

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **108** *SC* **108.7.3** *P* **24** *L* **13** # 12

Remein, Duane — Huawei

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

Subclause references should be linked

SuggestedRemedy

Change "108.5.3.2" to hot link in 3 places (line 13, 15, & 29).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **108** *SC* **108.7.3** *P* **24** *L* **13** # 42

Anslow, Pete — Ciena

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

The other PICS items for optional PMD support do not have entries in the Subclause column and 108.5.3.2 here does not help much.

SuggestedRemedy

Remove the two entries for 108.5.3.2 in 108.7.3 (or at least make them cross-references).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **108** *SC* **108.7.3** *P* **24** *L* **13** # 89

D'Ambrosia, John — Futurewei, Subsidiary

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

PICS Major Capabilities pouints to subclause 108.5.3.2- but there is no reason or supporting SHALL statement.

SuggestedRemedy

Delete subclause reference for -LR and -ER

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The supporting "shall" statement is in the amendment that will be made by IEEE_Std_802.3cc™-201x.

Cl **108** *SC* **108.7.4.2** *P* **24** *L* **24** # 43

Anslow, Pete — Ciena

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

"Modify" is not a valid editing instruction.
The entry in the Status column is not shown as a change from the version in 802.3by.

SuggestedRemedy

Change "Modify" to "Change".
Show the entry in the Status column as a change from the version in 802.3by.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **108** *SC* **108.7.4.2** *P* **24** *L* **30** # 83

Zimmerman, George — CME Consulting, Inc.

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

Changes to status column should be marked with underline (insertion of"or LR or ER")

SuggestedRemedy

See comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **108** *SC* **108.7.4.2** *P* **24** *L* **30** # 5

Slavick, Jeff — Broadcom Limited

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

The "OR" operator is a + sign.

SuggestedRemedy

Change the 2 instances of "or" in the status column for RF3 to be + instead.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **5.6** *P* **29** *L* **33** # 52

Stassar, Peter — Huawei

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

There is a spurious "the" in strike-through

SuggestedRemedy

Remove the "the" in strike-through

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

See note on Comment #16.

Cl **114** *SC* **6** *P* **30** *L* **7** # 53

Stassar, Peter — Huawei

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

The following statement is included: The 25GBASE-ER PMD interoperates with the 25GBASE-LR PMD provided that the channel requirements for 25GBASE-LR are met.
The current parameter values in Tables 114-6 and Table 114-7 do not support this statement.
The Average Launch power (max) of the ER transmitter is 6 dBm, which is above the damage threshold of the LR receiver and the maximum average receiver power of the LR receiver (2dBm), not allowing zero loss in the link. Actually in this case the minimum loss would need to be 4 dB which would be not acceptable. In a similar way the max OMA value of the ER transmitter is 3.8dB higher than the maximum receive OMA of the LR receiver.
The other way around the maximum power into a ER receiver from an LR transmitter is 2 dBm, 5 dB above the damage threshold of the ER receiver and even 6dB above the maximum receive power of -4dB of the ER receiver.

SuggestedRemedy

Option 1: significantly increase the values of the ER receiver for Damage Threshold, maximum average receive power and Receive power (OMA), (Max) to match the performance of the LR receiver.
Additionally reduce the Average launch power (max) and the OMA max of the ER transmitter to be below the maximum power values for the LR receiver.

The first of the 2 required changes may be extremely difficult for implementations deploying APD receivers and therefore the following option 2 is provided for consideration:
Option 2: remove the statement "The 25GBASE-ER PMD interoperates with the 25GBASE-LR PMD provided that the channel requirements for 25GBASE-LR are met." plus reduce the center wavelength range for the ER receiver in Table 114-7 from 1295 - 1325 nm to 1295 - 1310nm (as specified for the ER transmitter)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #46, #53, #55 (#97 is duplicate of #55), #66 address the same topic of interoperability between 25GBASE-LR and -ER.

The conditions for interoperability between 25GBASE-LR and -ER need to be discussed. This may include eliminating interoperability altogether.

Cl **114** *SC* **114** *P* **25** *L* **4** # 84

Zimmerman, George — CME Consulting, Inc.

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

Title of clause should be "types" 25GBASE-LR and 25GBASE-ER, since there are 2 types, not just a single type which is both.

SuggestedRemedy

Change "type" to "types"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.1** *P* **24** *L* **9** # 102

Ghiasi, Ali — Ghiasi Quantum

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

Lack of economically viable and more reliable PIN based solution

SuggestedRemedy

Include PIN lower cost- more reliable PIN based receiver, by shifting the link power budget by about 2 dB from transmitter to the receiver

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This particular comment lacks sufficient detail to be considered. However, the same subject is addressed in other comments that have enough detail to be considered (see Comments #57~#62 and #103~#108).

Cl **114** *SC* **114.1** *P* **25** *L* **35** # 13

Remein, Duane — Huawei

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

Is there some special reason clauses are all listed in ascending order except for Cl 78?

SuggestedRemedy

Move Cl 78 to top of table

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Listing CL78 (Energy Efficient Ethernet) last follows the convention of prior tables (for example, see Table 88-1 of 100GBASE-LR4 / 100GBASE-ER4).

Cl **114** *SC* **114.1** *P* **25** *L* **43** # 44

Anslow, Pete — Ciena

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

The cross reference to 105.2 should be to 105.3

SuggestedRemedy

Change the cross reference to be to 105.3.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.1** *P* **25** *L* **49** # 54

Trowbridge, Steve — Nokia

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

Unnecessary sentence "Further relevant information may be found in Clause 1 (terminology and conventions, references, definitions and abbreviations) and Annex A (Bibliography, referenced as [B1], [B2], etc.)." While this isn't untrue, it adds nothing to say it. Most similar clauses do not seem to have a sentence like this. 802.3by (unnecessarily) does.

SuggestedRemedy

Delete the sentence

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.1** *P* **37** *L* **1** # 3

Ran, Adee — Intel

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

Table numbering discntinuity. This should be Table 114–11.

SuggestedRemedy

Renumber.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.1** *P* **37** *L* **14** # 18

Remein, Duane Huawei

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

Superfluous TLAs should be avoided. Here in Table 114-2 is the only instance of DGD. In order to use this text saving acronym you add 1.4.178a (pg 15) and footnote c to table 114-12. It would be much simpler just to use the real words.

SuggestedRemedy

Remove 1.4.178a and its associated Editing Instruction and footnote c in Table 114-12. Change "DCD_max" to "Differential group delay (max)".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The proposal for adding a definition for Differential Group Delay was discussed and approved by Task Force participants. It is expected to be useful for future clauses. The descriptions in the table match existing precedent (for example, see Table 88-14).

Cl **114** *SC* **114.1.1** *P* **26** *L* **36** # 14

Remein, Duane Huawei

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

BER Objective is: "Support a BER of better than or equal to 10-12 at the MAC/PLS service interface (or the frame loss ration equivalent)". Here you state a BER of 5 x 10-5. Perhaps this is because here you refer to some other point (pre FEC?).

SuggestedRemedy

Clarify that this BER target is pre FEC. For example change "The bit error ratio (BER) shall be less than …" to "The bit error ratio (BER) measured at the PMD service interface shall be less than …"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The conditions for the BER requirement for 25GBASE-LR and 25GBASE-ER are described in 114.1.1. The basic requirement is that the frame loss ratio be <6.2E-10 for 64-octet frames with minimum interpacket gap when processed according to Clause 108. Clause 108, as amended by P802.3cc, requires RS-FEC for 25GBASE-LR and -ER.

Cl **114** *SC* **114.1.1** *P* **26** *L* **36** # 15

Remein, Duane Huawei

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

Untestable requirement; "The bit error ratio (BER) shall be less than …" (also on line 40). Per text5 on pg 27 line 52 there is no requirement that this requirement can tested "TP1 and TP4 are informative reference points... (these test points will not typically be accessible in an implemented system)." All requirements should be testable, hence this should not be a requirement.

SuggestedRemedy

Change language to be informative, remove PICS CF3

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The BER specified in 114.1.1 is routinely measured at TP2, which is a testable point.

Cl **114** *SC* **114.2.1** *P* **38** *L* **37** # 24

Winkel, Ludwig Siemens AG

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

Note shall not provide provisions and requirements. Note shall only provide statements of facts.

SuggestedRemedy

Reformat the note to a text.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Wording matches precedent set by related standards (see Clause 112.11.2.2 from P802.3by).

Cl **114** *SC* **114.5.1** *P* **28** *L* **19** # 21

Winkel, Ludwig Siemens AG

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

The text "For clarity, only one ..." is not appropriate as a key element of a Figure.

SuggestedRemedy

Move the text below or above the Figure and mark it as a NOTE

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The figure follows precedent set by existing clauses (for example, see Figure 88-2).

Cl **114** *SC* **114.5.4** *P* **29** *L* **6** # 73

Dawe, Piers — Mellanox

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

The transmit disable and signal detect limits should be made more friendly to quad modules with shared lasers, as recently done for 100GBASE-DR.

SuggestedRemedy

Change the Average launch power of OFF transmitter (max) in Table 114-6 from -25 to -20 dBm.
Change the Average optical power at TP3 FAIL limit in Table 114-4 for LR from -25 to -20 dBm. Do not increase the -25 dBm limit for ER receiver because it always sees the signal after a minimum loss.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This topic has already been discussed several times.

Comment #8 against D1.0 proposed -20dBm for the transmit disable and signal detect limit for 25GBASE-LR and -ER. However, the proposal was not accepted because the level was comparable to the minimum received power of 25GBASE-ER and because the corresponding specification of the PSM4 MSA was -30dBm.

Comment #20 against D1.1 proposed -25 dBm. This value was viewed as being an improvement over -30 dBm, though not large enough to enter the range of difficulties that existed with -20 dBm. This proposal had consensus, so the value should remain -25 dBm.

Cl **114** *SC* **114.5.6** *P* **29** *L* **32** # 45

Anslow, Pete — Ciena

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

In item a) "in Table 114.6" is a cross-reference to heading 114.6 but it should be a cross-reference to Table 114-6.
In item b) there is a spurious "the" in strikethrough font.

SuggestedRemedy

In item a) change the cross-reference to be to Table 114-6.
In item b) delete the spurious "the" in strikethrough font.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5.6** *P* **29** *L* **33** # 16

Remein, Duane — Huawei

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

Spurious strike-thru font "the" in "b) If a PMD_fault is detected, then the PMD may set the PMD_global_transmit_disable …"

SuggestedRemedy

Remove the "the" that is in strike-thru font.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This "the" will be removed in D2.1 In earlier drafts, "the" corresponded to "variable" after the variable name. These two words were unnecessary, since the variable name can be referred to directly.

Cl **114** *SC* **114.5.6** *P* **29** *L* **33** # 85

Zimmerman, George — CME Consulting, Inc.

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

strikeout of "the" shouldn't be in this as it is a newly inserted clause

SuggestedRemedy

delete struck-out "the"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.5.6** *P* **29** *L* **33** # 92

Dudek, Mike — Cavium

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

The "the" has a strike through font. It should be just "the" in normal font.

SuggestedRemedy

Fix it.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.6** *P* **30** *L* **3** # 91

Maguire, Valerie — Siemon

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

The Standards references for type B1.1, B3.1, and B6_a single-mode fibers are not provided in this document and are difficult to locate in the source 802.3-2015 Standard. Also, Table 114-12 specifies performance for cabling, not fibers.

SuggestedRemedy

Replace the second sentence with:

A 25GBASE-LR or 25GBASE-ER compliant PMD operates on single-mode fiber optic cabling according to the specifications defined in Table 114–12. The fiber optic cable requirements are satisfied by cables containing IEC60793-2-50 type B1.1 (dispersionun-shifted single-mode), type B1.3 (low water peak single-mode), or type B6_a (bend insensitive) fibers .

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

The reference to IEC 60793-2-50 and the fiber descriptions (see 87.11.1) will be added to this sentence. Fibers and fiber cabling are used interchangeably here.

Cl **114** *SC* **114.6** *P* **30** *L* **4** # 2

Ran, Adee — Intel

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

"type B1.1, B1.3, or B6_a single-mode fibers"

Where are these types defined? The reference to Table 114-12 does not help.

In 88.11.1 these types are mentioned with a reference IEC 60793-2-50.

SuggestedRemedy

Insert "IEC 60793-2-50" before the quoted text.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Note Clause 114.10 references Clause 88.11, which references the IEC document. However, for clarity, the footnote has been updated.

Cl **114** *SC* **114.6** *P* **30** *L* **5** # 70

Dawe, Piers — Mellanox

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

"according to the specifications defined in Table 114-12" - but Table 114-12 contains many limits as well as a couple of definitions in the notes

SuggestedRemedy

Change to "according to the specifications given in Table 114-12" or simply "according to Table 114-12".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The wording is consistent with existing precedent (for example, see 88.7 and Table 88-14).

Cl **114** *SC* **114.6** *P* **30** *L* **8** # 46

Anslow, Pete — Ciena

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

This says "The 25GBASE-ER PMD interoperates with the 25GBASE-LR PMD provided that the channel requirements for 25GBASE-LR are met".
However, a 25GBASE-ER transmitter can launch 6 dBm average power and the channel requirements for 25GBASE-LR allow 0 dB loss, so the 25GBASE-LR receiver could see 6 dBm average power, which is above the 2 dBm average power (max) spec.

SuggestedRemedy

Either remove the statement about interoperation or modify the specifications so that the PMDs will interoperate.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #46, #53, #55 (#97 is duplicate of #55), #66 address the same topic of interoperability between 25GBASE-LR and -ER.

The conditions for interoperability between 25GBASE-LR and -ER need to be discussed. This may include eliminating interoperability altogether.

Cl **114** *SC* **114.6.1** *P* **30** *L* **27** # 71

Dawe, Piers — Mellanox

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

This reads badly: "the specifications defined in Table 114–6 per the definitions in 114.7", and the specifications aren't defined in the table but in 114.7.

SuggestedRemedy

95.7.1 has "shall meet the specifications in Table 95–6 per the definitions in 95.8". Change this similarly (delete "defined"). Also in 114.6.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Wording is consistent with existing precedent of similar clauses (for example, see 88.7.1), but the word "defined" is not needed.

Cl **114** *SC* **114.6.1** *P* **30** *L* **30** # 69

Dawe, Piers — Mellanox

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

The sentence above says these are specifications, which they are, not characteristics. This is a spec, not a datasheet.

SuggestedRemedy

Change table title from "...transmit characteristics" to "...transmit specifications" or "...transmit specifications at TP2". Similarly for the receive Table 114-7.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The word choice follows existing precedent (for example, see 88.7.1 and Table 88-7).

Cl **114** *SC* **114.6.1** *P* **30** *L* **35** # 22

Winkel, Ludwig — Siemens AG

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

Inconsistenbt way to provide additional information to the description of the given values for example
"Signaling rate (range) "
"Side-mode suppression ratio (SMSR), (min)"
where in the 2nd occurence a comma is used to separate the text in brackets and others are not using a comma to separate the brackets.

SuggestedRemedy

Harmonize! My preference is to use a comma. Alternatively consider to use the term in brackets as part of the sentense for example:
"Range of signaling rate".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Descriptions in table follow existing precedent of related clauses (for example, see Table 88-7).

Cl **114** *SC* **114.6.1** *P* **30** *L* **39** # 23

Winkel, Ludwig — Siemens AG

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

The abbreviation min (also in other lines max) is not appropriate.

SuggestedRemedy

Write the full term instead of abbreviation "minimum" (respectively in other lines "maximum".

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Descriptions in table follow existing precedent of related clauses (for example, see Table 88-7).

Cl **114** *SC* **114.6.1** *P* **30** *L* **40** # 25

Kimber, Mark Semtech

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

The current maximum average launch power is specified as +6dBm. For low loss fibre this is on the edge of the SBS threshold. Even with a revised minimum fibre loss of 0.356dB/km (ITU document T-REC-G.695-201501-I) the threshold is approximsyrly 6.16dBm. Recommend keeping the maximum power limit >1dB lower than the threshold.

SuggestedRemedy

Change maximum average Tx launch power to +5dBm

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Maximum Tx launch power for 25GBASE-ER will be revisited during the discussion on Comments #46, #52, #55 (#97), #66 which concern interoperability between -LR and -ER. We may find it difficult to lower if the proposals in Comments #57~#62, #103~#108 are adopted. These propose to shift the budget up by +2.8 dBm to allow PIN receivers.

Cl **114** *SC* **114.6.1** *P* **30** *L* **42** # 68

Dawe, Piers Mellanox

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

The minimum average power at ER receiver is not consistent with the minimum average power at ER transmitter and max loss. For LR, the limits could be improved for better network maintenance. Average power max-min spread is 9 dB, much more than the OMA spread and more than is useful. The proposed numbers reduce this to 8.2 dB, so still convenient for high extinction ratio transmitters.

SuggestedRemedy

Change the minimum average powers:
LR Tx min from -7 to -6.2
LR Rx min from -13.3 to -12.5
ER Tx from -3 to -2.2
ER Rx from -19.6 to -20.2
In Table 114-6, transmit characteristics, delete note a.
In Table 114-7, receive characteristics, change note b from:
Average receive power (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
to:
Average receive power (min) is not the principal indicator of signal strength. A received power below this value cannot be compliant; however, a value above this does not ensure compliance.
Or delete note b.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This relates to a discussion the group has already had on how to relate OMA, average power (Pavg), and extinction ratio (ER). Arguments were made for choosing a maximum ER to avoid average power ranges that will not be encountered in practice. However, the consensus of the group was to follow precedent and allow for infinite ER when calculating Pavg (min) from OMA (min) (i.e. a difference of ~3dB between OMA (min) and Pavg (min)).

Cl **114** *SC* **114.6.1** *P* **30** *L* **42** # 61

Huang, Xi — Huawei Technologies

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

(Only for 25GBASE-ER)To allow lower cost PIN based implementation, the Average launch power（min）need to increase from -3dBm to -0.2dBm (2.8dB increment).

SuggestedRemedy

-0.2

Proposed Response *Response Status* **W**

(Need discussion)

Comments #61 and #108 are identical.

Cl **114** *SC* **114.6.1** *P* **30** *L* **42** # 108

Xu, Yu — Huawei Technologies

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

(Only for 25GBASE-ER)To allow lower cost PIN based implementation, the Average launch power（min）need to increase from -3dBm to -0.2dBm (2.8dB increment).

SuggestedRemedy

-0.2

Proposed Response *Response Status* **W**

(Need discussion)

Comments #61 and #108 are identical.

Cl **114** *SC* **114.6.1** *P* **30** *L* **46** # 62

Huang, Xi — Huawei Technologies

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

(Only for 25GBASE-ER) Based on DML or EML, Tx side has the capability to achieve 2.8dBm in OMA. See our corresponding proposal for clarification

SuggestedRemedy

2.8

Proposed Response *Response Status* **W**

(Need discussion)

Comments #62 and #103 are identical.

Cl **114** *SC* **114.6.1** *P* **30** *L* **46** # 103

Xu, Yu — Huawei Technologies

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

(Only for 25GBASE-ER) Based on DML or EML, Tx side has the capability to achieve 2.8dBm in OMA. See our corresponding proposal for clarification

SuggestedRemedy

2.8

Proposed Response *Response Status* **W**

(Need discussion)

Comments #62 and #103 are identical.

Cl **114** *SC* **114.6.1** *P* **30** *L* **47** # 104

Xu, Yu — Huawei Technologies

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

(Only for 25GBASE-ER) It is the same reason with Line 46, the OMA min is shifted 2.8dB, so as OMA min-TDP

SuggestedRemedy

1.8

Proposed Response *Response Status* **W**

(Need discussion)

Comments #57 and #104 are identical.

Cl **114** *SC* **114.6.1** *P* **30** *L* **47** # 57

Huang, Xi — Huawei Technologies

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

(Only for 25GBASE-ER) It is the same reason with Line 46, the OMA min is shifted 2.8dB, so as OMA min-TDP

SuggestedRemedy

1.8

Proposed Response *Response Status* **W**

(Need discussion)

Comments #57 and #104 are identical.

Cl **114** *SC* **114.6.1** *P* **31** *L* **5** # 64

Dawe, Piers — Mellanox

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

The 25GBASE-ER extinction ratio limit should be relaxed to allow low cost transmitters that operate over a wide temperature range. 10GBASE-ER has a 3 dB limit with the same receiver reflectance and worse TDP than 25GBASE-ER, so there is room to relax the extinction ratio. The max average and OMA and min IL specs continue to protect the APD.

SuggestedRemedy

Change 4 dB to 3.5 dB

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Data presented was for 4dB extinction ratio. The comment does not give a compelling reason to relax the specification further.

Cl **114** *SC* **114.6.1** *P* **31** *L* **5** # 63

Dawe, Piers — Mellanox

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

The 25GBASE-LR extinction ratio limit should be relaxed to allow low cost transmitters that operate over a wide temperature range. This can be done here because 25GBASE-LR has better receiver reflectance and TDP than 10GBASE-LR.

SuggestedRemedy

Change 3.5 dB to 3 dB

Proposed Response *Response Status* **W**

PROPOSED REJECT.

ER was matched to the PSM4 MSA specification. Since compatibility of a single lane of PSM4 and 25GBASE-LR is required for breakout applications, the ER should remain 3.5 dB.

Cl **114** *SC* **114.6.2** *P* **32** *L* **14** # 47

Anslow, Pete — Ciena

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

The damage threshold for 25GBASE-LR is a long way above the maximum average power of 2 dBm, but is not enough to protect against accidental connection with a 25GBASE-ER transmitter which could emit 6 dBm average power.

SuggestedRemedy

If it is feasible, increase the damage threshold to 6 dBm to protect against accidental connection with a 25GBASE-ER transmitter.
If this is not feasible, then reduce the damage threshold to something more reasonable.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The damage threshold of 25GBASE-LR is currently 5.5 dBm. As commenter suggests, this should be lowered to a more "reasonable" value such as +1 dBm above the maximum average launch power, which is 2 dBm (i.e. to 3 dBm).

Cl **114** *SC* **114.6.2** *P* **32** *L* **15** # 72

Dawe, Piers — Mellanox

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

The receiver damage limits don't seem very useful. Can the ER limit be raised from -3 to +2 so if an ER is accidently connected to 25GBASE-LR without the attenuator that should be used it won't be damaged? If not, can it be raised to +0.5 to withstand 10GBASE-LR What do we gain by setting the LR limit at 5.5 not 3?

SuggestedRemedy

For discussion

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #47 also pointed out that the Rx damage thresold for 25GBASE-LR was too high compared to the maximum average power. +1dBm above the maximum average power is a reasonable margin for damage threshold, as 25GBASE-ER already assumes. Suggest to adopt also for 25GBASE-LR, making its damage threshold +3dBm.

Cl **114** *SC* **114.6.2** *P* **32** *L* **16** # 55

Dudek, Mike — Cavium

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

Section 114.6 says that the ER and LR will interoperate provided the channel meets the LR specifications. The LR specifications do not include a minimum attenuation, therefore it must be assumed that the minimum attenuation is 0dB. The Receivers must therefore not overload with the highest OMA and average power that either LR or ER provides.

SuggestedRemedy

Change the damage threshold to 7dBm for both LR and ER. Change the average receive power (max) to 6dBm for both LR and ER. Change the Receive power (OMA) Max to 6dBm for both LR and ER. Add afootnote to these rows equivalent to footnote b in table 88-8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #46, #53, #55 (#97 is duplicate of #55), #66 address the same topic of interoperability between 25GBASE-LR and -ER.

The conditions for interoperability between 25GBASE-LR and -ER need to be discussed. This may include eliminating interoperability altogether.

Cl **114** *SC* **114.6.2** *P* **32** *L* **16** # 97

Dudek, Mike — Cavium

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

Section 114.6 says that the ER and LR will interoperate provided the channel meets the LR specifications. The LR specifications do not include a minimum attenuation, therefore it must be assumed that the minimum attenuation is 0dB. The Receivers must therefore not overload with the highest OMA and average power that either LR or ER provides.

SuggestedRemedy

Change the damage threshold to 7dBm for both LR and ER. Change the average receive power (max) to 6dBm for both LR and ER. Change the Receive power (OMA) Max to 6dBm for both LR and ER. Add afootnote to these rows equivalent to footnote b in table 88-8

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #46, #53, #55 (#97 is duplicate of #55), #66 address the same topic of interoperability between 25GBASE-LR and -ER.

The conditions for interoperability between 25GBASE-LR and -ER need to be discussed. This may include eliminating interoperability altogether.

Cl **114** *SC* **114.6.2** *P* **32** *L* **18** # 93

Dudek, Mike — Cavium

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

The average receive power (min) for ER is wrong. The min Average Tx power is -3dBm and the attenuation is 18dB.

SuggestedRemedy

Change -19.6 to -21.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Comments #48, #56, #93 address same point.

Cl **114** *SC* **114.6.2** *P* **32** *L* **18** # 105

Xu, Yu — Huawei Technologies

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

(Only for 25GBASE-ER), we change the average power in Tx side to 2.8dB in Line 46, Page 30, to keep 18dB link power budget, the Average receiver power (Min) should be +2.8-18=-16.8dBm

SuggestedRemedy

-16.8

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comments #58 and #105 are identical.

This is part of the proposed change to shift the budget to higher OMA (by +2.8 dBm) in order to allow for PIN PD receivers. In general, the change to the budget requires further discussion. If it is adopted, however, changing "Average receiver power (min)" to -16.8 dBm is inconsistent with an "Average transmit power (min)" of -0.2 dBm, as proposed in Comment #61. The value should be -18.2 dBm, given a channel loss of 18 dB.

Cl **114** *SC* **114.6.2** *P* **32** *L* **18** # 48

Anslow, Pete — Ciena

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

The average receive power (min) for 25GBASE-ER is -19.6 dBm. However, the average launch power (min) is -3 dBm and the channel insertion loss (max) is 18 dB, so this should be -21 dBm.

SuggestedRemedy

Change the average receive power (min) for 25GBASE-ER to -21 dBm.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Comments #48, #56, #93 address same point.

Cl **114** *SC* **114.6.2** *P* **32** *L* **18** # 58

Huang, Xi — Huawei Technologies

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

(Only for 25GBASE-ER), we change the average power in Tx side to 2.8dB in Line 46, Page 30, to keep 18dB link power budget, the Average receiver power (Min) should be +2.8-18=-16.8dBm

SuggestedRemedy

-16.8

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Comments #58 and #105 are identical.

This is part of the proposed change to shift the budget to higher OMA (by +2.8 dBm) in order to allow for PIN PD receivers. In general, the change to the budget requires further discussion. If it is adopted, however, changing "Average receiver power (min)" to -16.8 dBm is inconsistent with an "Average transmit power (min)" of -0.2 dBm, as proposed in Comment #61. The value should be -18.2 dBm, given a channel loss of 18 dB.

Cl **114** *SC* **114.6.2** *P* **32** *L* **19** # 56

Tamura, Kohichi — Oclaro

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

"Average receive power (min)" is -19.6dBm, but it should be -21dBm because "Average launch power (min)" is -3dBm and "Channel loss" is 18dB.

SuggestedRemedy

Change "Average receive power (min)" to -21dBm.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Comments #48, #56, #93 address same point.

Cl **114** *SC* **114.6.2** *P* **32** *L* **24** # 59

Huang, Xi — Huawei Technologies

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

(Only for 25GBASE-ER),To allow lower cost pin based implementation for 25G SMF 40Km, link budget shifts the 2.8 dB of OMA from the receiver to the transmitter. Thus, supports all 4 combination of the device type, i.e., EML/DML+PIN and EML/DML+APD. We think Receiver sensitivity (OMA), (max) of -16.2dBm is reasonable. See our corresponding proposal for clarification.

SuggestedRemedy

-16.2

Proposed Response *Response Status* **W**

(Needs discussion)

Comments #59 and #106 are identical.

Cl **114** *SC* **114.6.2** *P* **32** *L* **24** # 106

Xu, Yu — Huawei Technologies

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

(Only for 25GBASE-ER),To allow lower cost pin based implementation for 25G SMF 40Km, link budget shifts the 2.8 dB of OMA from the receiver to the transmitter. Thus, supports all 4 combination of the device type, i.e., EML/DML+PIN and EML/DML+APD. We think Receiver sensitivity (OMA), (max) of -16.2dBm is reasonable. See our corresponding proposal for clarification.

SuggestedRemedy

-16.2

Proposed Response *Response Status* **W**

(Need discussion)

Comments #59 and #106 are identical.

Cl **114** *SC* **114.6.2** *P* **32** *L* **26** # 60

Huang, Xi — Huawei Technologies

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

(Only for 25GBASE-ER),In D2.0, the gap between Receiver sensitivity (OMA), (max) and Stressed receiver sensitivity (OMA), (max) is 2.5dB. We use the same value to shift the Stressed receiver sensitivity (OMA), (max) from -16.5dBm to -13.7dBm.

SuggestedRemedy

-13.7

Proposed Response *Response Status* **W**

(Need discussion)

Comments #60 and #107 are identical.

Cl **114** *SC* **114.6.2** *P* **32** *L* **26** # 49

Anslow, Pete — Ciena

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

For 25GBASE-LR the receiver sensitivity (OMA) is -11.3 dBm and the Vertical eye closure penalty is 1.9 dB. This means that the stressed receiver sensitivity should be -9.4 dBm.
For 25GBASE-ER the receiver sensitivity (OMA) is -19 dBm and the Vertical eye closure penalty is 1.9 dB. This means that the stressed receiver sensitivity should be -17.1 dBm.

SuggestedRemedy

For 25GBASE-LR change the stressed receiver sensitivity to -9.4 dBm.
For 25GBASE-ER change the stressed receiver sensitivity to -17.1 dBm.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The current stressed receiver sensitivity and stressed eye closure conditions match PSM4. PSM4 breakout termination is expected to be an important application of 25GBASE-LR (see tamura_3cc_adhoc_01 from 2016/9/7).

However, assumptions in budget are different from prior Ethernet standards, as commenter points out. This issue should be discussed and resolved.

Cl **114** *SC* **114.6.2** *P* **32** *L* **26** # 107

Xu, Yu — Huawei Technologies

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

(Only for 25GBASE-ER),In D2.0, the gap between Receiver sensitivity (OMA), (max) and Stressed receiver sensitivity (OMA), (max) is 2.5dB. We use the same value to shift the Stressed receiver sensitivity (OMA), (max) from -16.5dBm to -13.7dBm.

SuggestedRemedy

-13.7

Proposed Response *Response Status* **W**

(Need discussion)

Comments #60 and #107 are identical.

Cl **114** *SC* **114.6.2** *P* **32** *L* **29** # 65

Dawe, Piers — Mellanox

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

Vertical eye closure penalty as defined by 87.8.11 (1e-3 at the time center of the eye) is not a very accurate way of calibrating a stressed eye for a PMD that uses FEC. Now that we have a parameter that aligns more closely to TDP with FEC (right timing offset, right statistics, more consistent over a range of stressed eye generators and scope noises), we should use it.

SuggestedRemedy

Change from 1.9 dB vertical eye closure penalty to 2.5 dB stressed eye closure (SEC). Modify footnote e. Change the VECP entry in Table 114-9 to an SEC entry, referring to 95.8.8.2. In 114.7.10, change "vertical eye closure penalty" to "stressed eye closure (SEC)". Add a sentence after the list to say that 2.5 dB SEC and 1.9 dB VECP represent very similar stressed eyes. This will also make the budget and spec limits easier to understand, and maintain if necessary.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Presentation needed.

Cl **114** *SC* **114.6.2** *P* **32** *L* **30** # 98

Dudek, Mike — Cavium

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

The conditions for the stressed receiver sensitivity do not appear to be stringent enough. They should be equivalent to what is seen with the max TDP (2.7dB) Comparing to 100GBASE-LR4 the vertical eye closure penalty is only 0.1dB larger, the J2 is 0.03UI smaller and the J4 jitter is significantly smaller than the J9 jitter for 100GBASE-LR4. evem though the TDP for 100GBASE-LR4 is only 2dB. The mask is also significantly tighter than that allowed for the Tx, even though this is equivalent to the output of the fiber not the input.

SuggestedRemedy

Change the vertical eye closure penalty to 2.7dB and the SRS eye mask to match the Tx output values.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Presentation needed.

Cl **114** *SC* **114.6.3** *P* **33** *L* **1** # 86

Zimmerman, George — CME Consulting, Inc.

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

Does "illustrative" mean the same thing as informative? If so, please mark this section informative so it is not confused with a requirement

SuggestedRemedy

Add "(informative) to the title of 114.6.3 and table 114-8

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The use of the word "illustrative" follows precedent set by similar clauses (for example, see 88.7.3). It is not a requirement, and has a similar meaning as "informative". Since this has not caused confusion in the past, it is better to maintain consistency by leaving it as it is.

Cl **114** *SC* **114.6.3** *P* **33** *L* **9** # 67

Dawe, Piers — Mellanox

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

There doesn't seem to be any distinction between "insertion loss" and "additional insertion loss allowed", and I think of the attenuator for a very short ER link as "additional insertion loss" but the table allocates it to "channel".

SuggestedRemedy

Change the Channel insertion loss (max) for 30 km ER from 15 to 18 dB.
If desired, add note to the 10 for Channel insertion loss (min) saying that this may be achieved by using an attenuator.
Delete the "Additional insertion loss allowed" row.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Table 114-8 maintains a similar form to Table 88-9 of 100GBASE-ER4 on illustrative link power budgets. Table 88-9 has 15 dB for "Channel insertion loss (max)" and 3dB for "Additional insertion loss allowed", so this part of Table 114-8 should stay the same.

Table 114-8 adds a row for "Channel insertion loss (min)" that does not appear in Table 88-9. A note will be added to clarify that this may be achieved by use of an attenuator.

Cl **114** *SC* **114.6.3** *P* **33** *L* **9** # 66

Dawe, Piers — Mellanox

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

114.6 says that the 25GBASE-ER PMD interoperates with the 25GBASE-LR PMD provided that the channel requirements for 25GBASE-LR are met. However this isn't the case; we need to control the minimum attenuation, and the maximum attenuation can be higher than for LR. This reemedy assumes the same attenuation is used in both directions for convenience and avoiding misconfiguration.

SuggestedRemedy

Either remove the claim for interoperation in 114.6, or:
Add columns to Table 114-8, illustrative link power budgets:
LR to ER and ER to LR, max loss 6.3, min loss 6.2, additional loss allowed 4 dB.
See another comment to make this comprehensible (would have max loss 10.3, min loss 4, no additional IL row).
These numbers are consistent with proposed new minimum power limits (see another comment). If the overload limits are changed without adding cost, the minimum loss would change.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comments #46, #55, #66, #97 address the same topic of interoperability between 25GBASE-LR and -ER.

The conditions for interoperability between 25GBASE-LR and -ER need to be discussed. This may include eliminating interoperability altogether.

Cl **114** *SC* **114.7.2** *P* **33** *L* **46** # 87

Zimmerman, George — CME Consulting, Inc.

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

If the wavelength isn't measured per TIA/EIA-455-127-A or IEC 61280-1-3, it appears to be undefined. Do you mean to specify that the wavelength be measured according to those standards? Are they identical, or are they interchangeable. Note, I'm not entirely sure what you mean, so my remedy may be off...

SuggestedRemedy

Change "The wavelength shall be within the ranges given in Table 114–6 if measured per TIA/EIA-455-127-A or IEC 61280-1-3." to ""When measured according to TIA/EIA-455-127-A or IEC 61280-1-3, the wavelength shall be within the ranges given in Table 114–6."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The references are examples of methods for measuring wavelength. There is no requirement on the method, but, if methods other than those listed are used, they must produce an equivalent result.

The wording matches that of similar clauses in existing standards (for example, see 88.8.2). However, changing the word "if" to "when" in the current wording does appear to be more clear.

Cl **114** *SC* **114.7.3** *P* **33** *L* **51** # 88

Zimmerman, George — CME Consulting, Inc.

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

If the average optical power isn't measured per IEC 61280-1-1, it appears to be undefined.

SuggestedRemedy

Change "The average optical power shall be within the limits given in Table 114–6 if measured using the methods given in IEC 61280-1-1." to ""When measured according to IEC 61280-1-1, the average optical power shall be within the limits given in Table 114–6."

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The reference is to methods for measuring average optical power . There is no requirement on method, but, if methods other than those listed are used, they must produce an equivalent result.

The wording matches that of similar clauses in existing standards (for example, see 88.8.3). However, changing the word "if" to "when" in the current wording does appear to be more clear.

Cl **114** *SC* **114.7.5.4** *P* **35** *L* **22** # 17

Remein, Duane — Huawei

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

It would be a kindness to the reader to inform him/her what is being tested here.

SuggestedRemedy

Change section title from "Test procedure" to "TDP test procedure"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Section title matches that of existing precedent in similar clauses (see 88.8.5.4).

Cl **114** *SC* **114.7.5.4** *P* **35** *L* **24** # 95

Dudek, Mike — Cavium

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

Clause 52.9.10.4 requires a BER of 1e-12. This should use the 5e-5 BER

SuggestedRemedy

Add "except that the BER shall be 5e-5.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.8** *P* **36** *L* **30** # 4

Slavick, Jeff — Broadcom Limited

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

Have a shall statement but no matching PICS

SuggestedRemedy

Add COM10 for subclause 114.8

Proposed Response *Response Status* **W**

PROPOSED REJECT.

114.11.4.6 is the matching PICS for 114.8. 114.8 references 112.8, and the subclauses from 112.8 are directly referenced in the table.

Cl **114** *SC* **114.9** *P* **36** *L* **35** # 50

Anslow, Pete — Ciena

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

"100GBASE-LR and 100GBASE-ER" should be "100GBASE-LR4 and 100GBASE-ER4"

SuggestedRemedy

Change "100GBASE-LR and 100GBASE-ER" to "100GBASE-LR4 and 100GBASE-ER4"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.10** *P* **36** *L* **41** # 96

Dudek, Mike — Cavium

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

The reference to 88.11 then points to table 88-14. Table 114-12 is needed instead.

SuggestedRemedy

Add "with the exception that Table 88-14 is replaced by Table 114-12.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Note Table 114-12 should have been Table 114-11.

Cl **114** *SC* **114.10** *P* **37** *L* **13** # 26

Anslow, Pete — Ciena

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

Minus signs should be en-dash

SuggestedRemedy

Change the three minus signs in Table 114-12 to be en-dash (Ctrl-q Shft-p)

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.11.4.1** *P* **40** *L* **7** # 27

Anslow, Pete — Ciena

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

In item CF1, the comma after "PCS" is in underline font.

SuggestedRemedy

Remove the underline.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **114** *SC* **114.11.4.6** *P* **42** *L* **30** # 6

Slavick, Jeff — Broadcom Limited

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

Status column for CES* doesn't appear to be center justified

SuggestedRemedy

Make it center justified

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Item column is left justified.