Cl 00   **SC 0**   *P*   *L*   # 59
Anslow, Pete   Ciena

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

Some tables in clauses that are being amended only show part of the existing table.

SuggestedRemedy

Add rows containing just an ellipsis character as was done in the published version of IEE Std 802.3bm Table 80-1

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl 00   **SC 0**   **P 152**   **L 52**   # 62
Anslow, Pete   Ciena

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

121.1.1, 122.1.1 and 123.1.1 all contain a requirement for the FLR to be less than 9.2 x 10^-13 with a BER of less than 2.4 x 10^-4.
The calculation giving 9.2 x 10^-13 was done according to the equations given in:
http://www.ieee802.org/3/bs/public/14_11/anslow_3bs_02_1114.pdf#page=11
with MFC = 8 as per:
http://www.ieee802.org/3/bm/public/mmfadhoc/meetings/nov29_12/anslow_01a_1112_mmf.pdf#page=4
However, the processing specified in 119.2.5.3 now requires the FEC decoder to mark "every 257-bit block within the two associated codewords" as bad. This means that the factor (1 + MFC)/MFC in equation 4 of anslow_3bs_02_1114.pdf should be replaced by (1 + 2*MFC)/MFC, which changes the FLR from 9.2 x 10^-13 to 1.7 x 10^-12

SuggestedRemedy

In 121.1.1, 122.1.1 and 123.1.1 , change 9.2 x 10^-13 to 1.7 x 10^-12 in two places for each subclause.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl 1   **SC 1.1.3.2**   **P 27**   **L 1**   # 57
Anslow, Pete   Ciena

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

Entries for CDMII and CDAUI-n are missing from 1.1.3.2

SuggestedRemedy

Add entries for CDMII and CDAUI-n to 1.1.3.2

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl 30   **SC 30.5.1.1.4**   **P 31**   **L 30**   # 55
Anslow, Pete   Ciena

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

As the 400GBASE-R PCS does not set the high BER status bit, remove the second change to the "BEHAVIOUR DEFINED AS" section of 30.5.1.1.4 from the draft.

SuggestedRemedy

Remove the change to the last sentence of the "BEHAVIOUR DEFINED AS" section of 30.5.1.1.4 from the draft.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl 31B   **SC 31B.3.7**   **P 215**   **L 17**   # 56
Anslow, Pete   Ciena

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

There are three TBDs in Annex 31B.
The value of TBD pause_quanta in the new paragraph in 31B.3.7 should be equal to the sum of the pause_quanta values of the first four rows of Table 116-3 (since the PMDs are all the same value). This is 905 including 72 in Magenta for the PMA sublayer.
The TBD in the max overrun equation should be equal to the sum of the bit time values of the first four rows of Table 116-3 divided by 8. This evaluates to 57920 bytes including 36864 bit times in Magenta for the PMA sublayer.
The TBD in PICS item TIM10 should be equal to the value of TBD pause_quanta above.

SuggestedRemedy

Change the three TBDs to 905, 57920, and 905 as discussed in the comment with appropriate adjustments to the values if any of the sublayer delays in Table 116-3 are changed by other comments.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl 116   **SC 116.3.2**   **P 68**   **L 12**   # 60
Anslow, Pete   Ciena

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

[Editor's note: Is a prefix needed for the CDXS?]

SuggestedRemedy

Since in Figure 120-5 there is: " inst   PMD, PMA, or CDXS, depending on which sublayer is below this PMA", a specific prefix for CDXS is required.
Add a prefix for CDXS and remove the editor's note.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **116**
SC **116.3.2**

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Cl **116** *SC* **116.4** *P* **71** *L* **14** # 5
Trowbridge, Steve Nokia

Comment Type **TR** *Comment Status* **D**
The skew variation numbers for the PAM should be the same as 802.3ba in ns with 4x the bit-rate, so the overall delay in ns is the same with 4x the bits and 4x the pause quanta

SuggestedRemedy
Make the numbers in the PMA row in Table 116-3 black

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **118** *SC* **118.1** *P* **84** *L* **50** # 11
Trowbridge, Steve Nokia

Comment Type **TR** *Comment Status* **D**
Add management registers for CDXS

SuggestedRemedy
Add the corresponding registers and bit numbers to MMD 4 and MMD 5 as currently exist for MMD 3 for the clause 119 PCS to allow CDXS to have the same functions as a clause 119 PCS

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

In Clause 45, add the corresponding registers and bit numbers to MMD 4 and MMD 5 as currently exist for MMD 3 for the Clause 119 PCS to allow CDXS to have the same functions as a clause 119 PCS with editorial license.

In Clause 118 add tables corresponding to Table 119-3 and 119-4 to show the appropriate MMD 4 and MMD 5 bit numbers and also add a diagram to clarify the MMD numbers and naming for "DTE XS" and "PHY XS" with editorial license.

Cl **118** *SC* **118.2** *P* **88** *L* **1** # 13
Gustlin, Mark Xilinx

Comment Type **T** *Comment Status* **D**
There are no PICS populated in clause 118.

SuggestedRemedy
Add the PICS as described in gustlin_3bs_02_0516.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **119** *SC* **119.1** *P* **91** *L* **1** # 14
Ofelt, David Juniper Networks

Comment Type **TR** *Comment Status* **D**
Having a PreFEC SER monitoring and signaling mechanism would be a fabulous additon to 802.3bs!

SuggestedRemedy
Details to be provided in presentation at May meeting (ofelt_3bs_01_0516.pdf)

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

Cl **119** *SC* **119.2.4.4** *P* **96** *L* **15** # 16
Dillard, John Microsemi

Comment Type **T** *Comment Status* **D**
The manner with which free-running prbs9 is used as pad in the alignment markers makes the description seem overly complex. Is it possible that similar performance characteristics (e.g. baseline wander) can be had by selecting a portion of a prbs9 (or similar) sequence and fixing the values of the pad bits to that?

SuggestedRemedy
Select a portion of a prbs9 sequence and use it as fixed values in alignment markers

Proposed Response *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #48

Cl **119** *SC* **119.2.4.4** *P* **96** *L* **50** # 48
Anslow, Pete Ciena

Comment Type **T** *Comment Status* **D**
The PRBS9 pad bits shown in Figure 119-4 add complexity to the draft and implementations.

SuggestedRemedy
Change to the scheme proposed in anslow_03_0416_logic with editorial license, changing the naming from:
"UM0, UM1, UM2, UM3, UM4, UM5, UM6, UM7, UM8" to:
"UP0, UP1, UM0, UM1, UM2, UP3, UM3, UM4, UM5"
Where Upx is a unique pad and is not checked for the PCS lane number.

Proposed Response *Response Status* **W**
PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **119**
SC **119.2.4.4**

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Cl **119**　　*SC* **119.2.4.6**　　　　　*P* **101**　　　*L* **53**　　　# 15
Dillard, John　　　　　　　　　　Microsemi

Comment Type **E**　　　*Comment Status* **D**　　　　　　*Bucket*
　　Reference to annex 91A should be annex 119a

SuggestedRemedy
　　change reference to annex 119a

Proposed Response　　　*Response Status* **W**
　　PROPOSED ACCEPT.

Cl **119**　　*SC* **119.2.5.2**　　　　　*P* **104**　　　*L* **34**　　　# 49
Anslow, Pete　　　　　　　　　　Ciena

Comment Type **E**　　　*Comment Status* **D**　　　　　　*Bucket*
　　UM6 should be UM5

SuggestedRemedy
　　Change UM6 to UM5

Proposed Response　　　*Response Status* **W**
　　PROPOSED ACCEPT.

Cl **119**　　*SC* **119.2.6.2.2**　　　*P* **108**　　　*L* **43**　　　# 1
Lapierre, Dominic　　　　　　　　EXFO Inc.

Comment Type **E**　　　*Comment Status* **D**　　　　　　*Bucket*
　　Typo

SuggestedRemedy
　　Change "Boolean variable this is set to true"
　　to "Boolean variable that is set to true"

Proposed Response　　　*Response Status* **W**
　　PROPOSED ACCEPT.

Cl **119**　　*SC* **119.3**　　　　　　*P* **127**　　　*L* **23**　　　# 61
Anslow, Pete　　　　　　　　　　Ciena

Comment Type **E**　　　*Comment Status* **D**　　　　　　*Bucket*
　　Some of the PCS register names in Tables 119-3 and 119-4 do not match the names in
　　Clause 45.
　　In Table 119-4, MDIO status variable "Wake_error_counter" should be "EEE wake error
　　counter"

SuggestedRemedy
　　In Table 119-3, change the PCS register name for bit 3.20.0 to "EEE control and capability"
　　In Table 119-4, change the PCS register name for bits 3.1.9, 3.1.11, 3.1.8, and 3.1.10 to
　　"PCS status 1"
　　In Table 119-4, change the PCS register name for register 3.22 to "EEE wake error
　　counter"
　　In Table 119-4, change MDIO status variable "Wake_error_counter" to "EEE wake error
　　counter".

Proposed Response　　　*Response Status* **W**
　　PROPOSED ACCEPT.

Cl **119**　　*SC* **119.6.4.1**　　　　*P* **119**　　　*L* **28**　　　# 47
Anslow, Pete　　　　　　　　　　Ciena

Comment Type **T**　　　*Comment Status* **D**
　　Skew tolerance is appropriate for the Receive function as in item RF1, but not for the
　　transmit function

SuggestedRemedy
　　Remove PICS item TF1

Proposed Response　　　*Response Status* **W**
　　PROPOSED ACCEPT.

Cl **119A**　　*SC*　　　　　　　　*P* **222**　　　*L* **29**　　　# 17
Dillard, John　　　　　　　　　　Microsemi

Comment Type **TR**　　　*Comment Status* **D**
　　The parity in tables 119a-1 and 119a-2 is incorrect. Also, it has been suggested to add the
　　scrambled payload before distributing to fec messages.

SuggestedRemedy
　　Correct the parity and add table showing tx_scrambled_am.
　　I will povide an update with both.

Proposed Response　　　*Response Status* **W**
　　PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **119A**
SC

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Cl **119A**   *SC* **119A**   *P* **221**   *L* **29**   # 2
Trowbridge, Steve   Nokia

Comment Type **T**   *Comment Status* **D**
Since there are more steps in the process to creating the FEC codewords than in Annex 91A, suggest showing an intermediate step rather than just jumping to the final encoded blocks

SuggestedRemedy
Add a table in the format of Table 91-3 showing the forty 257B blocks before distribution to CWA and CWB

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #17

Cl **119A**   *SC* **119A**   *P* **222**   *L* **29**   # 4
Trowbridge, Steve   Nokia

Comment Type **TR**   *Comment Status* **D**
The parity symbols are bit-wise reversed (MSB to LSB) as compared to Annex 91A (LSB to MSB)

SuggestedRemedy
Replace the parity in Table 119A-1 with "9e26b96f1329799e38500ca61583a6b4d7d4b8f652e589f40a9dbb4f2ba0765eddc8812fbd3". Replace the parity in Table 119A-2 with "b1ff2a2e5a01db40591407f891b99675eff3f7055f67084be5f71d2b9c9254f655bc00fb426"

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.

See response to comment #17

Cl **119A**   *SC* **119A**   *P* **222**   *L* **29**   # 3
Trowbridge, Steve   Nokia

Comment Type **ER**   *Comment Status* **D**   *Bucket*
Add an indication where the data leaves off and the parity begins in the final row of Tables 119A-1 and 119A-2

SuggestedRemedy
Indicate the boundary between data and parity in the final row of the two tables. Could either add a vertical line after the first 5 hexadecimal characters, or put the parity in a different font (e.g., bold)

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

Cl **120**   *SC* **120.1.4**   *P* **125**   *L* **29**   # 6
Trowbridge, Steve   Nokia

Comment Type **TR**   *Comment Status* **D**
Per the CDXS presentation, four MMD instances are needed for the PMA.

SuggestedRemedy
Remove the editor's note. In the following paragraph, list the MMD device numbers available as 1, 8, 9, and 10 and make it black. Update the 3rd sentence of the following paragraph to indicate that separated PMAs may be separated not only by CDAUI but by CDXS. Make the word "three" in the final sentence black, since this is just a specific example that does use three PMA sublayers which is less than the four maximum possible according to the standard. Item (f) at the end of the clause, change "three" to "four" and make it black. Also clause 120.6, two occurrences, change "MMD 8, 9, 10, and 11" to "MMD 8, 9, and 10" and make it black

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

Cl **120**   *SC* **120.2**   *P* **128**   *L* **41**   # 7
Trowbridge, Steve   Nokia

Comment Type **ER**   *Comment Status* **D**
Make CDXS black in Figure 120-5 now that this is defined.

SuggestedRemedy
Make CDXS black in Figure 120-5 now that this is defined. Also in 2nd paragraph of 120.5.10

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

Cl **120**   *SC* **120.5.4**   *P* **134**   *L* **21**   # 8
Trowbridge, Steve   Nokia

Comment Type **TR**   *Comment Status* **D**
Make the delay numbers black in Table 120-1: this is the same ns as the delay for P802.3ba with 4x the bits and pause quanta

SuggestedRemedy
Make the delay numbers black in Table 120-1

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **120**   Page 4 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **120.5.4**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line

Cl **120**   *SC* **120.5.11.2**   *P* **138**   *L* **26**   # 9

Trowbridge, Steve   Nokia

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

No motivation has emerged to make any of the PAM4 test patterns mandatory

SuggestedRemedy

Remove the editor's note. Make the words "may optionally" black in the first sentences of clauses 120.5.11.2.1, 120.5.11.2.2, and 120.5.11.2.3

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **120**   *SC* **120.5.11.2.1**   *P* **138**   *L* **30**   # 63

Dawe, Piers   Mellanox

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

When 120D's jitter definitions have changed from this JP03A pattern to PRBS13Q...

SuggestedRemedy

Check that the optical clauses haven't adopted it, delete this subclause and recover the MDIO bits.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

JP03A is used by CDAUI-8 C2C via reference to 94.3.12.6.1.
It would be appropriate to remove it if Clock random jitter, RMS (max) and Clock deterministic jitter, pk-pk (max) are re-defined to use a different pattern in the electrical track.
(Removing it from the draft would un-allocate bits 1.1500.13 and 1.1500.14)

Cl **120**   *SC* **120.7.3**   *P* **147**   *L* **12**   # 10

Trowbridge, Steve   Nokia

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

There is no possibility for 4 lanes upstream from a 400GBASE-R PMA. The signaling rate is always the same for 200G and 400G in the usptream direction, either one or two bits per symbol.

SuggestedRemedy

Change Value/Comment field for RX_CLOCK to 26.5625 GBd

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **120B**   *SC* **120B.1**   *P* **229**   *L* **33**   # 46

Anslow, Pete   Ciena

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

Comment #33 against D1.2 changed Figures 120B-1 and 120D-1 to have both stacks with "400GBASE-R PCS". However, for the left hand stack in both figures, this will not be a Clause 119 PCS and therefore should be labelled just "400 Gb/s PCS" to be consistent with Figure 118-1

SuggestedRemedy

In Figures 120B-1 and 120D-1, change the left hand stack from "400GBASE-R PCS" to "400 Gb/s PCS".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **120B**   *SC* **120B.1**   *P* **230**   *L* **2**   # 65

Dawe, Piers   Mellanox

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

C2C CDAUI-16 is supposed to be re-used C2C CAUI-4 but easier because we know it's FEC protected. Here there is a "shall" for AC coupling cutoff while in 83D there isn't even a recommendation. Also, if we leave this "shall" applying to the AC coupling, we would have to nail down where the coupling is: TX Rx or channel. Fig 120B-2 shows it in the channel (both sides!) but the PICS seems to apply it to everything. This is going beyond C2C CAUI-4 and causing trouble for no benefit.

SuggestedRemedy

Change shall to should, remove the PICS item.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "shall be" to "should be".
Remove PICS item ACC from 120B.5.3

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **120B**
SC **120B.1**

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Cl **120D**   *SC* **120D.1**   *P* **242**   *L* **2**   # 70
Dawe, Piers   Mellanox

Comment Type **T**   *Comment Status* **D**
If we leave this "shall" applying to the AC coupling, we have to nail down where the
coupling is: TX Rx or channel. Fig 120D-2 shows it in the channel (both sides!) but it's not
in the PICS. Sorting this out looks like making work for no benefit.

SuggestedRemedy
Change shall to should.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
"Change shall to should."
See comments #71 & #72
[Editors note: Page changed from 252 to 242]

Cl **120D**   *SC* **120D.3.1**   *P* **243**   *L* **40**   # 66
Dawe, Piers   Mellanox

Comment Type **E**   *Comment Status* **D**   *Bucket*
The specifications aren't defined in Table 120D-1, limits are given in the table and the
definitions are in all those references.

SuggestedRemedy
Change "defined" to "given". Also 120D.3.2, 120E.3.1, 120E.3.2, 120E.3.3, 120E.3.4.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Change "specifications defined" to "specifications given" in 120D.3.1.
Make equivlalent changes to 120D.3.2, 120E.3.1, 120E.3.2, 120E.3.3, & 120E.3.4.

Cl **120D**   *SC* **120D.3.1**   *P* **243**   *L* **42**   # 31
Healey, Adam   Broadcom Ltd.

Comment Type **T**   *Comment Status* **D**   *Bucket*
"The transmit output waveform may optionally be manipulated via the feedback
mechanism described in 83D.3.3.2, but with eight rather than four lanes." The feedback
mechanism for CDAUI-8 is defined in 120D.3.2.3.

SuggestedRemedy
Change to: "The transmit output waveform may optionally be manipulated via the feedback
mechanism described in 120D.3.2.3."

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT.

Cl **120D**   *SC* **120D.3.1**   *P* **244**   *L* **26**   # 42
Hegde, Raj   Broadcom Corporation

Comment Type **T**   *Comment Status* **D**
The current TX jitter measurement method of extracting CRJ and CDJ from J5 and J6 can
result in large errors.

SuggestedRemedy
The specification should be changed to direct measurement of JRMS and J5. This topic
was discussed in Macau and accepted in general. An updated presentation will be made in
support of this comment.

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
Pending presentation

Cl **120D**   *SC* **120D.3.1**   *P* **244**   *L* **27**   # 67
Dawe, Piers   Mellanox

Comment Type **TR**   *Comment Status* **D**
This contains "Clock random jitter" and "Clock deterministic jitter". But there probably isn't
an accessible clock, the method of 94.3.12.6.1 uses a real-time scope, an
unrepresentative pattern, and too much extrapolation.

SuggestedRemedy
Specify J2 Jitter (or RMS jitter) and J4 Jitter (or J5), which are directly measurable, using
QPRBS13 if measuring uncorrelated jitter, QPRBS31 if including correlated jitter. Do we
need to measure jitter for all three sub-eyes or just the middle one?

Proposed Response   *Response Status* **W**
PROPOSED ACCEPT IN PRINCIPLE.
See resolution of comment #42

Cl **120D**   *SC* **120D.3.1**   *P* **244**   *L* **32**   # 44
Hegde, Raj   Broadcom Corporation

Comment Type **T**   *Comment Status* **D**
The CDAUI-8 CRU bandwidth was updated to 4MHz during the last meeting. However, this
could be still high for DSP based receive solutions and is not in line with the OIF CEI-56G
standards where it is set to 3MHz.

SuggestedRemedy
Change the CRU bandwidth for CDAUI-8 C2C and C2M to 3MHz to align with CEI-56G
standards. A presentation will be made in support of this comment.

Proposed Response   *Response Status* **W**
PROPOSED REJECT.
Considerable time was taken achieving consensus on 4MHz. The commenter needs to
show consensus for changing to 3MHz.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **120D**   Page 6 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **120D.3.1**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line

Cl **120D**　　*SC* **120D.3.1.1**　　　　*P* **244**　　*L* **7**　　　# 68
Dawe, Piers　　　　　　　　　　　Mellanox

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

There are surprisingly many references to Clause 94, which has a different signalling rate to this.

SuggestedRemedy

Might be better to point to the equivalent items in 83D C2C CAUI-4 (same architecturally, dual-mode products will be desired) or 802.3by (very similar signalling rate, recently reviewed and cleaned up, now stable and approved) where they are equivalent or preferable.

Proposed Response　　　*Response Status* **W**

PROPOSED REJECT.
There is nothing technically incorrect with draft as it stands.

Cl **120D**　　*SC* **120D.3.1.1**　　　　*P* **244**　　*L* **21**　　　# 32
Healey, Adam　　　　　　　　　　Broadcom Ltd.

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

IEEE P802.3by/D3.2 has amended Annex 93A to include a transmitter filter in order to represent a source rise time greater than zero. This is being used to reconcile the high pmax/vf ratio (e.g., 0.8) derived from the original COM model with somewhat lower values that can practically be measured (see http://www.ieee802.org/3/by/public/adhoc/architecture/ran_021716_25GE_adhoc.pdf). Specifically, a 12 ps source rise time is used for 25GBASE-KR so that the COM models can represent a pmax/vf limit of 0.75. Similar considerations should be made for CDAUI-8.

SuggestedRemedy

Invoke the transmitter rise time filter for CDAUI-8 chip-to-chip. Use the updated model as the basis for a new limit on pmax/vf. A starting point for rise time and pmax/vf values are 12 ps and 0.75.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Discussed at 2nd May Electrical ad hoc.
Need wording for reference to 802.3by text and consensus agreement on pmax/vf values

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Cl **120D**　　*SC* **120D.3.1.1**　　　　*P* **244**　　*L* **21**　　　# 35
Healey, Adam　　　　　　　　　　Broadcom Ltd.

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

The "x" in "0.8 x vf" should be a multiplication sign.

SuggestedRemedy

Replace "x" with a multiplication sign.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT.

Cl **120D**　　*SC* **120D.3.1.1**　　　　*P* **244**　　*L* **21**　　　# 33
Healey, Adam　　　　　　　　　　Broadcom Ltd.

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

The method in 120E.3.3.2 is prescribed for the measurement of CDAUI-8 chip-to-chip even-odd jitter. The method requires accurate identification of transitions between signal levels. Crossing thresholds defined to be mid-points of the upper, middle, and lower eye openings presume such eye openings exist. However, it is stated that "the even-odd jitter specification shall be met regardless of the transmit equalization setting." In some cases, equalization will be necessary to generate the open eye. In other cases, filtering may be needed to compensate for over equalization to generate the open eye. The equalization/filtering is not defined for CDAUI-8.

SuggestedRemedy

Define the equalization/filtering to be used to produce the open eyes required for even-odd jitter measurements for all transmit equalization settings. Alternatively, revert to the measurement based on JP03B test pattern which can be applied regardless of the transmitter equalization setting.

Proposed Response　　　*Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Need consensus on such a change

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected　　RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **120D**　　　　　　Page 7 of 16
SC **120D.3.1.1**　　　17/05/2016 22:24:27

Cl **120D**   *SC* **120D.3.1.1.2**   *P* **246**   *L* **3**   # 19
Dudek, Mike   QLogic

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

There is a confusion about what the "PAM4 symbol" is.   On line 3 it says that the linearity
is defined as a function of the mean signal level for each PAM4 symbol (meaning the 4
different signal levels), but on line 36 it says that there are N PAM4 symbols in the
PRBS13Q test pattern (N is not 4 here). Section 120D.3.1.1.2 can be read that there are N
different values of Vx, and no way of calculating V0 etc. is given.

SuggestedRemedy

Where the PAM4 symbol means 0,1,2 or 3 replace "PAM4 symbol" with "PAM4 symbol
level" in sections 120D.3.1.1.1 and 120D.3.1.1.2. ie on
line 3,replace "PAM4 symbol" with "PAM4 symbol level
line 4 replace "PAM4 symbols" with "PAM4 symbol levels
line 41 replace "PAM4 symbol" with "PAM4 symbol level, and add "level" to the end of the
sentence.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
In 120D.3.1.1.1, change
Transmitter linearity is defined as a function of the mean signal level transmitted for each
PAM4 symbol. Given the PAM4 symbols 0, 1, 2, and 3, the mean signal level for each
symbol are V0, V1, V2, and V3 respectively.
to
Transmitter linearity is defined as a function of the mean signal level transmitted for each
PAM4 symbol level. 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.

In 120D.3.1.1.2, change
For each PAM4 symbol x, Vx is the mean value of the waveform samples that correspond
to that symbol.
to
For each PAM4 symbol level x, Vx is the mean value of the waveform samples that
correspond to that symbol level.

Cl **120D**   *SC* **120D.3.2.1**   *P* **247**   *L* **3**   # 69
Dawe, Piers   Mellanox

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

"Subclause reference" - but some of these are sub-annexes, and for consistency and
brevity...

SuggestedRemedy

Change to just "Reference" as in e.g. Table 120D-1.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **120D**   *SC* **120D.3.2.1**   *P* **247**   *L* **15**   # 36
Healey, Adam   Broadcom Ltd.

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

The indentation of the wrapped text in the lettered list is not correct. For example, "to-
peak.." should be aligned with "The test.". Also, there appears to be extra white space in
"peak-to-peak".

SuggestedRemedy

Make appropriate editorial changes per comment.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
[Editors note: This can be corrected by: apply paragraph tag L1,LetteredList to item a and
delete the manually entered a). Re-apply paragraph tag L,LetteredList to the other items
and delete the manually entered letters.]

Cl **120D**   *SC* **120D.3.2.3**   *P* **248**   *L* **44**   # 34
Healey, Adam   Broadcom Ltd.

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

The example of a possible transmitter equalization tuning process provided in 83D.5 is
representative of what could be used for CDAUI-8 but it contains several CAUI-4 specific
details. The most obvious different is 8 lanes for CDAUI-8 versus 4 lanes for CAUI-4. A
potentially confusing difference is that 83D.5 references the CAUI-4 register set while
CDAUI-8 uses a different set of registers. While the re-use of existing text is appreciated, it
may be useful to point out these key differences.

SuggestedRemedy

Note the exceptions to the lane count and register mapping in the reference to 83D.5.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
Add the following Sentence after the reference to 83D.5:
Note that CDAUI-8 uses a different number of lanes and a different register set to those in
83D.5.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **120D**   Page 8 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **120D.3.2.3**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line

Cl **120D**   *SC* **120D.4**   *P* **249**   *L* **10**   # 18

Hidaka, Yasuo   Fujitsu Laboratories of

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

The device capacitance C_d of 0.28pF causes too much reflection in COM model.

Just a lump capacitor is too simple and does not represent actual device characteristics with T-Coil (Termination Coil) which is commonly used in many actual devices at this high data rate.

SuggestedRemedy

Add T-Coil to the COM model.

A presentation to propose the detail model and parameters of T-Coil for COM will be given at the Task Force meeting in May 2016.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Pending presentation and consensus.

Cl **120D**   *SC* **120D.4**   *P* **249**   *L* **40**   # 45

Hegde, Raj   Broadcom Corporation

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

The current CTLE configuration for chip-to-chip is a 2-zero, 2-pole structure. Traditionally, the CTLE has carried an extra pole at fb to model the bandlimiting nature of real CTLEs.

SuggestedRemedy

Add a 3rd pole to the CTLE at fb. A presentation will be made in support of this comment.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Pending presentation and consensus.

Cl **120E**   *SC* **120E.1**   *P* **254**   *L* **37**   # 20

Dudek, Mike   QLogic

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

Figure 120E-1 is an example CDAUI-8 forming part of a 400GBASE-SR16 link. This is an unlikely application as it involves a reverse mux in the PMA. It would be better to use a more likely example.

SuggestedRemedy

Change 400GBASE-SR16 to 400GBASE-FR8.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **120E**   *SC* **120E.1**   *P* **254**   *L* **53**   # 71

Dawe, Piers   Mellanox

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

The draft requires "The low-frequency 3 dB cutoff of the AC-coupling within the module shall be less than 100 kHz". This is actually two requirements, for module input and module output. For module output, it is not obvious what is necessary and we haven't established how to measure it (unlike a passive channel where both ends are accessible). CAUI-4 and XLPPI do not even have a recommendation on this.

SuggestedRemedy

Remove this sentence. In 120E.3.2, CDAUI-8 module output, add "The low-frequency 3 dB cutoff of the output AC-coupling within the module ***should*** be less than 100 kHz."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change shall to should.
See comments #70 & #72

Cl **120E**   *SC* **120E.1**   *P* **254**   *L* **53**   # 72

Dawe, Piers   Mellanox

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

The draft requires "The low-frequency 3 dB cutoff of the AC-coupling within the module shall be less than 100 kHz". This is actually two requirements, for module input and module output. For module input, this would be extremely complicated to measure and is none of the standard's business: the module input is tested with a long pattern that addresses low frequency effects, and the module implementer should be free to design good products as he chooses.

SuggestedRemedy

Remove this sentence. Add whatever is appropriate (see another comment) to 120E.3.2, CDAUI-8 module output. No need to add anything to 120E.3.4 CDAUI-8 module input.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change shall to should.
See comments #70 & #71

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **120E**   Page 9 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **120E.1**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line

Cl **120E**   *SC* **120E.3.2**   *P* **261**   *L* **48**   # 73

Dawe, Piers   Mellanox

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

Software channel loss needs tweaking, eye width, ESMW and eye height limits need review anyway.

SuggestedRemedy

Adjust software channel loss to be consistent with insertion loss budget in 120E.1, allowing for host package. Review, and if we can, improve the limits.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Commenter needs to provide a presentation indicating what needs "tweaking" and a sugested remedy.

Cl **120E**   *SC* **120E.3.2.1**   *P* **262**   *L* **23**   # 21

Dudek, Mike   QLogic

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

The values for eye width and eye height in this section do not say whether they are near end or far end and conflict with the values in table 120E-3. The requirement to meet the specifications in that table is already normative on page 261 line 34 so repeating the numbers here is unnecessary.

SuggestedRemedy

Delete the first sentence of this paragraph. Also Change the PICS TM9, TM10 adding rows so that both near end and far end eye heights and widths are included.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Delete the first two sentences of 120E.3.2.1:
"The Module output eye width of each PAM4 eye is greater than 0.4 UI. The Module output eye height of each PAM4 eye is greater than 120 mV."
Change the PICS TM9, TM10 adding rows so that both near end and far end eye heights and widths are included.

Cl **120E**   *SC* **120E.3.2.1.1**   *P* **262**   *L* **35**   # 43

Hegde, Raj   Broadcom Corporation

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

The current eye width and height measurement method needs to be updated according to the consensus comments received during the last meeting as well as the latest ad-hocs. The eye-height and width numbers as well as the loss-channel specification will need to be updated.

SuggestedRemedy

A presentation will be made in support of this comment. This topic is being discussed at the ad-hocs. Based on the consensus reached, a modification draft will also be submitted along with the presentation.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Pending presenation and consensus

Cl **120E**   *SC* **120E.3.2.1.1**   *P* **262**   *L* **38**   # 22

Dudek, Mike   QLogic

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

The reference receiver defined in 83E.3.2.1.1 doesn't have the low frequency poles so you can't use it and refer to Table 120E-2 for values.

SuggestedRemedy

Replace 83E.3.2.1.1 with 120E.3.6.1

Change the title of 120E.3.1.6.1 from "Reference receiver for host output eye width and eye height evaluation" to "Reference receiver for eye width and eye height evaluation" (Note the suggestion is to remove the word "output" as well as "host" as this is used for calibration of the stressed inputs as well.

delete host on line 33.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace 83E.3.2.1.1 with 120E.3.6.1

Change the title of 120E.3.1.6.1 from "Reference receiver for host output eye width and eye height evaluation" to "Reference receiver for eye width and eye height evaluation"

delete host on line 33.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **120E**   Page 10 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **120E.3.2.1.1**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line

Cl **120E**   *SC* **120E.3.2.1.1**   *P* **262**   *L* **45**   # 24
Dudek, Mike   QLogic

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

7.5dB loss is too great (assuming the far end eye is supposed to be representative of the signal at the ball of the host IC.) as this loss is the complete loss of the host channel and the module output is being measured at the output of the Module Compliance board.
Also an FIR filter is an un-necessary complication and may not be as representative of a host trace as can be

SuggestedRemedy

Change 7.5dB to 6.4dB.   (6.4dB is the 7.5dB host loss - 1.2dB for the MCB trace loss + 0.1dB for the difference between the loss of the MCB connector and the connector loss allocated in the budget.).

Use the host trace defined in 92.10.7.1.1 with Zp = 151mm. (ie identical to the host trace used in clause 92.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See also comment #74
Pending concensus on making these changes

Cl **120E**   *SC* **120E.3.2.1.1**   *P* **262**   *L* **46**   # 23
Dudek, Mike   QLogic

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

The loss of the channel should not be approx 7.5dB at Nyquist/2

SuggestedRemedy

Replace "Nyquist/2" with "Nyquist" or "Symbol rate/2" or "13.28GHz"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Replace "Nyquist/2" with "Nyquist"

Cl **120E**   *SC* **120E.3.2.1.1**   *P* **263**   *L* **32**   # 74
Dawe, Piers   Mellanox

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

The channel given by this 64-entry table seems to show some artifacts both at low and high frequencies which may be caused by having only 64 entries.

SuggestedRemedy

If we stay with a far-end eye, replace table with a formula e.g. a simplification of the transmission line model in COM (93A.1.2.3).

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment #24

Cl **120E**   *SC* **120E.3.3.2**   *P* **264**   *L* **44**   # 26
Dudek, Mike   QLogic

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

It is strange to have Even-odd jitter as a sub-section in host input characteristics.
Whereas the first mention is in transmitter characteristics.

SuggestedRemedy

Move this section (and references to it) to be part of 120E.4 (measurement methodology.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **120E**   *SC* **120E.3.3.3**   *P* **265**   *L* **25**   # 75
Dawe, Piers   Mellanox

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

Input tolerance isn't really defined in the little Table 120E-6, it takes a lot more than that.

SuggestedRemedy

Change "defined in " to "defined by" or "specified by". Also 120E.3.4.1.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "defined in " to "with the parameters in" .
Change also in 120E.3.4.1.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **120E**
SC **120E.3.3.3**

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Cl **120E**   *SC* **120E.3.3.3**   *P* **265**   *L* **46**   # 27
Dudek, Mike   QLogic

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

The host stressed input parameters should match the module output parameters. The text doesn't say whether the eye parameters are far end or near end, nor does it say whether the adjustments should be to make the far end eye worst case or the near end eye the worst case, or whether two tests are required. I think that it should be sufficient to do just one test and that the far end module specification is the more relevant.

SuggestedRemedy

Replace the values (and parameters) in table 120E-6 with the far end module specifications from table 120E-3.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Pending consensus

Cl **120E**   *SC* **120E.3.3.3.1**   *P* **266**   *L* **36**   # 76
Dawe, Piers   Mellanox

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

Use consistent terminology; the bounded jitter PRBS isn't data anyway. Two sentences could be joined together to make it clearer which we are talking about, 25G signal or ~2.5G jitter generator. Makes the text a bit shorter, but inserting "e.g." for clarity.

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)."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
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)."

Cl **120E**   *SC* **120E.3.3.3.1**   *P* **266**   *L* **42**   # 77
Dawe, Piers   Mellanox

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

Setting the pattern generator to the CDAUI-8 C2C output jitter profile given in Table 120D-1 then adding RJ to get to the EW spec implies a lot of RJ and very little BUJ - seems an untypical case, not the best one for testing with.

SuggestedRemedy

When we have a jitter spec for 120D, consider using a little more high probability jitter here and in 120E.3.4.1.1.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
However no changes to the draft have been proposed.

Cl **120E**   *SC* **120E.3.4.1.1**   *P* **267**   *L* **53**   # 28
Dudek, Mike   QLogic

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

Hot link to table 120E-7 doesn't seem to be working properly.

SuggestedRemedy

fix it.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
Change the hot link to point to Table 120E-7 rather than Figure 120E-7

Cl **120E**   *SC* **120E.3.4.1.1**   *P* **267**   *L* **54**   # 78
Dawe, Piers   Mellanox

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

Nine lines of repetition.

SuggestedRemedy

Delete "Bounded uncorrelated jitter provides ... below the upper frequency limit of the pattern generator external modulator input."
Change "Random jitter and bounded uncorrelated jitter are added" to "Random jitter and bounded uncorrelated jitter (see 120E.3.3.3.1) are added".

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
Whilst there are 9 lines of text in 120E.3.3.3.1 that are the same as the 9 lines of text in 120E.3.4.1.1, referring back to them would not be in the interests of the reader.
This duplication also exists in Annex 83E (CAUI-4), where it has not been an issue.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **120E**
SC **120E.3.4.1.1**

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Cl **120E**   *SC* **120E.3.4.1.1**   *P* **268**   *L* **53**   # 29
Dudek, Mike   QLogic

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

The requirement is now for 1e-5 probability eyes. EH6 and EW6 are not appropriate

SuggestedRemedy

Change "EH6 and EW6" to "Eye height and eye width"

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.
Change "EH6 and EW6" to "eye height and eye width"

Cl **120E**   *SC* **120E.4.2**   *P* **269**   *L* **10**   # 80
Dawe, Piers   Mellanox

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

I wonder if we are making the module output test pay too much attention to state of emphasis rather than signal quality, bearing in mind that a host receiver probably has more than one degree of freedom, even though a full C2C CDAUI-8 receiver is not necessary. The method in the draft relies on real hosts having channels like the software channel in the draft, and I don't know that that's reasonable to the accuracy implied.

SuggestedRemedy

Would it be more realistic, for module output (not host output), to measure the eye height in the best 5% of the UI rather than the central 5%?

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
A presentation on this subject showing consensus for a change is solicited from the commenter.

Cl **120E**   *SC* **120E.4.2**   *P* **269**   *L* **17**   # 81
Dawe, Piers   Mellanox

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

at time TCmid

SuggestedRemedy

Should be "within 0.025 UI of time Tcmid" as in step 5. Also in step 7.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.
In Steps 6 and 7, change:
"at time Tcmid"
to
"within 0.025 UI of time Tcmid"

Cl **120E**   *SC* **120E.4.2**   *P* **269**   *L* **48**   # 79
Dawe, Piers   Mellanox

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

If it takes 4 million UI equivalent to get to 1e-6, 2 CDFs in each direction, I believe it will take 1.2 million to get to 1e-5, 6 CDFs in each direction.

SuggestedRemedy

Change "400 thousand" to "1.2 million" or if the style giude tells us to, "1 200 000".

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change "400 thousand" to "1.2 million".

Cl **120E**   *SC* **120E.4.2**   *P* **269**   *L* **52**   # 30
Dudek, Mike   QLogic

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

There are more than two allowed CTLE settings for the module output.

SuggestedRemedy

Change "either of the CTLE settings" to "any single CTLE setting"

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **120E**   *SC* **120E.4.2.1**   *P* **272**   *L* **48**   # 25
Dudek, Mike   QLogic

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

Whether the vercial eye closure is measured as near end or far end is not stated.   Also the original intent of this specification was to protect hosts from large amplitude very large distortion eyes. The addition of the far end specification provides this protection.

SuggestedRemedy

Change the sentence to "Vertical eye closure is measured on the near end eye and is calculated.....".   Consider deleting all references to the Vertical eye closure.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Change the sentence to "Vertical eye closure is measured on the near end eye and is calculated.....".

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **120E**
SC **120E.4.2.1**

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Cl **121**   *SC* **121.8.5**   *P* **160**   *L* **22**   # 52
Anslow, Pete   Ciena

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

TDEC as defined in 95.8.5.1 includes: "The clock recovery unit (CRU) has a corner frequency of 10 MHz and a slope of 20 dB/decade."

SuggestedRemedy

Change: "... with the exception that in Equation 95–6 ..." to:
"... with the exceptions that the clock recovery unit (CRU) has a corner frequency of 4 MHz and in Equation 95–6 ..."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **121**   *SC* **121.8.7**   *P* **160**   *L* **39**   # 53
Anslow, Pete   Ciena

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

The transmitter optical waveform measurement defined in 95.8.7 uses a 10 MHz CRU.

SuggestedRemedy

Change:"... if measured according to the methods specified in 95.8.7." to:
"... if measured according to the methods specified in 95.8.7 with the exception that the clock recovery unit's high-frequency corner bandwidth is 4 MHz."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **121**   *SC* **121.8.8**   *P* **160**   *L* **44**   # 54
Anslow, Pete   Ciena

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

The stressed receiver sensitivity measurement defined in 95.8.8 uses a 10 MHz CRU and added jitter appropriate to this CRU bandwidth.

SuggestedRemedy

Add two more exceptions:
— The clock recovery unit (CRU) has a corner frequency of 4 MHz.
— Sinusoidal jitter is added as specified in Table 87-13 instead of Table 95–11.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **122**   *SC* **122.3.2**   *P* **172**   *L* **27**   # 51
Anslow, Pete   Ciena

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

The sentence "The Skew Variation must also be limited to ensure that a given PCS lane always traverses the same physical lane." is in magenta font.
As the current PMA structures only involve 2:1 or 4:1 mux or demux, the consequence of excessive skew variation isn't likely to be a PCS lane traversing a different physical lane.

SuggestedRemedy

Delete this sentence here and in 123.3.2

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

Cl **122**   *SC* **122.7.1**   *P* **177**   *L* **34**   # 88
Liu, Hai-Feng   Intel Corp

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

Maximum optical return loss tolerance is determined by the field addition of all possible reflections (assuming they are in phase) in the link at TP2 when the link loss is at minimum. ORL tolerance defined with maximum link loss will not cover the worst case.

SuggestedRemedy

Recommend to calculate max ORL tolerance with zero link loss in the lack of agreed minimum link loss. It would be 22.8 dB for DR4 links. Plan to make a presentation at May meeting for details.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Before changing the values, we will need to agree on the model for defining the max ORL tolerance. It is proposed to follow the same principle as for defining the appropriate MPI penalty due to reflections where a statistical instead of a worst case model is used.
After agreeing this principle, appropriate calculations should be performed to form the basis for value proposals for max ORL tolerance

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TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **122**   Page 14 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **122.7.1**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line

Cl **122**   *SC* **122.8.5.1**   *P* **180**   *L* **51**   # 89
Liu, Hai-Feng   Intel Corp

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

This ORL for TDP testing has been considered the same at the maximum ORL tolerance above.

SuggestedRemedy

As we are moving away from TDP, suggest to revisit this when TDEC is finalized

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.
See response to comment #12 for replacement for TDP. This measurement should be made in the presence of a reflection equal to the ORL tolerance value.
See also comment #88

Cl **122**   *SC* **122.8.7**   *P* **181**   *L* **29**   # 82
Liu, Hai-Feng   Intel Corp

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

The ORL should be consistent with that in Sub-clause 122.7.1

SuggestedRemedy

Change the ORL to 22.8 dB

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
Having agreed a value for the ORL tolerance (see comment #88) the same value should be used in 122.8.5.1 and in 122.8.7.
See also comment #88

Cl **122**   *SC* **122.8.7**   *P* **181**   *L* **31**   # 58
Anslow, Pete   Ciena

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

In item b), the part about an optical filter is not appropriate for DR4.
53.2 GHz is magenta

SuggestedRemedy

Change item b) to:
b) Each lane may be tested individually with the sum of the optical power from all of the lanes not under test being below -30 dBm.
Make 53.2 black

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **122**   *SC* **122.10**   *P* **183**   *L* **47**   # 83
Liu, Hai-Feng   Intel Corp

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

It seems this 39dB channel ORL is calcualated by the intensity addition of all the reflections from 4 MPO connectors. Not sure why the ORL is calculated differently here.

SuggestedRemedy

Provide jusification of doing intensity addition for this ORL, or change to the ORL determined by field addition (would be 33 dB without Rx).

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.
This is a condition on the optical channel, which should be easy to verify by a simple test. The normal test equipment used to verify the optical return loss of the fiber optic cabling will give a value that is consistent with the intensity addition of all of the reflections.

Cl **122**   *SC* **122.11.2.2**   *P* **184**   *L* **41**   # 64
Dawe, Piers   Mellanox

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

Who is supposed to obey this "shall"? The editor?

SuggestedRemedy

Change "The maximum number of instances with a maximum discrete reflectance of -45 dB shall be four" to "The number of instances with a maximum discrete reflectance of -45 dB shall not exceed four". Similarly in 123.11.2.2.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

Cl **123**   *SC* **123.7.1**   *P* **199**   *L* **41**   # 84
Liu, Hai-Feng   Intel Corp

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

Maximum optical return loss tolerance is determined by the field addition of all possible reflections (assuming they are in phase) in the link at TP2 when the link loss is at minimum. ORL tolerance defined with maximum link loss will not cover the worst case.

SuggestedRemedy

Recommend to calculate max ORL tolerance with zero link loss in the lack of agreed minimum link loss. They would be 17.8 dB for FR8 and 15.7 dB for LR8. Plan to make a presentation at May meeting for details.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.
See comment #88

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn
SORT ORDER: Clause, Subclause, page, line

Cl **123**   *SC* **123.8.5**   *P* **203**   *L* **20**   # 12

King, Jonathan   Finisar

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

TDP and SRS are TBD
Include TDECQ in clause 123, a transmitter quality metric, and SECQ, a metric for the
SRS test source, by making the changes described in king_3bs_01_0516.pdf. The
suggested changes affect 123.8.5, 123.8.10 and other sub sections where TDP or SRS is
mentioned.

SuggestedRemedy

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Pending presentation

Cl **123**   *SC* **123.8.5**   *P* **203**   *L* **22**   # 50

Anslow, Pete   Ciena

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

For the TDEC metric and SRS calibration being discussed in the SMF Ad Hoc (see
http://www.ieee802.org/3/bs/public/adhoc/smf/16_04_19/king_01a_0416_smf.pdf) a short
test pattern will be required.

SuggestedRemedy

Adopt the SSPRQ pattern (2^16-1 symbols long version) as proposed in
http://www.ieee802.org/3/bs/public/adhoc/logic/apr28_16/anslow_01_0416_logic.pdf for
TDEC and SRS calibration in Clauses 122 and 123 with editorial license.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.
In line with consensus from Logic Ad Hoc call on 28 April.

Cl **123**   *SC* **123.8.5.1**   *P* **203**   *L* **35 &**   # 85

Liu, Hai-Feng   Intel Corp

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

These ORLs for TDP testing have been considered the same at the maximum ORL
tolerance above.

SuggestedRemedy

Suggest to revisit this when TDEC is finalized

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
See response to comment #12 for replacement for TDP. This measurement should be
made in the presence of a reflection equal to the ORL tolerance value.
See also comment #88

Cl **123**   *SC* **123.8.7**   *P* **204**   *L* **15**   # 86

Liu, Hai-Feng   Intel Corp

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

ORLs should be consistent with that in Sub-clause 123.7.1

SuggestedRemedy

17.8 dB for FR8 and 15.7 dB for LR8.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Having agreed a value for the ORL tolerance (see comment #88) the same value should
be used in 123.8.5.1 and in 123.8.7.
See also comment #88

Cl **123**   *SC* **123.10**   *P* **207**   *L* **39**   # 87

Liu, Hai-Feng   Intel Corp

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

It seems the channel ORLs are calcualated by the intensity addition of the reflections from
all the connectors of the links. Not sure why they are calculated differently here.

SuggestedRemedy

Provide jusification of doing intensity addition for these ORLs, or change to the ORLs
determined by field addition (would be 22.1 dB for FR8 and 18.9 dB for LR8 without Rx).

Proposed Response   *Response Status* **W**

PROPOSED REJECT.
This is a condition on the optical channel, which should be easy to verify by a simple test.
The normal test equipment used to verify the optical return loss of the fiber optic cabling
will give a value that is consistent with the intensity addition of all of the reflections.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Cl* **123**   Page 16 of 16
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed Z/withdrawn   *SC* **123.10**   17/05/2016 22:24:27
SORT ORDER: Clause, Subclause, page, line