Cl **00** *SC* **0** *P* *L* # 10
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **A**
Clause 90 lists MII interfaces for Time Sync.

SuggestedRemedy
Bring 90.1 into the draft and add the 200G and 400G MII's

Response *Response Status* **C**
ACCEPT.

Cl **4** *SC* **4.4.2** *P* **35** *L* **14** # 8
Anslow, Pete Ciena

Comment Type **E** *Comment Status* **A** *Bucket*
The P802.3bz draft (in Sponsor ballot) is modifying Table 4-2.

SuggestedRemedy
Show the changes to Table 4-2 with respect to the version in the P802.3bz draft.

Response *Response Status* **C**
ACCEPT.

Cl **30** *SC* **30.3.2.1.5** *P* **36** *L* **36** # 117
Shrikhande, Kapil Innovium

Comment Type **E** *Comment Status* **A** *Bucket*
Extra forward slash in 200 Gb//s

SuggestedRemedy
Replace 200 Gb//s with 200 Gb/s

Response *Response Status* **C**
ACCEPT.

Cl **45** *SC* **45.2.1.116b** *P* **53** *L* **53** # 92
Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*
This register is only used for lanes 1 through 7

SuggestedRemedy
Cahnge "1 through 15" to "1 through 7"

Response *Response Status* **C**
ACCEPT.
[Editor's note: Subclause 45.2.116b changed to 45.2.1.116b]

Cl **45** *SC* **45.2.1.116b** *P* **53** *L* **53** # 118
Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A** *Bucket*
Incorrect range in the text "for lanes 1 through 15"

SuggestedRemedy
Replace "15" with "7" so text will read: "for lanes 1 through 7"

Response *Response Status* **C**
ACCEPT.

Cl **45** *SC* **45.2.1.116c** *P* **54** *L* **28** # 93
Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*
These registers are only used for lanes 8 through 15

SuggestedRemedy
Change "1 through 15" to "8 through 15"

Response *Response Status* **C**
ACCEPT.

Cl **45** *SC* **45.2.1.116c** *P* **54** *L* **28** # 119
Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A** *Bucket*
Incorrect range in the text "for lanes 1 through 15"

SuggestedRemedy
Replace "1" with "8" so text will read: "for lanes 8 through 15"

Response *Response Status* **C**
ACCEPT.

Cl **45** *SC* **45.2.1.123** *P* **59** *L* **29** # 120

Shrikhande, Kapil Innovium

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

Use of "Tx" instead of "transmit", and "Rx" instead of "receive" in some rows of Table 45-92 seems inconsistent

SuggestedRemedy

Replace "Tx" with "transmit" and "Rx" with "receive" for all occurences within Table 45-92

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In the "Description" column, replace "Tx" with "transmit", "Transmit" with "transmit", "Rx" with "receive", and "Receive " with "receive".
[Editor's note: Page "59-60" changed to 59 and Line "multiple" changed to 29]

Cl **93A** *SC* **93A.1** *P* **309** *L* **45** # 65

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Font size

SuggestedRemedy

Change "Table 83D-6" to 9 point

Response *Response Status* **C**

ACCEPT.

Cl **116** *SC* **116.1.3** *P* **102** *L* **47** # 29

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Table layout and font.

SuggestedRemedy

Make the right column wider. Make the left one narrower if needed. Change to 9 point if wished. Also Table 116-2.

Response *Response Status* **C**

ACCEPT.

Cl **116** *SC* **116.2.5** *P* **105** *L* **21** # 101

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

The 200GBASE-R PMD's are not described and Clause 121 does not specify a 400GBASE-R PMD

SuggestedRemedy

Either Change "The 400GBASE-R PMD's" to "The 200GBASE-R and 400GBASE-R PMD's" or Change "The 400GBASE-R PMDs and their corresponding media are specified in Clause 121 through Clause 124." to "The 200GBASE-R PMD's and their corresponding media are specified in Clause 121 and Clause 122. The 400GBASE-R PMDs and their corresponding media are specified in Clause 122 through Clause 124." (I prefer the second option).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The 400GBASE-R PMDs and their corresponding media are specified in Clause 121 through Clause 124." to:
"The 200GBASE-R PMDs and their corresponding media are specified in Clause 121 and Clause 122. The 400GBASE-R PMDs and their corresponding media are specified in Clause 122 through Clause 124."

Cl **116** *SC* **116.3.3.1.1** *P* **106** *L* **53** # 102

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

The sentence "Each of the tx_symbol parameters can take one of four values: zero, one, two, or three." only applies to the PMD or AUI interfaces for PAM4, but this is in a generic section that would apply to CAUI16, SR16, etc.

SuggestedRemedy

Either

a) Replace the sentence with "Depending on the specific instance of the inter-sublayer service interface each of the tx_bit parameters can take either one of two values: one or zero; or one of four values: zero, one, two, or three.
b) be explicit as to which interfaces use 4 values and which use 2 values.

Do this for the Rx on page 109 line 10 as well.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"Each of the tx_symbol parameters can take one of four values: zero, one, two, or three."
to:
"Depending on the specific instance of the inter-sublayer service interface each of the tx_symbol parameters can either take one of two values: zero or one; or take one of four values: zero, one, two, or three."
Make the equivalent change for the rx_symbol parameters.

Cl **118** *SC* **118.1** *P* **124** *L* **30** # 7

Anslow, Pete Ciena

Comment Type **T** *Comment Status* **A** *Bucket*

In the left hand stack of Figure 118-1, "Optional CDMII Extender" should be "Optional CCMII Extender"
Also, to be consistent with Figures 120A-6, 120B-1, 120B-2, 120D-1, and 120D-2:
change "PCS" in the left hand stack to "200 Gb/s PCS"
change "PCS" in the right hand stack to "400 Gb/s PCS"

SuggestedRemedy

Change "Optional CDMII Extender" in the left hand stack to "Optional CCMII Extender"
change "PCS" in the left hand stack to "200 Gb/s PCS"
change "PCS" in the right hand stack to "400 Gb/s PCS"

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.1.1** *P* **125** *L* **9** # 94

Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

Typo. CDXS/CDXS should be CCXS/CDXS

SuggestedRemedy

Change it

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.1** *P* **125** *L* **54** # 17

Dillard, John Microsemi

Comment Type **T** *Comment Status* **R**

(also clause 119)

The 3rd bit of tx_am_sf (always set to 0) I assume is space holder for future use. This is potentially useful, especially since, otherwise, it would be filled in with prbs making future similar enhancements incompatible with legacy silicon. The question is: why (only) 3 bits for this field?

SuggestedRemedy

Suggest expanding tx_am_sf to 4 or 8 bits, possibly with fixed dc-balanced default values.

Response *Response Status* **C**

REJECT.

Today we need 2 bits, so we added one bit for expansion. If more bits are needed in the future, we can use the 3rd bit as a mode type bit and then expand into the other pad bits.

Cl **118** *SC* **118.2.2** *P* **126** *L* **23** # 121

Shrikhande, Kapil Innovium

Comment Type **E** *Comment Status* **A** *Bucket*

The text inside the PCS sub-layer box "400/200 Gb/s PCS" is inconsistent when compared to text inside the other sub-layer boxes.

SuggestedRemedy

Change text "400/200 Gb/s PCS" within the PCS sub-layer box to "200 or 400 Gb/s PCS"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "400/200 Gb/s PCS" to "200 Gb/s or 400 Gb/s PCS"

[Editor's note: Line "Fig. 118-2" changed to 23]

Cl **118** *SC* **118.2.2** *P* **126** *L* **38** # 95

Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

Typo

SuggestedRemedy

Change "is has" to "it has" Also on line 43.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.2** *P* **127** *L* **15** # 122

Shrikhande, Kapil Innovium

Comment Type **E** *Comment Status* **A** *Bucket*

The text inside the PCS sub-layer box "400/200 Gb/s PCS" is inconsistent when compared to the text inside the other sub-layer boxes

SuggestedRemedy

Change text "400/200 Gb/s PCS" within the PCS block to "200 or 400 Gb/s PCS"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "400/200 Gb/s PCS" to "200 Gb/s or 400 Gb/s PCS"

[Editor's note: Line "Fig. 118-3" changed to 15]

Cl **118** *SC* **118.5.3** *P* **133** *L* **18** # 125

Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A** *Bucket*

Item 'BEC' Bypass error correction is not a feature of subclause 119.2.5.3.

SuggestedRemedy

Remove item 'BEC' from the table in 118.5.3.

Response *Response Status* **C**

ACCEPT.

[Editor's note: Line "18-19" changed to 18]

Cl **118** *SC* **118.5.4.2** *P* **134** *L* **22** # 124

Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A** *Bucket*

Within Item RF5 'Error indication feature' in the Receive function table, the Value/Comment field contains the following text "(or errored codewords when correction is bypassed)". This implies correction can be bypassed, but sub-clause 119.2.5.3 does not specify correction bypass capability.

SuggestedRemedy

Remove the parenthesis "(or errored codeword when correction is bypassed)" since correction bypass is not meant to be a feature in 119.2.5.3

Response *Response Status* **C**

ACCEPT.

[Editor's note: Line "22-24" changed to 22]

Cl **119** *SC* **119.1.3** *P* **138** *L* **31** # 104

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A** *Bucket*

I think the CCMII and CDMII are different not a single interface for both 200 GB/s and 400Gb/s. However if they are not different then CCMII/CDMII should be grammatically singular.

SuggestedRemedy

Either
a) replace "provide a uniform interface" with "provide uniform interfaces".
or b) replace "200 Gb/s and 400Gb/s" with 200/400 Gb/s"
or c) be explicit. replace the sentence with
"The CCMII provides a uniform interface to the Reconciliation Sublayer for all 200 Gb/s PHY implementations. The CDMII provides a uniform interface to the Reconciliation Sublayer for all 400 Gb/s PHY implementations. "
I preferr c)
Or if CCMII/CDMII is a single interface change "provide a" to "provides a"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace the text with:
The CCMII provides a uniform interface to the Reconciliation Sublayer for all 200 Gb/s PHY implementations. The CDMII provides a uniform interface to the Reconciliation Sublayer for all 400 Gb/s PHY implementations.

Cl **119** *SC* **119.2.3** *P* **142** *L* **3** # 30

Dawe, Piers — Mellanox

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

in this sentence, "This code is further modified by the transcoding and FEC that occurs in this PCS," it's not the 64B/66B code that is further modified, but the bit stream.

SuggestedRemedy

The signal to be transmitted / deliverd to the PMA is further modified by the transcoding and FEC that occurs in this PCS?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
This code is further modified by the transcoding and FEC that occurs in this PCS.
To:
The 64B/66B codestream is then transcoded into a 256B/257B stream and FEC bits are added in this PCS before transmission.

Cl **119** *SC* **119.2.4.7** *P* **154** *L* **30** # 11

Koehler, Daniel — MorethanIP

Comment Type **T** *Comment Status* **A**

The distribution shown is the 400G over 16 lanes, which does not apply to 200G over 8 lanes (see my 2nd comment on adding it for 200G).

SuggestedRemedy

Change sentence to
The interleaving of two codewords for 400GBASE-R PCS shall follow this procedure:

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to:
"The interleaving of two codewords for the 400GBASE-R PCS shall follow this procedure:"

Cl **119** *SC* **119.2.4.7** *P* **154** *L* **33** # 18

Dillard, John — Microsemi

Comment Type **T** *Comment Status* **A**

If I'm not mistaken, the symbol distribution procedure shown on lines 34-39 is only valid for 400G.

SuggestedRemedy

Add a 200G procedure, such as:
for all k=0 to 136
  for all j=0 to 3
    if (even(k))
      tx_out<8k+2j> = cA<543-4k-j>
      tx_out<8k+2j+1> = cB<543-4k-j>
    else
      tx_out<8k+2j> = cB<543-4k-j>
      tx_out<8k+2j+1> = cA<543-4k-j>

or something like that

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a separate symbol description with editorial license.

Cl **119** *SC* **119.2.4.7** *P* **154** *L* **40** # 12

Koehler, Daniel — MorethanIP

Comment Type **T** *Comment Status* **A**

As the given distribution does not apply to 200G over 8 lanes, the 200G distribution should be mentioned (or combined).

SuggestedRemedy

Add the 200G over 8 lane distribution similar as e.g.:
The interleaving of two codewords for 200GBASE-R PCS shall follow this procedure:
For all k=0 to 135
For all j=0 to 3
if even(k)
tx_out<8k+2j> = cA<543-4k-j>
tx_out<8k+2j+1> = cB<543-4k-j>
else
tx_out<8k+2j> = cB<543-4k-j>
tx_out<8k+2j+1> = cA<543-4k-j>

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to Comment #18

Cl **119** *SC* **119.2.5.3** *P* **158** *L* **6** # 127

Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A**

Lines 6-11 describe a feature for additional error monitoring when FEC_bypass_indication_enable is asserted, but there is no associated item listed in the PICS.

SuggestedRemedy

Add an Item in the PICS to capture this feature. E.g. "Error monitoring when error correction is bypassed" with Value/Comment "When the number of symbols in a block of 8192 codewords exceed 5560, corrupt 66-bit block synchronization headers". Or Editors can use appropriate language as necessary.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: Line "6-11" changed to 6]

Add RFx to the receive PICs.
Error monitoring while error indication is bypassed

When the number of symbol errors in a block of 8192 codewords exceeds 5560, corrupt 66-bit block synchronization headers

Cl **119** *SC* **119.2.5.3** *P* **158** *L* **21** # 31

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

"will" is deprecated. Two paragraphs above we have "shall".

SuggestedRemedy

Change "will assert" to "shall assert" or "asserts".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "will assert" to: "asserts"
In 119.2.6.3 (page 164, line 4) change "will go out" to "goes out".
In 120.3 (page 182, line 45) change "will have the value" to "has the value" in two places.
In 120.5.2 (page 184, line 40) change "will normally" to "normally".
In 120.5.11.1.2 (page 191, line 3) change "will also generate" to "also generates".
In 120.5.11.1.3 (page 191, line 26) change "will transmit" to "transmit".
In 120.5.11.1.3 (page 191, line 28) change "will perform" to "performs".
In 120.5.11.2.3 (page 192, line 41) change "will begin" to "begins".
In 120.5.11.2.4 (page 193, line 38) change "will also generate" to "also generates".
In 120.5.11.2.4 (page 193, line 46) change "will check" to "checks".
In 120.5.11.2.4 (page 194, line 6) change "will check" to "checks".
In 120.6 (page 195, line 21) change "will use" to "use".

Cl **119** *SC* **119.3** *P* **169** *L* **6** # 37

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

PICS M1 says "Alternate access to PCS Management objects is provided" but there is nothing about it here.

SuggestedRemedy

Add this sentence from 82.3:
If not, it is recommended that an equivalent access be provided.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add this top level subclause to be consistent with 82.3:
119.3 PCS Management
The following objects apply to PCS management. If an MDIO Interface is provided (see Clause 45), they are accessed via that interface. If not, it is recommended that an equivalent access be provided.

Demote the current 119.3 to 119.3.1.

Cl **119** *SC* **119.6.3** *P* **172** *L* **11** # 32

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

This PCS must be either for 200GBASE-R or for 400GBASE-R.

SuggestedRemedy

Change status from O to 0.1, two rows

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change both to O.1.

Cl **119** *SC* **119.6.3** *P* **172** *L* **18** # 126

Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A** *Bucket*

Item 'BEC' Bypass error correction is not a feature of subclause 119.2.5.3.

SuggestedRemedy

Remove item 'BEC' from the table in 119.6.3.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

[Editor's note: Line "18-19" changed to 18]

Convert to *BI, Bypass indication

Cl **119** *SC* **119.6.4.2** *P* **173** *L* **19** # 33

Dawe, Piers Mellanox

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

Value/Comment for RF6 doesn't relate to the "shall" in the text (which is about the 60 ms to 75 ms blackout period). No need to write about the optionality of the feature: the Feature and Status columns tell the reader that. Too many words.

SuggestedRemedy

Rewrite the Value/Comment. Similarly for RF8, and see another comment. Might be better if these two options have rows in the 119.6.3 Major capabilities/options table.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
Support for optional bypass indication
to:
Bypass indication error marking
and change:
In the FEC decoder optionally bypass indication can be supported (no marking of frames from uncorrectable codewords)
to:
Synchronization headers are marked for 60 ms to 75 ms when the error threshold is reached.

Also, change from Status "O" to "BI:M"

Move RF8 to the major capabilities table (119.6.3)

Cl **119** *SC* **119.6.4.2** *P* **173** *L* **22** # 123

Shrikhande, Kapil Innovium

Comment Type **T** *Comment Status* **A** *Bucket*

Within Item RF5 'Error indication feature' in the Receive function table, the Value/Comment field contains the following text "(or errored codewords when correction is bypassed)". This implies correction can be bypassed, but sub-clause 119.2.5.3 does not specify correction bypass capability.

SuggestedRemedy

Remove the parenthesis "(or errored codewords when correction is bypassed)" since correction bypass is not meant to be a feature in 119.2.5.3.

Response *Response Status* **C**

ACCEPT.

[Editor's note: Line "22-24" changed to 22]

Cl **119** *SC* **119.6.4.5** *P* **175** *L* **1** # 34

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Alignment Markers - rogue capital. There are a few more.

SuggestedRemedy

Alignment markers

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Give eDitorial licEnse to fiX other Rogue Capitals.

Cl **119** *SC* **119.6.4.5** *P* **175** *L* **6** # 35

Dawe, Piers — Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

This is supposed to be a standard (a specification) not a description. Should not say "section".

SuggestedRemedy

Change "as described in section 119.2.4.4" to "as in 119.2.4.4" or "according to in 119.2.4.4" or just "as specified"; or simplify to "periodically for each PCS lane": the subclause is already identified in the Subclause column. Similarly for AM2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
Alignment markers are inserted periodically as described in section 119.2.4.4
To:
Alignment markers are inserted periodically as in 119.2.4.4

Similarly for AM2

Cl **119** *SC* **119.6.6.3** *P* **176** *L* **42** # 38

Dawe, Piers — Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Rogue capitals

SuggestedRemedy

Change PCS Delay Constraint to PCS delay constraint, twice

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.7** *P* **175** *L* **42** # 36

Dawe, Piers — Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

PCS Management - rogue capital

SuggestedRemedy

PCS management

Response *Response Status* **C**

ACCEPT.

Cl **119A** *SC* *P* **312** *L* **1** # 15

Dillard, John — Microsemi

Comment Type **E** *Comment Status* **A** *Bucket*

the title of tables 119a-1 and 119a-2 should use the term "alignment marker group" instead of just "alignment marker" as the group includes pad+tx_am_sf

SuggestedRemedy

the title of tables 119a-1 and 119a-2 should use the term "alignment marker group" instead of just "alignment marker" as the group includes pad+tx_am_sf

Response *Response Status* **C**

ACCEPT.

Cl **119A** *SC* *P* **312** *L* **3** # 16

Dillard, John — Microsemi

Comment Type **T** *Comment Status* **A**

Tables 119A-1, -3, and -4 (200G) are empty and tables 119A-2, -5, and -6 (400G) are now incorrect as they do not include tx_am_sf

SuggestedRemedy

Update the tables with the content I will provide. The content will reflect the data patterns assuming the FEC degrade function is not implemented (i.e. tx_am_sf<2:0>=000) and the text should be updated to indicate that.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Update the tables using the data in:
http://www.ieee802.org/3/bs/public/16_06/clause119a_200g_20160617a.txt
http://www.ieee802.org/3/bs/public/16_06/clause119a_400g_20160617a.txt
and text with editorial license.

Cl **120** *SC* **120.1.2** *P* **177** *L* **25** # 103

Dudek, Mike — QLogic

Comment Type **T** *Comment Status* **A** *Bucket*

Figure 120-1 also shows the position in the 200GBASE-R sublayer.

SuggestedRemedy

Change the title of the section to "Position of the PMA in the 200GBASE-R or 400GBASE-R sublayers".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change title to "Position of the PMA in the 200GBASE-R and 400GBASE-R sublayers".

Cl **120** *SC* **120.1.4** *P* **179** *L* **44** # 96
Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

The reference to Figure 120.5 hot link goes to section 120.5 not to Figure 120.5

SuggestedRemedy

correct the hot link.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.3** *P* **182** *L* **17** # 97
Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

introducing 4/p where p only equals 4 is an unnecessary complication.

SuggestedRemedy

Delete "4/p times".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.1.3** *P* **191** *L* **16** # 105
Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A** *Bucket*

This square wave test pattern is a sub-section of the NRZ test pattern section. There is only one version of CCAUI and CDAUI that is NRZ

SuggestedRemedy

replace "CCAUI-n" with ""CCAUI-8" and "CDAUI-n" with "CDAUI-16"

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2** *P* **191** *L* **33** # 98
Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

typo

SuggestedRemedy

Change "out put" to "output"

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2.1** *P* **191** *L* **45** # 106
Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

What is PAM4 encoding? The JP03A test pattern needs to be 0,3 after the encoding.

SuggestedRemedy

Change "prior to PAM4 encoding" to "after PAM4 encoding" or delete the sentence "The JP03A test pattern is generated prior to PAM4 encoding." Make the same change on page 192 line 10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The text was copied from Clause 94, which also seems flawed as JP03A and JP03B are described in terms of PAM4 symbols rather than in terms of bits that produce those symbols.
Delete the sentence:
"The JP03A test pattern is generated prior to PAM4 encoding."
Change the final sentence of the paragraph to:
"The JP03A test pattern is a repeating {0,3} sequence of PAM4 symbols."
Delete the sentence:
"The JP03B test pattern is generated prior to PAM4 encoding."
Replace the 3rd sentence of that paragraph with:
"The JP03B test pattern is a repeating sequence of the PAM4 symbols {0,3} repeated 15 times followed by {3,0} repeated 16 times."

Cl **120** *SC* **120.5.11.2.2** *P* **192** *L* **3** # 107
Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A** *Bucket*

Missing the test pattern for 200GBASE-R.

SuggestedRemedy

Change "A 400GBASE-R PMA" to "A 200GBASE-R or 300GBASE-R PMA"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change
"A 400GBASE-R PMA"
to
"A PMA"

Cl **120** *SC* **120.5.11.2.5** *P* **194** *L* **19** # 39
Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

SSPRQ Test Pattern

SuggestedRemedy

SSPRQ test pattern

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.6** *P* **195** *L* **21** # 40
Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

"will" is deprecated.

SuggestedRemedy

Delete "will".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **203** *L* **43** # 41
Dawe, Piers Mellanox

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

Table layout problem because LANES_UPSTREAM too long. Could use shorter variable names for LANES_DOWNSTREAM and LANES_UPSTREAM but better:

SuggestedRemedy

In the Major capabilities/options, create really short items e.g. U4, D16. Use these here. Adjust column widths.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "LANES_UPSTREAM" to "LNS_UPSTRM", change "LANES_DOWNSTREAM" to "LNS_DNSTRM", adjust column widths as necessary so these don't break across lines.

Cl **120A** *SC* **120A.1** *P* **319** *L* **12** # 99
Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

The title says "examples" but there is only one.

SuggestedRemedy

Change "examples" to "example"

Response *Response Status* **C**

ACCEPT.
[Editor's note: Clause changed from 120 to 120A]

Cl **120B** *SC* **120B** *P* **327** *L* **53** # 9
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **A**

In the Macau meeting it was agreed to set the CRU bandwidth for CDAUI-16 to 4 MHz.
See http://www.ieee802.org/3/bs/public/16_03/anslow_3bs_04_0316.pdf
However, Annex 120B and Annex 120C reference Annex 83D and Annex 83E, respectively which have a CRU bandwidth of 10 MHz

SuggestedRemedy

Add an exception to 120B.3.1: "- The high-pass filter used for the jitter measurements in 92.8.3.8 has a 3 dB frequency of 4 MHz."
Add an exception to 120B.3.2: "- The Applied pk-pk sinusoidal jitter for Test 1 and Test 2 in Table 83D-5 is according to Table 87-13."
In 120C.3.1, change the exceptions to a dashed list and add: "- The clock recovery unit corner frequency is 4 MHz."
Add an exception to 120C.3.2: "- The clock recovery unit corner frequency is 4 MHz."
In 120C.3.3, change the exceptions to a dashed list and add: "- The Applied pk-pk sinusoidal jitter in Table 83E-5 is according to Table 87-13."
In 120C.3.4, change the exceptions to a dashed list and add: "- The Applied pk-pk sinusoidal jitter in Table 83E-8 is according to Table 87-13."

Response *Response Status* **C**

ACCEPT.

Cl **120C** *SC* **120C.5.4.4** *P* **338** *L* **53** # 108

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

During the 802.3by project concern was expressed that the RM2 pics could be interpreted to mean that the module has to use the recommended CTLE setting for the stressed input test. That is not intended (the module input can be adaptive and could use some other receiver than a CTLE). This PIC was re-worded as a result.

SuggestedRemedy

Replace the wording of this PICS with that used for RM6 of 802.3by clause 109B

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"As 120C.1.1 with settings associated with Recommended_CTLE_value" to:
"Meet BER requirement of 120C.1.1 with three values of Recommended_ CTLE_value"

Cl **120D** *SC* **120D.3.1** *P* **343** *L* **26** # 66

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Note d applies to even-odd jitter not Jrms or J5

SuggestedRemedy

Move its anchor to Even-odd jitter (max).

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.1** *P* **342** *L* **51** # 25

Ghiasi, Ali Ghiasi Quantum LLC

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

The effect of a single pole high pass filter with a 3 dB frequency of 4 MHz is applied to the jitter, not clear on what we are suggesting

SuggestedRemedy

Signal is measured with a single pole CRU with a 3 dB bandwidth of 4 MHz, where the CRU behave as a high pass jitter filter.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change
"The effect of a single-pole high-pass filter with a 3 dB frequency of 4 MHz is applied to the jitter."
to
"The jitter is measured using a single-pole high-pass filter with a 3 dB bandwidth of 4 MHz."

Cl **120D** *SC* **120D.3.1.1** *P* **342** *L* **53** # 67

Dawe, Piers Mellanox

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

"Jitter measurements are performed with transmitters on all PMD lanes enabled and transmitting the same pattern with identical transmit equalizer settings": Formally, this isn't a PMD. Should allow a range of patterns, as in 120E.3.1.6: same 0303... pattern is useless if synchronous, excessive if not. Should the counter-propagating lanes be operational too? No requirement to measure.

SuggestedRemedy

Change to: "Output jitter is defined with all transmit and receive lanes operating with a PRBS13Q or QPRBS31 pattern, or a valid 200GBASE-R/400GBASE-R signal.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "all PMD lanes" to "all lanes".

The Odd/even jitter measurement method in 94.3.12.6.2 uses JP03B, So:

Change the first line of 120D.3.1.1 from
"Jitter is measured using the JP03A test pattern (see 120.5.11.2.1)"
to
"JRMS and J5 jitter are measured using the JP03A test pattern (see 120.5.11.2.1)"

There is ongoing discussion regarding the test pattern to be used for jitter measurement. Once the discussion on the refinement to the test pattern is resolved, the issue of whether the other lanes use the same pattern as the lane under test will be addressed (and if necessary, changes to Clause 45 registers to enable this will be made).

Cl **120D** *SC* **120D.3.1.1** *P* **343** *L* **39** # 68

Dawe, Piers Mellanox

Comment Type **ER** *Comment Status* **A** *Bucket*

Don't repeat specs (see D1.3 comment 21): the limits are in the table and the "shall" is in 120D.3.1 on the previous page. Don't put specs in definitions.

SuggestedRemedy

Delete "JRMS shall be less than or equal to 0.023 UI. J5 shall be less than or equal to 0.128 UI."
Looks like the PICS is OK as is.

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.1** *P* **343** *L* **43** # 3

Szczepanek, Andre Inphi

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

Remove redundant Editors note

SuggestedRemedy

Remove redundant Editors note

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove redundant Editor's note.

Cl **120D** *SC* **120D.3.1.2** *P* **344** *L* **4** # 69

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

is13.

SuggestedRemedy

is 13.

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.2** *P* **344** *L* **6** # 70

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

The state of the CCAUI-4 or CDAUI-8 transmit output is manipulated via management.

SuggestedRemedy

Change "The state of the CCAUI-4 or CDAUI-8 transmit output is manipulated via management." to 10 point.

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.2** *P* **344** *L* **21** # 71

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Extra white space and dot above and below the figure.

SuggestedRemedy

Remove

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.2.1** *P* **344** *L* **41** # 72

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Transmitter Linearity - rogue capital

SuggestedRemedy

Transmitter linearity (as in the next line)

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.2.1** *P* **344** *L* **47** # 73

Dawe, Piers Mellanox

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

Even after the correction, I find this sentence hard to understand: Given the PAM4 symbol levels 0, 1, 2, and 3, the mean signal level for each symbol level are V0, V1, V2, and V3 respectively. What do I do with 0, 1, 2, and 3 that I'm given? Subject and verb don't seem to match in number.

SuggestedRemedy

Change to: The means of the signal levels of the symbols corresponding to the PAM4 symbol levels 0, 1, 2, and 3 are V0, V1, V2, and V3 respectively.
Better, say "means of the signal levels" in the previous sentence, then: The mean signal levels of the symbols corresponding to the PAM4 symbol levels 0, 1, 2, and 3 are defined as V0, V1, V2, and V3 respectively, as described in 120D.3.1.2.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change
"Given the PAM4 symbol levels 0, 1, 2, and 3, the mean signal level for each symbol level are V0, V1, V2, and V3 respectively."
to
"The mean signal levels of the symbols corresponding to the PAM4 symbol levels 0, 1, 2, and 3 are defined as V0, V1, V2, and V3 respectively, as described in 120D.3.1.2.2."

Cl **120D** *SC* **120D.3.1.2.1** *P* **345** *L* **46** # 74

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Empty line?

SuggestedRemedy

Remove

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.2.2** *P* **345** *L* **54** # 100

Dudek, Mike QLogic

Comment Type **E** *Comment Status* **A** *Bucket*

poor grammar

SuggestedRemedy

Add "a" between "with" and "specifc PAM4"

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2** *P* **346** *L* **23** # 75

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Font size

SuggestedRemedy

In Table 120D-4 "120D.3.2.2"

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2.1** *P* **346** *L* **30** # 76

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

RS- FEC

SuggestedRemedy

RS-FEC

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2.1** *P* **346** *L* **34** # 77

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

peak-to- peak

SuggestedRemedy

peak-to-peak

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2.1** *P* **346** *L* **40** # 116

Dudek, Mike QLogic

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

The measured risetime of the transmitter should also be included in the COM exceptions, and the use of beta = 2 to incorporate the transmitter risetime is needed. Without this change there is a likely hole in the budget with the test transmitter for the interference tolerance test being better than the transmitter used in COM to calibrate the test channel.

SuggestedRemedy

Add another bullet to the considertions (before bullet c) in this list that is the same as bullet C in 802.3by clause 111.8.3.1 .

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add another bullet to the considerations (before bullet c) in the list:
"The transmitter device package model S(tp) is omitted from Equation (93A-3) in the calculation of COM. The filtered voltage transfer function H(k)(f) calculated in Equation (93A-19) uses the filter Ht(f) defined by Equation (93A-46), where ß is 2, Tr is calculated as Tr = 1.09 × Trm - 4.32 ps, and Trm is the measured 20% to 80% transition time of the signal at TP0a. Trm is measured using the method in 120E.3.1.5. Trm is measured with the transmit equalizer turned off."

Cl **120D** *SC* **120D.3.2.1** *P* **346** *L* **42** # 110

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

It would be good to incorporate the clarification about which COM value should be used (Test 1 or test 2) for the channel calibration that was added in the equivalent test in 802.3by.

SuggestedRemedy

Add the bullet b) in 111.8.3.1 of 802.3by to the list here after bullet d).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: Clause changed from 120 to 120D]

Add the following bullet to the list, after the existing bullet d):
"COM is calculated using both Test 1 and Test 2 device package model transmission line lengths listed in Table 120D-7. The value of COM is taken as the lower of the two calculated values."

Cl **120D** *SC* **120D.3.2.2** *P* **346** *L* **48** # 78
Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*
Receiver Jitter tolerance - rogue capital

SuggestedRemedy
Receiver jitter tolerance

Response *Response Status* **C**
ACCEPT.

Cl **120D** *SC* **120D.3.2.2** *P* **347** *L* **28** # 79
Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*
In Table 120D-6 and Table 120E-6, don't need "values" 5 times (most things in most tables are values).

SuggestedRemedy
In Table 120D-6, Table 120E-6 delete "values", 5 times each.

Response *Response Status* **C**
ACCEPT.

Cl **120D** *SC* **120D.3.2.3** *P* **348** *L* **3** # 109
Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A** *Bucket*
Incorrect register name.

SuggestedRemedy
Change "Requests_flag" to "Request_flag"

Response *Response Status* **C**
ACCEPT.

Cl **120D** *SC* **120D.5.4.1** *P* **351** *L* **41** # 80
Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*
Font size

SuggestedRemedy
Change "Common-mode output return loss" to 9 point.

Response *Response Status* **C**
ACCEPT.

Cl **120E** *SC* **120E.1** *P* **353** *L* **30** # 81
Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*
CCAUI-8 in left hand stack

SuggestedRemedy
should be CCAUI-4

Response *Response Status* **C**
ACCEPT.

Cl **120e** *SC* **120e.1** *P* **354** *L* **42** # 26
Ghiasi, Ali Ghiasi Quantum LLC

Comment Type **TR** *Comment Status* **R**
Not very helpful to state "Test methdology is similar OIF-56G-VSR.", I can see the benefit if it was identical and CEI-04 was already published

SuggestedRemedy
Suggest remvoing

Response *Response Status* **C**
REJECT.

Some readers may find this sentence helpful. It can be removed in Sponsor ballot if the OIF document is not published by then.

Cl **120E** *SC* **120E.3.1.6** *P* **358** *L* **31** # 82

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

I thought we allowed PRBS31Q also: 83E.3.1.6 allows Pattern 3, PRBS31. Rogue capital.

SuggestedRemedy

Change "using the Quaternary PRBS13 (PRBS13Q) pattern, or a valid 200GBASE-R/400GBASE-R signal. PRBS13Q is described in 120.5.11.2.3." to "using the PRBS13Q or PRBS31Q pattern, or a valid 200GBASE-R or 400GBASE-R signal. PRBS13Q is described in 120.5.11.2.3 and PRBS31Q is described in 120.5.11.2.4."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "using the Quaternary PRBS13 (PRBS13Q) pattern, or a valid 200GBASE-R/400GBASE-R signal. PRBS13Q is described in 120.5.11.2.3."
to
"using the PRBS13Q or PRBS31Q pattern, or a valid 200GBASE-R or 400GBASE-R signal. PRBS13Q is described in 120.5.11.2.3 and PRBS31Q is described in 120.5.11.2.4."

Also, change:
"For the case where PRBS13Q is used with a common clock, there is at least 31 UI delay between the PRBS13Q patterns on one lane and any other lane." to:
"For the case where PRBS13Q or PRBS31Q are used with a common clock, there is at least 31 UI delay between the patterns on one lane and any other lane."

Cl **120E** *SC* **120E.3.1.6** *P* **359** *L* **4** # 83

Dawe, Piers Mellanox

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

There is a box marked "VNA or Scope" but there's a scope just to the left of it. oif2014.230.07 has just "VNA". Rogue capital S.

SuggestedRemedy

Change "VNA or Scope" to "VNA"; also in Figure 120E-10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "VNA or Scope" to "VNA or scope" in Figures 120E-8 and 120E-10.

The Box labeled "VNA or Scope" is used for those tests that do not use a reference receiver. The reference receiver based tests use a scope as part of the reference receiver, so a scope is shown in the reference receiver box
Given the title of the diagram is "EXAMPLE host output test configuration" it does not matter how many scopes are shown.

Cl **120E** *SC* **120E.3.2.1** *P* **362** *L* **4** # 84

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Crosstalk Generator - rogue capital

SuggestedRemedy

Crosstalk generator

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.3.3.2** *P* **363** *L* **21** # 111

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

As the editor's note says this subclause is not used. The test also does not work if the waveform being measured has significant loss before the measurement. (i.e. the eye is closed or even partially closed due to loss.)

SuggestedRemedy

Delete the sub-clause 120E.3.3.2

Response *Response Status* **C**

ACCEPT.
See also comment #4

Cl **120E** *SC* **120E.3.3.2** *P* **363** *L* **21** # 4

Szczepanek, Andre Inphi

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

This sub-clause is no longer referenced and should be removed.
Note this was discussed on the 13th June Electrical ad hoc call where it received no objections.

SuggestedRemedy

Remove sub-clause 120E.3.3.2

Response *Response Status* **C**

ACCEPT.
See also comment #111

Cl **120E** *SC* **120E.3.3.3** *P* **364** *L* **36** # 2

Szczepanek, Andre Inphi

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

Table 120E-5 duplicates the "Far-end ESMW" and "Far-end Eye Width" parameter values from Table 120E-3. It would be more definitive if Table 120E-3 was referenced, rather than values duplicated.

SuggestedRemedy

Replace explicit parameter values for "Far-end ESMW" and "Far-end Eye Width" parameters in Table 120E-5 with references to Table 120E-3

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **120e** *SC* **120e.3.3.3.1** *P* **364** *L* **52** # 27

Ghiasi, Ali Ghiasi Quantum LLC

Comment Type **T** *Comment Status* **A**

The amount of applied peak-peak sinusoidal jitter used for the host stressed input test is given in Table 120e-6, is not clear on the intention.

SuggestedRemedy

The amplitude and frequency of the applied peak-peak host stress input sinusoidal jitter is given in table 120e-6. As the frequency of the applied sinusoidal is varied for given amplitude other jitter componnets such as random jitter and bounded jitter are adjusted to meet the stress caliburated signal at TP4a.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The amount of applied peak-to-peak sinusoidal jitter used for the host stressed input test is given in Table 120E-5."
to:
"The frequency and peak-to-peak amplitude of the sinusoidal jitter used for the host stressed input test is given in Table 120E-6."

Cl **120E** *SC* **120E.3.3.3.1** *P* **367** *L* **21** # 86

Dawe, Piers Mellanox

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

If the duplicate BUJ generator defintion is kept, at least make it consistent with the other one in 120E.3.3.3.1 (D1.3 comment 76).

SuggestedRemedy

Change:
"The PRBS pattern length should be between PRBS7 and PRBS9. The data rate should be approximately 1/10 of the stressed pattern signaling rate (2.65625 GBd)."
to:
"The PRBS pattern length should be between PRBS7 and PRBS9 with a signaling rate approximately 1/10 of the stressed pattern signaling rate (e.g., 2.65625 GBd)."

Response *Response Status* **C**

ACCEPT.

Cl **120e** *SC* **120e.3.4.1.1** *P* **366** *L* **52** # 28

Ghiasi, Ali Ghiasi Quantum LLC

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

Need to mention CRU is 1st order

SuggestedRemedy

add .CRU with 1st order response and a corner ...

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **120E** *SC* **120E.3.4.1.1** *P* **367** *L* **5** # 85

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Table layout

SuggestedRemedy

Put ESMW (Eye symmetry mask width) on the same row, make the left column wider.

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.3.4.1.1** *P* **367** *L* **32** # 87

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

This is the test, not the product, there's only one high loss channel, and at line 45 we say "high loss case".

SuggestedRemedy

Change "For high loss channels" to "For the high loss case".

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.4.1** *P* **368** *L* **16** # 128

Ghiasi, Ali Ghiasi Quantum LLC

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

MCB/HCB characteristics is referenced from CL92.11.1 and CL92.11.2. The crosstalk for the mated MCB-HCB is defined by 92.11.3.6 inaccordance to meet 100GBASE-CR4 with following parameters:
MDNEXT <= 1.8 mV RMS
MDFEXT <= 4.8 mV RMS
But the cable under considearionfor 50G operation have significantly lower crosstalk than early BJ cables
http://www.ieee802.org/3/cd/public/May16/ghiasi_3cd_02a_0516.pdf
http://www.ieee802.org/3/cd/public/May16/roth_3cd_01a_0516.pdf

SuggestedRemedy

With typical newer cable hainvg PSXT of ~ 1 mV, a matted board having 4.8 mV of FEXT and 1.8 mV NEXT will have significant burden on the Cu reach and COM margin. The fact that we have cable data with PSXT ~ 1mV indicate technology has improved and limits in the BJ are overly pessimistic.

Response *Response Status* **C**

REJECT.
[Editor's note: This comment was sent after the close of the comment period.]

Although there appears to be some justification for a reduction in MDNEXT/MDFEXT for copper cabling, the impact of this on Annex 120E is not clear: The P802.3bs draft does not specify copper cables, and the commenter has not indicated what changes (if any) are required to the Annex.

Cl **120E** *SC* **120E.4.2** *P* **368** *L* **43** # 88

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

In step 3, MIDCDFR should be MID0CDFR

SuggestedRemedy

Change MIDCDFR to MID0CDFR

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.4.2** *P* **368** *L* **44** # 89

Dawe, Piers Mellanox

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

Step 3 says "Calculate the time center of the middle eye width (TCmid) as the mid-point in time between MID0CDFR and MID0CDFL with a value of 10-3" then 4 says "Locate the center of the middle eye at TCmid." which is the same thing. 5, 6 and 7 all say "within 0.025 UI of time TCmid"

SuggestedRemedy

Delete step 4

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.5.3** *P* **374** *L* **6** # 90

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Font size of Number of differential AC-coupled lanes, Eight independent data paths in each direction

SuggestedRemedy

Change to 9 point

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.5.4.2** *P* **375** *L* # 91

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Module Output

SuggestedRemedy

Module output

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change title of 120E.5.4.2 to "Module output"
Also change "Input" to "input" in titles of 120E.5.4.3 and 120E.5.4.4

Cl **121** *SC* **121.7.2** *P* **216** *L* **27** # 42

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

"SECQ and OMAouter of each aggressor lane" but there is no SECQ spec for aggressor lanes. If it means the SECQ of the lane under test, could use a comma or identify the lane(s) for SECQ or neither. It says two rows above that these are conditions of stressed receiver sensitivity test. Table 95-7, 100GBASE-SR4 receive characteristics, doesn't have such a note. Table 86-8 does have a note, but not applied to aggressor lanes. Table 95-7 attaches the note to Conditions of stressed receiver sensitivity test: "These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver."

SuggestedRemedy

Apply the note to the conditions row and change it to follow Table 95-7.
Similarly in clauses 122, 124.

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.8.1** *P* **217** *L* **40** # 43

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

According to 1.4.303, Optical Modulation Amplitude has capitals.

SuggestedRemedy

Change Optical modulation amplitude to Optical Modulation Amplitude, twice here, in 121.8.5.3, twice in Table 122-15 and Table 124-10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to "Outer Optical Modulation Amplitude" throughout the draft.

Cl **121** *SC* **121.8.1** *P* **217** *L* **42** # 115

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

The method for measuring OMAinner is not specified with any pattern. (certainly not by Clause 121.8.4 which doesn't even mention it)

SuggestedRemedy

Delete the OMAinner row (or add a test methodology and definition of what it is). Unless definitions and test methodologies are added delete it in the Tx and Rx tables and anywhere else it appears in the draft. Do the same changes in clauses 122 and 124.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment was discussed on the SMF Ad Hoc call on 21 June.
Delete the OMAinner row from Tables 121-10, 122-15, and 124-10.
In Tables 121-7, 122-11, 122-12, and 124-7 change:
"Receiver sensitivity (OMAinner), each lane (max)" to:
"Receiver sensitivity (OMAouter), each lane (max)"
add 4.8 dB to the associated power value
in the associated footnote, change "OMAinner" to "OMAouter"

Cl **121** *SC* **121.8.1** *P* **217** *L* **42** # 112

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

The square wave pattern isn't defined for PAM4 and isn't listed in table 121-9. Depending on how it were defined it might or might not be useable for measuring OMAinner or RINOMA. patten 4 works fine for RINOMA. See a separate comment for deleting OMAinner.

SuggestedRemedy

Delete "Square wave or" for the RINOMA row (and OMAinner row if it isn't deleted by the other comment.)

Do the same in clause 122 and 124.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Delete "Square wave or" in the RINOMA row of Tables 121-10, 122-15 and 124-10.

Cl **121** *SC* **121.8.5** *P* **218** *L* **44** # 44

Dawe, Piers Mellanox

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

"as measured through an optical to electrical converter (O/E) with a bandwidth equivalent to a reference receiver, and equalized...": "bandwidth equivalent to a combined reference receiver and worst case optical channel" in 95.8.5 made sense to to me, but an O/E (and scope) with the right bandwidth IS a reference receiver.

SuggestedRemedy

as measured through a reference receiver and equalized...

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"as measured through an optical to electrical converter (O/E) with a bandwidth equivalent to a reference receiver, and equalized with the reference equalizer (as described in 121.8.5.4)"
to:
"as measured through an optical to electrical converter (O/E) and oscilloscope with the combined frequency response given in 121.8.5.1, and equalized with the reference equalizer (as described in 121.8.5.4)"

Cl **121** *SC* **121.8.5** *P* **218** *L* **45** # 45

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

"may be part of the oscilloscope": no oscilloscope has been mentioned yet.

SuggestedRemedy

may be part of an oscilloscope

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.8.5.1** *P* **219** *L* **9** # 19

Ghiasi, Ali Ghiasi Quantum LLC

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

Capture complete pattern

SuggestedRemedy

To support booth sampling and real time scope should read " capture real time data sequence or sampled data sequence"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **121** *SC* **121.8.5.1** *P* **219** *L* **18** # 63

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

Modern scopes don't need a pattern trigger, if told the pattern length, and the CRU typically doesn't provide a pattern trigger.

SuggestedRemedy

Change "Pattern trigger" to "Trigger".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove the "Pattern trigger" label and change "Oscilloscope" to "Pattern triggered oscilloscope"

Cl **121** *SC* **121.8.5.2** *P* **219** *L* **38** # 46

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

There's no BERT. There is no need to add loss to the channel but no pressing need to minimise the channel loss either, the TDEC method adds noise either in hardware or in software to compensate.

SuggestedRemedy

Delete the "Insertion loss" column and note b.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #113
The accuracy of the TDECQ measurement is likely to be better if the channel insertion loss is low.

Cl **121** *SC* **121.8.5.2** *P* **219** *L* **41** # 113

Dudek, Mike QLogic

Comment Type **T** *Comment Status* **A**

There is no longer a BERT in the test system

SuggestedRemedy

Replace "BERT's" with "Oscilloscope's"

Do the same in Clause 122 Page 252 line39

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "There is no intent to stress the sensitivity of the BERT's optical receiver" to "There is no intent to stress the sensitivity of the O/E converter associated with the oscilloscope"
Do the same in Clause 122.

Cl **121** *SC* **121.8.5.2** *P* **219** *L* **42** # 47

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **R**

The optical return loss isn't applied at TP2 (which is to the left of the splitter), it's applied by the variable
reflector below the splitter. The point is that the number of dB is defined as if looking into the channel from TP2.

SuggestedRemedy

Change "The optical return loss is applied at TP2" to "As seen at TP2 looking towards the optical splitter."
or delete the note.

Response *Response Status* **C**

REJECT.
The current draft is consistent with equivalent text in Clause 52, 87 and 88.

Cl **121** *SC* **121.8.5.2** *P* **219** *L* **53** # 48

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

(Near) repetition: the sentence at the top of the page is correct, "The channel provides an optical return loss specified in Table 121-11" isn't because in the figure, "Optical channel" is to the right of the splitter. The second sentence here is exactly the same as the second sentence on the page.

SuggestedRemedy

Delete these two sentences.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "Optical channel" in Figure 121-4 to "Test fiber".
The two sentences are in different subclauses and their presence improves the understandability of these subclauses.

Cl **121** *SC* **121.8.5.2** *P* **225** *L* **29** # 64

Dawe, Piers Mellanox

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

This sentence is wrong:
To use an oscilloscope to calibrate the final stressed eye jitter that includes the sinusoidal jitter component, a separate clock source (clean clock of Figure 121-6) is required that is synchronized to the source clock, but not modulated with the jitter source.
95.8.8.4 says:
To use an oscilloscope to calibrate the final stressed eye J2 Jitter and stressed eye J4 Jitter that includes the sinusoidal jitter component, a clock recovery unit (CRU of Figure 95-5) is required.
And at line 12 we already have:
Sinusoidal jitter amplitude may be calibrated by measuring the jitter on the oscilloscope, while transmitting the square wave pattern, and using a clean clock in place of the CRU to trigger the oscilloscope.

SuggestedRemedy

While we don't have any jitter spec here apart from SJ, delete this sentence.

Response *Response Status* **C**

REJECT.
Clause 95 uses a different specification methodology. The 2 sentences referred to are consistent with each other. To measure the magnitude of the sinusoidal jitter on the clock source a clean clock is required.

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **3** # 20

Ghiasi, Ali Ghiasi Quantum LLC

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

There is no requirements on capture record length

SuggestedRemedy

Add paragraph - The captured real time or sampled data recommended to be at least 16 time the length of the SSPRQ data pattern.

Response *Response Status* **C**

REJECT.
[Editor's note: Clause changed from 120 to 121, subclause changed from 120.8.5.3 to 121.8.5.3]

TDECQ is a development of the TDEC measurement described in 95.8.5, which does not define a minimum number of sample points. If a recommended minimum number of points is to be set, this should be based on evidence of accuracy vs. number of measured points.

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **13** # 49

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

Optimizing the signal-to-noise ratio of the captured waveform is not minimizing the value of TDECQ (which is what p222 line 22 says), unless you use a definition of "signal" that isn't here.

SuggestedRemedy

Change "The reference equalizer (specified in 121.8.5.4) is used to optimize the signal-to-noise ratio of the captured waveform (to minimize the value of TDECQ)" to "The reference equalizer (specified in 121.8.5.4) is used to minimize the value of TDECQ".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "The reference equalizer (specified in 121.8.5.4) is used to optimize the signal-to-noise ratio of the captured waveform (to minimize the value of TDECQ)" to "The reference equalizer (specified in 121.8.5.4) is used to minimize the value of TDECQ derived from the captured waveform"

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **17** # 50

Dawe, Piers Mellanox

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

They are all sampling oscilloscopes

SuggestedRemedy

Change "If a sampling oscilloscope is used" to "If an equivalent-time sampling oscilloscope is used".

Response *Response Status* **C**

ACCEPT.
Also change "real time sampling scope" to "real-time sampling oscilloscope".

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **19** # 51

Dawe, Piers Mellanox

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

reconstructed? Has this eye diagram existed before?

SuggestedRemedy

Delete "reconstructed"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "A reconstructed eye" to "An eye".

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **19** # 54

Dawe, Piers Mellanox

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

Whichever scope is used, an eye diagram needs to be formed.

SuggestedRemedy

Move the sentence "A reconstructed eye diagram is formed from the optimally equalized captured pattern." after the one about a real-tiome scope.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Move the sentence to the end of the previous paragraph.

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **19** # 52

Dawe, Piers Mellanox

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

Eye diagrams come from waveforms or signals, not patterns (which are digital).

SuggestedRemedy

Change "pattern" to "signal".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "pattern" to "waveform"

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **19** # 53

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

A real time sampling scope with reference equalizer doesn't capture an eye diagram directly. It might capture an unequalized waveform (not eye) in a non-standard frequency response: then there's a lot of calculation. It hardly matters if the equalizer is in the scope or not, and even if it is, some noise correction may be needed.

SuggestedRemedy

Change "If a real time sampling scope is used, and the reference equalizer is implemented in the oscilloscope, then the oscilloscope can be set up to capture an eye diagram directly." to "If a real time sampling scope is used, this compensation may not be needed."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "If a real time sampling scope is used, and the reference equalizer is implemented in the oscilloscope, then the oscilloscope can be set up to capture an eye diagram directly." to "If a real-time sampling oscilloscope is used, and the reference equalizer is implemented in the oscilloscope, then the equalized eye diagram can be generated in the oscilloscope."

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **28** # 55

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Punctuation: these are two clauses.

SuggestedRemedy

Change "0.55 UI, each" to "0.55 UI; each"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "0.55 UI, each" to "0.55 UI. Each"

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **29** # 56

Dawe, Piers Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

each of the histograms spans

SuggestedRemedy

each of the histogram windows spans

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.8.5.3** *P* **220** *L* **29** # 57

Dawe, Piers Mellanox

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

Duplication

SuggestedRemedy

Delete "each of the histograms spans all of the modulation levels of the eye diagram, as illustrated in Figure 121-5.". Join the next sentence onto this paragraph. Could mention Figure 121-5 again.

Response *Response Status* **C**

REJECT.
The current text follows the structure of the TDEC description in 95.8.5.2 and starts with a general description of the histograms and then follows this up with a more precise definition. While there is some duplication involved with this, the resulting text is clear and understandable.

Cl **121** *SC* **121.8.5.3** *P* **221** *L* **37** # 58

Dawe, Piers Mellanox

Comment Type **T** *Comment Status* **A**

How much is "the reference receiver noise"?

SuggestedRemedy

Change to "noise that could be added by a receiver"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "with the reference receiver noise" to "with noise"

Cl **121** *SC* **121.8.5.3** *P* **222** *L* **11** # 59

Dawe, Piers Mellanox

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

The smallest size of sigmaG is found that makes the sum of the partial SERs equal the target SER of 4.8x10-4 for either left or right histogram.

SuggestedRemedy

The value of sigmaG is found that makes the sum of the partial SERs equal the target SER of 4.8x10-4 for either the left or right histogram, and lower for the other histogram (i.e. the smaller of two values).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
"The smallest size of sigmaG is found that makes the sum of the partial SERs equal the target SER of 4.8 × 10–4 for either left or right histogram."
to:
"For the left histogram a value of sigmaG is found that makes the sum of the partial SERs equal the target SER of 4.8 × 10–4, this is then repeated for the right histogram and sigmaW is equal to the lower of the two sigmaG values."

In Equation 121-6, replace sigmaG with sigmaW

Cl **121** *SC* **121.8.5.4** *P* **222** *L* **14** # 21

Ghiasi, Ali — Ghiasi Quantum LLC

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

Need to better document attributes of the 5 tap T/2 FFE

SuggestedRemedy

We can start with something like then refine it C(0)min=0.6
Sum(C(1), C(2), C(3), C(4))min = -0.4
Sum(C(1), C(2), C(3), C(4))max = 0

Response *Response Status* **C**

REJECT.
Commenter is invited to demonstrate that unconstrained FFE can cause a problem and also that the proposed constraints avoid this problem.

Cl **121** *SC* **121.8.7** *P* **223** *L* **9** # 60

Dawe, Piers — Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

Relative Intensity Noise: rogue capitals. Compare 1.4.356 relative intensity noise: The ratio of the variance in the optical power to the average optical power. and 52.9.6 Relative intensity noise optical modulation amplitude (RINxOMA) measuring procedure

SuggestedRemedy

Relative intensity noise. Also 122.8.7, 124.8.7.

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.8.9** *P* **223** *L* **30** # 61

Dawe, Piers — Mellanox

Comment Type **E** *Comment Status* **A** *Bucket*

SRS

SuggestedRemedy

stressed receiver sensitivity
Also at line 34

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.8.9.1** *P* **224** *L* **37** # 62

Dawe, Piers — Mellanox

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

Wrong clock. See Figure 95-5. We went over this in P802.3bm: the signal (J2, J4, TDEC, TDECQ...) must be calibrated with the CRU, but the SJ without. We have the right text here on p225 line 12.

SuggestedRemedy

Show the scope using a CRU, as Figure 95-5 does

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "Clean clock" to "CRU or clean clock" in Figure 121-6

Cl **121** *SC* **121.9.9.3** *P* **225** *L* **36** # 114

Dudek, Mike — QLogic

Comment Type **T** *Comment Status* **A** *Bucket*

A BER scan measurement is not applicable to this test calibration.

SuggestedRemedy

Delete "a BER scan measurement and " Also in clause 122 on page 255 line 34.

Response *Response Status* **C**

ACCEPT.

Cl **122** *SC* **122.7** *P* **245** *L* **1** # 1

King, Jonathan Finisar

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

Revised Transmitter parameters for 200GBASE-LR and -FR, were agreed in the June 7th smf ad hoc (see Cole_01a_0616_smf), these should be incorporated into the draft in the relevant transmitter parameter Tables. There are consequent changes to the receiver parameters

SuggestedRemedy

In Table 122-9:
In the row 'Total average launch power (max)', replace '11.2' and '11.7' with '10.7' and '11.3' respectively.

In the 'Outer Optical Modulation Amplitude (OMAouter), each lane (max)', replace '5' and '5.5' with '4.5' and '5.1' respectively.

In the row 'Difference in launch power between any two lanes (OMAouter) (max)', replace '4.4' with '4' (in both columns).

In Table 122-10:
In the row 'Difference in launch power between any two lanes (OMAouter) (max)', replace '4.4' with '4' (in both columns).

In Table 122-11:
In the row 'Receive power, each lane (OMAouter) (max)', replace '5' and '5.5' with '4.5' and '5.1' respectively.

In the row 'Difference in receive power between any two lanes (OMAouter) (max)' replace '4.5' and '4.6' with '4.1' and '4.2' respectively.

In the Table 122-12:
In the row 'Difference in receive power between any two lanes (OMAouter) (max)' replace '4.5' and '4.9' with '4.1' and '4.5' respectively.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The proposed modifications were discussed at the 7 June and 21 June SMF Ad Hoc calls with no objections raised.
Make the changes shown on pages 4 and 5 of
http://www.ieee802.org/3/bs/public/adhoc/smf/16_06_21/anslow_02_0616_smf.pdf

Cl **122** *SC* **122.8.5.1** *P* **252** *L* **2** # 22

Ghiasi, Ali Ghiasi Quantum LLC

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

Capture complete pattern

SuggestedRemedy

To support booth sampling and real time scope should read " capture real time data sequence or sampled data sequence"

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **122** *SC* **122.8.6** *P* **253** *L* **8** # 23

Ghiasi, Ali Ghiasi Quantum LLC

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

Need to better document attributes of the 5 tap T/2 FFE

SuggestedRemedy

We can start with something like then refine it C(0)min=0.6
Sum(C(1), C(2), C(3), C(4))min = -0.4
Sum(C(1), C(2), C(3), C(4))max = 0

Response *Response Status* **C**

REJECT.
See response to comment #21

Cl **124** *SC* **124.7.1** *P* *L* # 5

King, Jonathan Finisar

Comment Type **E** *Comment Status* **A** *Bucket*

The parameter descriptions in Table 124-7 could do with being harmonized - the 'Receive power' description is odd man out.

SuggestedRemedy

Change 'Receive power, each lane (OMAouter) (max)'
to 'Receive power (OMAouter), each lane (max)'

Similarly, in Table 122-11.

(there may be other examples in other clauses, so response should be 'with editorial licence')

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change 'Receive power, each lane (OMAouter) (max)'
to 'Receive power (OMAouter), each lane (max)'
In Tables 121-7, 122-11, 122-12, and 124-7

Cl **124** *SC* **124.7.1** *P* **291** *L* **1** # 6

King, Jonathan Finisar

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

The receiver sensitivity specs for 400GBASE-DR4 are marginal to what is technically feasible. An increase in Tx_OMA-TDECQ spec is desired to reduce the burden on the Rx.

SuggestedRemedy

In Table 124-6:
Increase Tx_OMA-TDECQ from -1.3dBm to 0dBm
also
Increase OMAouter (max) from 4.2dBm to 5.5dBm
Increase OMAouter (min) from -0.3dBm to 1dBm
Increase Average launch power (max) from 4dBm to 5.3dBm
Increase Average launch power (min) from -5.4dBm to -4.1dBm

In Table 124-7:
Increase 'Receive sensitivity (OMAinner), each lane (max)' from -9.2dBm to -7.9dBm;
also
Increase 'Stressed receiver sensitivity (OMAouter), each lane (max)' from -1.9dBm to -0.6dB;
Increase 'Receive power, each lane, OMAouter (max)' from 4.2dBm to 5.5dBm;
Increase 'Average receive power, each lane (max)' from 4dBm to 5.3dBm;
Increase 'Average receive power, each lane (min)' from -2.4dBm to -1.1dB;
Increase 'OMAouter of each aggressor lane' from 4.2dBm to 5.5 dBm

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **124** *SC* **124.8.5** *P* **294** *L* # 14

Mazzini, Marco Cisco

Comment Type **T** *Comment Status* **R**

TDECQ reference equalizer for 400GBASE-DR4 is not defined. All other PMDs have a defined 5 taps T/2 spaced FFE.

SuggestedRemedy

Add a dedicated paragraph "TDECQ reference equalizer".
Because the reduced bandwidth of the TDECQ tester for 400GBASE-DR4, a realistic reference equalizer for 400GBASE-DR4 should be a 7 tap, T spaced, feed-forward equalizer (FFE).

Response *Response Status* **C**

REJECT.
The reference equalizer for 400GBASE-DR4 is defined in 124.8.5 with the text: “using a reference equalizer as described in 121.8.5.4”. The commenter is invited to provide evidence that the 5 tap, T/2 spaced, feed-forward equalizer is inadequate and that the 7 tap, T spaced, feed-forward equalizer is an appropriate substitute.

Cl **124** *SC* **124.8.5** *P* **294** *L* **40** # 24

Ghiasi, Ali Ghiasi Quantum LLC

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

Need to add Baud period for the FFE to the list of excpetion

SuggestedRemedy

Please add - FFE T/2 with Baudperiod as defined in table 124-6.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The reference equalizer is defined in 121.8.5.4 using the variable "T" which is the symbol period, so no exception is needed.

In 121.8.5.4 and 122.8.5.4 change:
"is a 5 tap, T/2 spaced, feed-forward equalizer (FFE)." to:
"is a 5 tap, T/2 spaced, feed-forward equalizer (FFE), where T is the symbol period."

Cl **124** *SC* **124.8.5** *P* **294** *L* **44** # 13

Mazzini, Marco Cisco

Comment Type **T** *Comment Status* **A**

Implementing TDECQ conformance test set-up with real-time scope can limit the bandwidth because an external O/E is needed. Simulation of optimized solutions show a 3dB bandwidth lower than current 38.68GHz. For this, the value of combination of the O/E converter and the oscilloscope filter response bandwidth should be reduced to take into account real-time implementation.
From first analysis and available hardware, seems a reasonable minimum value closer to 33GHz rather than 38.68GHz.

SuggestedRemedy

From "The combination of the O/E converter and the oscilloscope has a fourth-order Bessel-Thomson filter response with a bandwidth of 38.68 GHz" to "The combination of the O/E converter and the oscilloscope has a fourth-order Bessel-Thomson filter response with a minimum bandwidth of 33 GHz".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment was discussed on the 21 June SMF Ad Hoc with the consensus view being that it was desired to know the impact on TDECQ value of reducing the bandwidth to 33 GHz before changing to this value and also that the impact would have to be negligeable before the word "minimum" was added.

Make no change to the draft.