Cl **FM** *SC* **FM** *P* **1** *L* **1** # 18

Gardner, Andrew — Linear Technology

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

Remove change bars in the margins from clean verison of the draft

SuggestedRemedy

see comment

Response *Response Status* **C**

REJECT.
The "clean" version has all text, figures, tables etc. as they would be for the published version without inserted or deleted text being shown using underline or strikethrough. Leaving the change bars in this version is deliberate since it is helpful in showing the location of changes but does not disrupt the text, figures or tables of the draft.

Cl **FM** *SC* **FM** *P* **4** *L* **10** # 10

Smith, Daniel — Seagate Technology

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

spelling for 'arabic', throughout the Editor's note.

SuggestedRemedy

s/b: "Arabic" with a capital 'A'

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "arabic" to "Arabic" on line 9 and line 10.
[Editor's note: Clause and Subclause "front matter" changed to "FM"]

Cl **FM** *SC* **FM** *P* **8** *L* **13** # 190

Hidaka, Yasuo — Fujitsu Lab of America

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

"200 Gb/s" is missing in Task Force name on line 13 through 19.

SuggestedRemedy

Insert "200 Gb/s and" after "P802.3bs" on line 13 ghrough 19.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"P802.3bs 400 Gb/s Ethernet" to:
"P802.3bs 200 Gb/s and 400 Gb/s Ethernet"
in 7 places on page 8.

Cl **FM** *SC* **FM** *P* **8** *L* **19** # 560

Law, David — HPE

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

Please add Working Group voter list supplied in IEEE_P802d3bs_WG_names_DL_240816.fm

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add the suggested list with the exception of "John D'Ambrosia" who is already listed as the Task Force Chair.
[Editor's note: Attachment is law_3bs_01_0916.pdf in http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]

Cl **FM** *SC* **FM** *P* **13** *L* **8** # 2

Hajduczenia, Marek — Charter Communicatio

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

There is no IEEE Std 802.3bvT-201x

SuggestedRemedy

Please add text for "IEEE Std 802.3bvT-201x" as Amendment 9

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Now that the Working Group Chair has announced the assumed order of amendments up to Amendment 9, text for Amendment 8 (IEEE Std 802.3bu-201x) and Amendment 9 (IEEE Std 802.3bv-201x) will be added. See response to comment #50.

Cl **FM** *SC* **FM** *P* **13** *L* **8** # 1

Hajduczenia, Marek — Charter Communicatio

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

"IEEE Std 802.3bsT-201x" is not marked as Amendment 8

SuggestedRemedy

Add "Amendment 8-" ahead of "This amendment includes changes to IEEE Std 802.3-2015 and adds Clause 116 through Clause 124" statement

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The Working Group Chair has not announced the assumed order for amendments above Amendment 9. Text for Amendment 8 (IEEE Std 802.3bu-201x) will be added, but the assumed amendment number for IEEE Std 802.3bs-201x will not be added until it is announced by the Working Group Chair.
See also response to comment #50

Cl **FM** *SC* **FM** *P* **13** *L* **12** # 19

Gardner, Andrew — Linear Technology

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

Since it seems likely that IEEE P802.3bu will be published before IEEE P802.3bs add it to the list of prior amendments.

SuggestedRemedy

see comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #50

Cl **00** *SC* **0** *P* *L* # 64

Anslow, Pete — Ciena

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

Now that the publication order for P802.3bu and P802.3bv has been decided, account for any changes to the base standard made by these two additional amendments.

SuggestedRemedy

Account for any changes to the base standard made by P802.3bu and P802.3bv as well as updates to any of the earlier amendments.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #50

Cl **00** *SC* **0** *P* **1** *L* **2** # 174

Grow, Robert — RMG Consulting

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

In publication, this is where the list of amendments and corrigenda comprising the base document being amended is listed. (See IEEE Std 802.3by page two or title page of P802.3bv/D3.0 for example.)

Based on current schedules, P802.3bs, could be be designated Amendment 10, 11 or 12. Questioning the schedule for P802.3cc when it is only at D1.0 argues against Amendment 12; and 802.3cb at the same ballot makes 10 or 11 a tossup, to the list certainly can be TBD. But, in addition, Corrigendum 1 will almost certainly be approved before this project is approved.

The SASB teleconference is 22 Sept, so if P802.3bs/D2.1 is not distributed before knowing the results, 802.3bn and 802.3bz might appropriately be 2016.

SuggestedRemedy

Could edit as in P802.3bv/D3.0 or indicate to be updated during publication preparation. If the list is added, delete the list at line 25.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #50

Cl **00** *SC* **0** *P* **1** *L* **2** # 50

Zimmerman, George — CME Consulting, Inc./

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

It is likely that 802.3bu and 802.3bv, both currently in sponsor ballot will be completed prior to this standard, which has just entered working group ballot. This effects the introduction, the header and may affect updates elsewhere in the draft (unclear without substantial cross-checking).

SuggestedRemedy

Consult 802.3 leadership to estimate order of publication. Change header to add "as amended by <list of amendments to be provided by staff prior to publication>", change line 28, to include IEEE Std 802.3bu-201x and IEEE Std 802.3bv-201x. Add 802.3bu and 802.3bv summaries after 802.3bz on page 13, and before 802.3bs, as well as any other amendments deemed likely to precede 802.3bs. Update table 45-3 (P41) and editing instruction to align with 802.3bv (bit 1.22 is no longer reserved), and editor to check and update draft to align with 802.3bv and 802.3bu and any other preceding standards indicated by leadership.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Now that the Working Group Chair has announced the assumed order of amendments up to Amendment 9, make the following changes:
On page 1, line 2 change:
"(Amendment of IEEE Std 802.3T-2015)" to:
"(Amendment of IEEE Std 802.3T-2015 as amended by [list to be populated during publication process])"
On page 1, line 27 add IEEE Std 802.3bu-201x and IEEE Std 802.3bv-201x to the list of amendments.
On page 13, add summary text for amendments 8 and 9 after that for Amendment 7.
Account for any changes to the base standard made by P802.3bu and P802.3bv as well as updates to any of the earlier amendments.
As the Working Group Chair announces the assumed order for further ammendments ahead of the P802.3bs draft add thse to the list and account for any changes they make to the base standard.

Cl **00** *SC* **0** *P* **2** *L* **46** # 175

Grow, Robert — RMG Consulting

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

Draft uses both 201x and 20xx for yet to be approved standards and other year dates. While this project is unlikely to be subject to the uncertainty of the next decade, other projects getting started now face that possible uncertainty.

SuggestedRemedy

Use one form to simplify search by publication editor. I recommend 20xx as is used in IEEE boilerplate.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "20xx" to "201x" on Page 2, line 46 and Page 11, line 29.

Cl **00** *SC* **0** *P* **8** *L* **22** # 176

Grow, Robert — RMG Consulting

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

The WG ballot group is now known. It is thoughtful to allow members to review the appearance of their names in case there is any error in the database.

SuggestedRemedy

Add list that the WG Chair can provide, (he will probably remind you not to duplicate officer names in the added list).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #560.

Cl **00** *SC* **0** *P* **13** *L* **6** # 177

Grow, Robert — RMG Consulting

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

Update with current document descriptions.

SuggestedRemedy

I personally prefer adding the document list with draft numbers that were used when creating the draft in an Editor's note above this list as this is the first location where base text is drawn from preceding amendments and corrigenda. The Editor's note list on p. 32 does not provide good information for this purpose.

From my most recent review updates to the list are appropriate:
p. 12, l. 42 hopefully publication editors will correct the grammar, other projects have deleted "for" to do that in their drafts;
p. 13, l. 8 add Amendment 8 802.3bu and Amendment 9 802.3bv. Also consider adding Corrigendum 1 as it is likely to preceed approval of this project.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #50
On page 12, line 42, this is the text as per P802.3br D3.1. If the published version is different from this, then it will be updated. Making any change to the text prior to publication of IEEE Std 802.3br-2016 would be incorrect.

Cl **00** *SC* **0** *P* **32** *L* **46** # 178

Grow, Robert — RMG Consulting

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

P802.3bp should no be longer running in parallel after September, also, it is not terribly helpful in knowing which doeuments the editors have considered in preparation of the draft.

SuggestedRemedy

Delete the editor's note, or add the list of considered published, approved and in ballot drafts.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The current text will not be incorrect when the P802.3bp project is terminated as the two projects did run in parallel. The purpose of the note is not to provide a list of documents that has been considered in preperation of the draft, it is to explain the format of the editing instructions.
Change:
"(e.g., IEEE P802.3bn and IEEE P802.3bp)" to:
"(e.g., IEEE P802.3bn and IEEE P802.3bv)"

Cl **00** *SC* **0** *P* **73** *L* **22** # 45

Ran, Adee — Intel

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

The term RS-FEC appears here (corrected and uncorrected codeword counters), but the subclause titles use "PCS FEC". "PCS FEC" also appears (as a distinct term from RS-FEC) in 30.5.1.1.17 and 30.5.1.1.18 which refer to these counters.

If "PCS FEC" is the chosen term it should be used consistently.

This applies to:
45.2.3.47e, P73 L21
45.2.3.47f, P73 L42
119.1.2, P141 L26
119A, P315 L11 and L28
120B.3.2, P332 L15
120D.3.2, P351 L21 and L22
120D.3.2.2, P352 L7, L21, L29

SuggestedRemedy

Change "RS-FEC" to "PCS FEC" in the listed places.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "RS-FEC" to "PCS FEC" in the following places:
45.2.3.47e, page 73 line 22
45.2.3.47f, page 73 line 42
119.1.2, page 141 line 26
119A, page 315 lines 11 and 28
120B.3.2, page 332 line 15
120D.3.2.1, page 351 lines 22 and 23
120D.3.2.2, page 352 lines 7, 21, and 29

Cl **1** *SC* **1.1.3.2** *P* **33** *L* **22** # 537

Bouda, Martin — Fujitsu

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

"Two widths of (...) eigth-lane version (.) four-lane version" could be made easier to read by replacing either the word "width" by "type", or words "type" by "width"

SuggestedRemedy

In the sentence replace the two instances of "version" by "width".

Response *Response Status* **C**

REJECT.
This text follows the text in 1.1.3.2, item m:
"Two widths of CAUI-n are defined: a ten-lane version (CAUI-10) in Annex 83A and Annex 83B, and a four-lane version (CAUI-4) in Annex 83D and Annex 83E."
The suggested replacement text:
"Two widths of 200GAUI-n are defined: an eight-lane width (200GAUI-8) in Annex 120B and Annex 120C, and a four-lane width (200GAUI-4) in Annex 120D and Annex 120E."
is not enough of an improvement to justify making this text different from the 100G definition.

Cl **1** *SC* **1.1.3.2** *P* **33** *L* **35** # 538

Bouda, Martin — Fujitsu

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

"Two widths of (...) sixteen-lane version (.) eight-lane version" could be made easier to read by replacing either the word "width" by "type", or words "type" by "width"

SuggestedRemedy

In the sentence replace the two instances of "version" by "width".

Response *Response Status* **C**

REJECT.
See response to comment #537

Cl **1** *SC* **1.3** *P* **33** *L* **44** # 179

Grow, Robert — RMG Consulting

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

Though unlikely with these two inserted references, they should be in alphanumeric order to minimize publication editor error in inserting.

SuggestedRemedy

Correct order.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Swap the order of the two inserted references.

Cl **1** *SC* **1.4** *P* **34** *L* **3** # 180

Grow, Robert — RMG Consulting

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

The inserts as specified make worse the sort order mess that is currently the state of 1.4. 40GBASE terms in 2015 did not follow either the speed ordered port type list at the beginning of 1.4, nor insert after 2BASE-TL for at least the first digit being in sort order. 25GBASE terms were inserted by P802.3by before 40GBASE terms so at least the first digit of the port types somewhat sort. The insert order also violates the groupings of the current 1.4 by not inserting the interface terms together.

SuggestedRemedy

Either try to better group using existing groups (after 25G/40G with interfaces separately grouped, or at a minimum order the inserts of P802.3bs in proper letter by letter sort order (.0123456789abcdefghijklmnopqustuvwxyz) ignoring spaces and all other characters.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Re-order the new definitions being inserted by the p802.3bs draft after 1.4.72a 40GBASE-T according to the letter by letter sort order (.0123456789abcdefghijklmnopqustuvwxyz) ignoring spaces and all other characters. This results in:
1.4.72b 200GBASE-DR4
1.4.72c 200GBASE-FR4
1.4.72d 200GBASE-LR4
1.4.72e 200GBASE-R
1.4.72f 200 Gb/s Attachment Unit Interface (200GAUI-n)
1.4.72g 200 Gb/s Media Independent Interface (200GMII)
1.4.72h 200GMII Extender
1.4.72i 200GXS
1.4.72j 400GBASE-DR4
1.4.72k 400GBASE-FR8
1.4.72l 400GBASE-LR8
1.4.72m 400GBASE-R
1.4.72n 400GBASE-SR16
1.4.72o 400 Gb/s Attachment Unit Interface (400GAUI-n)
1.4.72p 400 Gb/s Media Independent Interface (400GMII)
1.4.72q 400GMII Extender
1.4.72r 400GXS

Cl **1** *SC* **1.4** *P* **35** *L* **12** # 145

D'Ambrosia, John Futurewei, Subsidiary

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

The basic definition is limited, and speaks only to what it is, rather than the complete function it serves - to extend the reach of the 200GMII and allow communication with 200G PHYs that use a different PCS.

SuggestedRemedy

Change the definition to
The 200 Gb/s Media Independent Interface Extender extends the reach of the 200GMII and consists of two 200GXS sublayers with a 200GAUI-n between them. It is defined as a mechanism for communication with future 200 Gigabit Ethernet PHYs that utilize a PCS sublayer other than that defined in Clause 119. (See IEEE Std 802.3, Clause 118.)

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.4** *P* **35** *L* **18** # 147

D'Ambrosia, John Futurewei, Subsidiary

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

In the definition of the 200GMII Extender, it is noted that the 200GXS is for future 200G PHYs and is identical to the 200GBASE-R PCS. It is likely that the reader will find this definition confusing. As noted in other comment, the Extender allows communication with future 200G PHYs using a PCS different than the existing 200GBASE-R PCS. It is not intuitive to merely say that the functionality of the 200GXS is the same as the 200GBASE-R PCS. Essentially, the 200GBASE-R PCS can be configured through the appropriate registers as a 200GXS in order to implement the 200GMI Extender.

SuggestedRemedy

Modify the definitionThe 200 Gb/s Extender Sublayer (200GXS) is part of the 200GMII Extender. In functionality, it is identical to the 200GBASE-R PCS Sublayer defined in Clause 119. (See IEEE Std 802.3, Clause 118.), but must be configured as a 200GXS through optional management registers.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"Its functionality is identical to the 200GBASE-R PCS Sublayer defined in Clause 119. (See IEEE Std 802.3, Clause 118.)" to:
"In functionality, it is almost identical to the 200GBASE-R PCS Sublayer defined in Clause 119, but it may be configured as a 200GXS through different optional management registers. (See IEEE Std 802.3, Clause 118.)"

Cl **1** *SC* **1.4** *P* **35** *L* **22** # 146

D'Ambrosia, John Futurewei, Subsidiary

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

The basic definition is limited, and speaks only to what it is, rather than the complete function it serves - to extend the reach of the 400GMII and allow communication with 400G PHYs that use a different PCS.

SuggestedRemedy

Change the defintion to
The 400 Gb/s Media Independent Interface Extender extends the reach of the 400GMII and consists of two 400GXS sublayers with a 400GAUI-n between them. It is defined as a mechanism for future 400 Gigabit Ethernet PHYs that utilize a PCS sublayer other than that defined in Clause 119. (See IEEE Std 802.3, Clause 118.)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the defintion to:
"The 400 Gb/s Media Independent Interface Extender extends the reach of the 400GMII and consists of two 400GXS sublayers with a 400GAUI-n between them. It is defined as a mechanism for communication with future 400 Gigabit Ethernet PHYs that utilize a PCS sublayer other than that defined in Clause 119. (See IEEE Std 802.3, Clause 118.)"

Cl **1** *SC* **1.4** *P* **35** *L* **26** # 137

D'Ambrosia, John Futurewei, Subsidiary

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

In the definition of the 400GMII Extender, it is noted that the 400GXS is for future 400G PHYs and is identical to the 400GBASE-R PCS. It is likely that the reader will find this definition confusing. As noted in other comment, the Extender allows communication with future 400G PHYs using a PCS different than the existing 400GBASE-R PCS. It is not intuitive to merely say that the functionality of the 400GXS is the same as the 400GBASE-R PCS. Essentially, the 400GBASE-R PCS can be configured through the appropriate registers as a 400GXS in order to implement the 400GMI Extender.

SuggestedRemedy

Modify the definitionThe 400 Gb/s Extender Sublayer (400GXS) is part of the 400GMII Extender. In functionality, it is identical to the 400GBASE-R PCS Sublayer defined in Clause 119. (See IEEE Std 802.3, Clause 118.), but must be configured as a 400GXS through optional management registers.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"Its functionality is identical to the 400GBASE-R PCS Sublayer defined in Clause 119. (See IEEE Std 802.3, Clause 118.)" to:
"In functionality, it is almost identical to the 400GBASE-R PCS Sublayer defined in Clause 119, but it may be configured as a 400GXS through different optional management registers. (See IEEE Std 802.3, Clause 118.)"

Cl **1** *SC* **1.4.72b** *P* **34** *L* **8** # 539

Bouda, Martin Fujitsu

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

"Two widths of (...) eigth-lane version (.) four-lane version" could be made easier to read by replacing either the word "width" by "type", or words "type" by "width"

SuggestedRemedy

In the sentence replace the two instances of "version" by "width".

Response *Response Status* **C**

REJECT.
This text follows the text in 1.4.81:
"Two widths of CAUI-n are defined: a ten-lane version (CAUI-10) and a four-lane version (CAUI-4)"
The suggested replacement text:
"Two widths of 200GAUI-n are defined: an eight-lane width (200GAUI-8), and a four-lane width (200GAUI-4)."
is not enough of an improvement to justify making this text different from the 100G definition.

Cl **1** *SC* **1.4.72i** *P* **34** *L* **33** # 540

Bouda, Martin Fujitsu

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

"Two widths of (...) sixteen-lane version (.) eight-lane version" could be made easier to read by replacing either the word "width" by "type", or words "type" by "width"

SuggestedRemedy

In the sentence replace the two instances of "version" by "width".

Response *Response Status* **C**

REJECT.
See response to comment #539

Cl **1** *SC* **1.4.107** *P* **35** *L* **5** # 181

Grow, Robert RMG Consulting

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

P802.3cb is also modifying this definition, if timelines hold true, this instruction and base text is wrong.

SuggestedRemedy

Add an Editor's note to remind that 802.3cb is also modifying this definition and base text and editing instruction reference will have to be updated if 802.3cb is assigned a lower amendment number than 802.3bs.

Response *Response Status* **C**

ACCEPT.

Cl **1** *SC* **1.4.132a** *P* **35** *L* **11** # 182

Grow, Robert RMG Consulting

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

I can discern no logical reason for inserting these terms after 1.4.132.

SuggestedRemedy

Sort with other terms that begin with a number.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In the San Diego meeting a global change was made:
"CCMII Extender" was changed to "200GMII Extender"
"CCXS" was changed to "200GXS"
"CDMII Extender" was changed to "400GMII Extender"
"CDXS" was changed to "400GXS"
without the position of these definitions being changed.

See response to comment #180

Cl **1** *SC* **1.4.132a** *P* **35** *L* **13** # 65

Anslow, Pete Ciena

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

Now that:
CCMII Extender has become 200GMII Extender
CCXS ahs become 200GXS
CDMII Extender has become 400GMII Extender
CDXS ahs become 400GXS
these definitions are not in the correct place in 1.4

SuggestedRemedy

Move these definitions to the appropriate place in 1.4

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #180

Cl **1** *SC* **1.4.325** *P* **35** *L* **35** # 541

Bouda, Martin Fujitsu

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

"(.) PCS distributes encoded data to multiple logical lanes, these logical lanes are called PCS lanes." should be broken into two sentences, removing the comma.

SuggestedRemedy

"(.) PCS distributes encoded data to multiple logical lanes. These logical lanes are called PCS lanes."

Response *Response Status* **C**

REJECT.
This text is part of the base standard. No change has been made in the P802.3bs amendment that requires such a change to this definition.

Cl **1** *SC* **1.4.325** *P* **35** *L* **36** # 542

Bouda, Martin Fujitsu

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

Moving the word together to just after the word carried would make the following sentence easier to read: "One or more PCS lanes can be multiplexed and carried on a physical lane together at the PMA service interface."

SuggestedRemedy

"One or more PCS lanes can be multiplexed and carried together on a physical lane at the PMA service interface."

Response *Response Status* **C**

REJECT.
This text is part of the base standard. No change has been made in the P802.3bs amendment that requires such a change to this definition.

Cl **1** *SC* **1.5** *P* **35** *L* **39** # 183

Grow, Robert RMG Consulting

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

Sort order of 1.5 is alphanumeric (with only a few errors).

SuggestedRemedy

Correct editing instruction to alphanumeric.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"in alphabetical order" to:
"in alphanumeric order"
In the editing instruction for 1.3 change:
"in alphanumerical order" to:
"in alphanumeric order"

Cl **30** *SC* **30.3.2.1.2** *P* **37** *L* **17** # 543

Bouda, Martin Fujitsu

Comment Type **ER** *Comment Status* **R** *Bucket*

Insert a comma to separate Clause number from bitrate in "Clause 119 200 Gb/s"

SuggestedRemedy

"Clause 119, 200 Gb/s"

Response *Response Status* **C**

REJECT.
These rows are being added to an existing list which does not include such commas. For example:
"Clause 82 100Gb/s multi-PCS lane using 2-level PAM"

Cl **30** *SC* **30.3.2.1.2** *P* **37** *L* **18** # 544

Bouda, Martin Fujitsu

Comment Type **ER** *Comment Status* **R** *Bucket*

Insert a comma to separate Clause number from bitrate in "Clause 119 400 Gb/s"

SuggestedRemedy

"Clause 119, 400 Gb/s"

Response *Response Status* **C**

REJECT.
These rows are being added to an existing list which does not include such commas. For example:
"Clause 82 100Gb/s multi-PCS lane using 2-level PAM"

Cl **30** *SC* **30.3.2.1.3** *P* **37** *L* **27** # 545

Bouda, Martin Fujitsu

Comment Type **ER** *Comment Status* **R** *Bucket*

Insert a comma to separate Clause number from bitrate in "Clause 119 200 Gb/s"

SuggestedRemedy

"Clause 119, 200 Gb/s"

Response *Response Status* **C**

REJECT.
These rows are being added to an existing list which does not include such commas. For example:
"Clause 82 100Gb/s multi-PCS lane using 2-level PAM"

Cl **30** *SC* **30.3.2.1.3** *P* **37** *L* **28** # 546

Bouda, Martin Fujitsu

Comment Type **ER** *Comment Status* **R** *Bucket*

Insert a comma to separate Clause number from bitrate in "Clause 119 200 Gb/s"

SuggestedRemedy

"Clause 119, 200 Gb/s"

Response *Response Status* **C**

REJECT.
These rows are being added to an existing list which does not include such commas. For example:
"Clause 82 100Gb/s multi-PCS lane using 2-level PAM"

Cl **45** *SC* **45.2.1** *P* **41** *L* **7** # 184

Grow, Robert RMG Consulting

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

P802.3bv Amendment 9 should be the base text.

SuggestedRemedy

Cite IEEE Std 802.3bv-20xx instead of 802.3bz. Delete row for 1.22. Change last row to "1.23 through" (strikethrough)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the editing instruction to:
"Change the reserved row for 1.23 through 1.29 in Table 45-3 (as modified by IEEE Std 802.3bv-201x) as follows (unchanged rows not shown):"
Remove the row for bit 1.22
In the bottom row, change "1.22 through" to "1.23 through"

Cl **45** *SC* **45.2.1.6** *P* **44** *L* **53** # 185

Grow, Robert RMG Consulting

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

P802.3bv Amendment 9 defines the six bit number 110100. I'll submit a comment on P802.3bv to change the base text as suggested in the Editor's note. Resulting in base text of "110101 = reserved" plus the definition of 110100 as shown in P802.3bv/D3.0.

SuggestedRemedy

Change the P802.3bv editing instruction to include IEEE Std 802.3bv-20xx. Split line 35 into 0110101 = reserved and 0110100 = BASE-H PMA/PMD (underscore the leftmost 0). It may be helpful to add an Editors note stating that P802.3cb is defining 0111100 and 0111011 and P802.3cc is defining 0110110 and 0110101, in case either is assigned a lower amendment number.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add IEEE Std 802.3bv-201x to the list of amendments in the editing instruction and update the table to account for the changes being made by the P802.3bv draft.

Cl **45** *SC* **45.2.1.10** *P* **51** *L* **3** # 186

Grow, Robert RMG Consulting

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

P802.3bz (1.11.14) and P802.3bv (1.11.15) both define values requiring update to the base text from IEEE Std 802.3by.

SuggestedRemedy

Delete the first row of the table changes. Add a strikethrough Reserved and Value always 0 to the row for 1.11.13. P802.3bz/D3.3 submitted to RevCom has the word zero instead of the more common digit 0, but since it is strikethrough and publication editors might change to the digit for consistency, which is used might be considered worrying about nits.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the editing instruction to:
"Change the row for 1.11.13 in Table 45-14 (as modified by IEEE Std 802.3bz-201x) as follows (unchanged rows not shown):"
Remove the row for 1.11.15:13
Show the changes to the row for bit 1.11.13 with respect to the row in P802.3bz D3.3

Cl **45** *SC* **45.2.1.10** *P* **51** *L* **12** # 3

Hajduczenia, Marek — Charter Communicatio

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

"1.11.15:14" should be shown in underline - it is an inserted text

SuggestedRemedy

Per comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Overtaken by events.
As pointed out by comment #186, P802.3bz is creating a reserved row for bit 1.11.13, so the row that is the subject of this comment is removed by the response to comment #186.

Cl **45** *SC* **45.2.1.10.aaa** *P* **51** *L* **23** # 187

Grow, Robert — RMG Consulting

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

P802.3bz includes this subclause number for description of bit 1.11.14.

SuggestedRemedy

Renumber to fit between the bit 13 subclause 45.2.10.aa description of 802.3by and the bit 14 subclause 45.2.10.aaa of 802.3bz. I think that makes it 45.2.10.ab. Make corresponding changes to the PICS.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change editing instruction to:
"Insert 45.2.1.10.aab after 45.2.1.10.aaa (as inserted by IEEE Std 802.3bz-201x) and before 45.2.1.10.aa (as inserted by IEEE Std 802.3by-2016) as follows:"
Re-number the subclause defining bit 1.11.13 to 45.2.1.10.aab

Cl **45** *SC* **45.2.1.116b** *P* **55** *L* **1** # 188

Grow, Robert — RMG Consulting

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

P802.3bv Amendment 9 inserts Table 45-90a for register 1.900.

SuggestedRemedy

Renumber all 45-90x tables being inserted to be 45-90ax (x being the existing letter).
Make corresponding changes to the PICS.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change Tables 45-90a, 45-90b and 45-90c to 45-90aa, 45-90ab and 45-90ac.

Cl **45** *SC* **45.2.1.123** *P* **60** *L* **20** # 547

Bouda, Martin — Fujitsu

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

"(.) PHY types that implement square wave testing and PRBS testing in the PMA." should be made inclusive of the newly added patterns of bits 1.1500.6 through 1.1500.15.

SuggestedRemedy

"(.) PHY types that implement SSPRQ, JP03A, square wave, PRBS13Q or PRBS testing ability in the PMA."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"for PHY types that implement square wave testing and PRBS testing in the PMA" to:
"for PHY types that implement SSPRQ, JP03A, square wave, and PRBS testing in the PMA"
with the added words underlined and deleted words in strikethrough.
[Editor's note: Line changed from 60 to 20]

Cl **45** *SC* **45.2.1.123** *P* **61** *L* **21** # 4

Hajduczenia, Marek — Charter Communicatio

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

"and this register is implemented" - typically, register numbers are referenced explicitly

SuggestedRemedy

Change "and this register is implemented" to "and register 1.500 is implemented" in newly added text and text existing already in 45.2.1.123

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "and this register is implemented" to "and register 1.1500 is implemented" in newly added text and existing text in 45.2.1.123

Cl **45** *SC* **45.2.1.124** *P* **62** *L* **32** # 29

Healey, Adam — Broadcom Ltd.

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

JP03A is a jitter test pattern. Such testing would be more rigorous if aggressor lanes (i.e., active lanes other than the lane under test) could transmit a more spectrcally rich test pattern while the lane under test transmits JP03A. To accomplish this, the per-lane management model used for the square wave test pattern (see 45.2.1.125) should also be applied to JP03A. A modification to the jitter specification that requires aggressor lanes to transmit "random" test patterns is the subject of a separate comment.

SuggestedRemedy

Remove "JP03A pattern enable" bit from register 1.1501 (Table 45-93). Create a "JP03A control" register modeled after 1.1510 (see 45.2.1.125) in an appropriate place within the management register space and generate a new subclause accordingly. In this register, provide lane 0 through lane 7 JP03A enable bits (the remainder are reserved). As in 45.2.1.125, state in the new subclause that "lanes for which JP03A is not enabled act as determined by other registers".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with the exception of the removal of the "JP03A pattern enable" bit from register 1.1501 (Table 45-93) since that bit is used by existing implementations of 100GBASE-KP4.

This response may be affected by the response to comment #131 which proposes to remove the need for the JP03A pattern.

Cl **45** *SC* **45.2.1.125** *P* **64** *L* **24** # 548

Bouda, Martin — Fujitsu

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

The footnote of Table 45-94 does not need to include "RO=Read only" anymore since all of the bits have become R/W.

SuggestedRemedy

Replace the footnote with "aR/W = Read/Write"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Show the ", RO = Read only" part of the footnote in strikethrough font.

Cl **45** *SC* **45.2.3.1.5** *P* **66** *L* **48** # 60

Anslow, Pete — Ciena

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

The changes to 45.2.3.1.5 shown in P802.3bs D2.0 are an extension of the changes shown in P802.3by D2.1.
However, comment #7 against P802.3by D2.1 resulted in the removal of the changes to 45.2.3.1.5 from the P802.3by draft.
See http://www.ieee802.org/3/by/public/comments/8023by_D21_comment_final_responses_by_clause.pdf#page=5
Without any changes being made by IEEE Std 802.3by-2016, there is no need for the changes shown in the P802.3bs draft.

SuggestedRemedy

Remove 45.2.3.1.5 from the P802.3bs draft (and therefore leave 45.2.3.1.5 as it is in the base standard).

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.6** *P* **68** *L* **36** # 5

Hajduczenia, Marek — Charter Communicatio

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

In Table 45-123, column for bit 3 uses much larger font than columns for bits 0, 1, and 2

SuggestedRemedy

Please use the same font for all columns: 0, 1, 2, and 3

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the column for bit 3 from 10 pt to 9 pt

Cl **45** *SC* **45.2.3.47a** *P* **70** *L* **49** # 189

Grow, Robert — RMG Consulting

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

P802.3bv Amendment 9 inserts 45.2.3.47a through 45.2.3.47g and Tabled 45-160a through 45-160g.

SuggestedRemedy

Renumber subclauses and tables to begin at 45.2.3.47h and 45-160h respectively. Make corresponding changes to the PICS.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change editing instruction to:
"Insert 45.2.3.47h through 45.2.3.47p after 45.2.3.47g (as inserted by IEEE Std 802.3bv-201x) as follows:"
Renumber subclauses from 45.2.3.47h and tables from Table 45-160h

---

Cl **45** *SC* **45.2.3.47a** *P* **70** *L* **51** # 95

Slavick, Jeff — Broadcom

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

With the checker board distribution of RS-symbols into PCS lanes, the PCS FEC Symbol error counters don't provide a 1-1 mapping of physical lane to counter. So you have 2 physical lanes providing error counts into the same PCS FEC lane counter. This doesn't supply the intent of the counter to assist in identifying the lanes that are running at worse SER rates then others.

SuggestedRemedy

Presentation to be supplied

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **45** *SC* **45.2.3.47d.2** *P* **72** *L* **50** # 41

Ran, Adee — Intel

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

This bit can be left unspecified (so that any value is allowed), but to reduce confusion it would be better to specify it. A value of 1 makes sense, as it indicates an undesirable situation.

The bit _value_ can't be "undefined" - a value of a bit is either 0 or 1.

("undefined" is sometimes used in clause 45 when a read value is irrelevant or a register is undefined, but the value of this register affects the encoding of the transmitted bit stream.)

SuggestedRemedy

Change "The value of bit 3.801.4 is undefined" to "This bit is set to one".

Alternatively, change to "unspecified" or "implementation dependent".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The value of bit 3.801.4 is undefined if" to:
"The value of bit 3.801.4 is unspecified if"

Cl **45** *SC* **45.2.3.47i** *P* **75** *L* **5** # 104

Slavick, Jeff — Broadcom

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

When defining the interval you should limit this to intervals that make sense for the FEC engine. For example for Clause 119 because there's two FEC decoders running in parallel this interval should not be an odd number since it'll be a pain to add in symbol counts for 4 or 8 of the lanes and then start the next interval with the sum of the error counts from the other lanes

SuggestedRemedy

Add the following to the definition of the register. "The least significant bit of this registers shall be ignored by by the 200G/400G PCS (119) since it operates on two codewords at a time."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Requirements on the Clause 119 PCS should not be placed in the optional MDIO clause.

In 119.2.5.3 (Page 162, line 18) change:
"in consecutive non-overlapping blocks of FEC_degraded_SER_interval (see 119.3) codewords." to:
"in consecutive non-overlapping blocks of FEC_degraded_SER_interval (see 119.3) codewords, where the least significant bit of FEC_degraded_SER_interval is ignored (evaluated as 0) to make the number of codewords even."

Cl **45** *SC* **45.2.5.4.a** *P* **89** *L* **24** # 191

Hidaka, Yasuo — Fujitsu Lab of America

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

"DTE-XS" has an extra hyphen.

SuggestedRemedy

Change "DTE-XS" with "DTE XS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "DTE-XS" to "DTE XS".

Cl **45** *SC* **45.2.5.4.b** *P* **89** *L* **29** # 192

Hidaka, Yasuo — Fujitsu Lab of America

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

"DTE-XS" has an extra hyphen.

SuggestedRemedy

Change "DTE-XS" with "DTE XS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "DTE-XS" to "DTE XS".
[Editor's note: Subclause changed from 45.2.5.4.a to 45.2.5.4.b]

Cl **78** *SC* **78.5** *P* **100** *L* **41** # 49

Zimmerman, George — CME Consulting, Inc./

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

Table 78-4 has gotten separated from its editing instruction.

SuggestedRemedy

Beat on frame and put Table 78-4 after its editing instruction on line 41 and before the next subclause.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Table 78-4 will not fit at the foot of page 100 after the editing instruction.
Since it does not affect the number of pages in the draft, change the settings so that Table 78-4 appears directly after the editing instruction.

Cl **93A** *SC* **93A.1** *P* **313** *L* **40** # 492

Hidaka, Yasuo — Fujitsu Lab of America

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

200GAUI-n and 400GAUI-n are not physical layers.

SuggestedRemedy

Change "Physical Layer" with "Electrical interface" in the title of Table 93A-2 and in the header row of Table 93A-2.

Response *Response Status* **C**

REJECT.
Table 93A-2 contains a mixture of internal "AUI" interfaces and PMDs such as 100GBASE-CR4. These are all "Physical Layer" specifications as per the existing title of the table.

Cl **116** *SC* **116.1.2** *P* **105** *L* **12** # 6

Hajduczenia, Marek — Charter Communicatio

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

"in Annex 120B, or Annex 120C" - no need for ","

SuggestedRemedy

Change to "in Annex 120B or Annex 120C"
The same change in lines 16

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
On line 12, change:
"in Annex 120B, or Annex 120C" to:
"in Annex 120B or Annex 120C"
On line 16, this is a list with 4 items. IEEE Editorial style manual says:
"In a series of three or more terms, use a comma immediately before the coordinating conjunction (usually and, or, or nor)."

Cl **116** *SC* **116.1.4** *P* **106** *L* **24** # 549

Bouda, Martin Fujitsu

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

A nomenclature is a system of naming things, rather than specific instances of a systematic naming. Therefore, the word "Nomenclature" should be at replaced by "PHY" in the sentence "Table 116-3 and Table 116-4 specify the correlation between nomenclature and clauses."

SuggestedRemedy

"Table 116-3 and Table 116-4 relate PHYs to applicable clauses."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"Table 116–3 and Table 116–4 specify the correlation between nomenclature and clauses. Implementations conforming to one or more nomenclatures must meet the requirements of the corresponding clauses."
to:
"Table 116–3 and Table 116–4 specify the correlation between PHY types and clauses. Implementations conforming to one or more PHY types meet the requirements of the corresponding clauses."

Also change the titles of Tables 116-3 and 116-4 to:
"PHY type and clause correlation (200GBASE)" and:
"PHY type and clause correlation (400GBASE)"

In the heading of Tables 116-3 and 116-4, change "Nomenclature" to "PHY type"

Cl **116** *SC* **116.1.4** *P* **106** *L* **28** # 550

Bouda, Martin Fujitsu

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

A nomenclature is a system of naming things, rather than specific instances of a systematic naming. Therefore, the word "Nomenclature" should be replaced by "Name", as in Table 116-2 for instance, or by "PHY".

SuggestedRemedy

Replace all occurences of "Nomenclature" by "PHY".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #549

Cl **116** *SC* **116.1.4** *P* **107** *L* **4** # 551

Bouda, Martin Fujitsu

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

A nomenclature is a system of naming things, rather than specific instances of a systematic naming. Therefore, the word "Nomenclature" should be replaced by "Name", as in Table 116-2 for instance, or by "PHY".

SuggestedRemedy

Replace all occurences of "Nomenclature" by "PHY".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #549

Cl **116** *SC* **116.2.3** *P* **108** *L* **1** # 144

D'Ambrosia, John Futurewei, Subsidiary

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

The full functionality of the respective PCS's are not captured, as they can be configured as the respective 200GXS or 400GXS to help implement the respective extender sublayers

SuggestedRemedy

add sentence - The 200GBASE-R PCS has the same functionality as the 200GXS, and therefore may be configured as the respective layer in order to implement the optional 200GMII Extender Sublayer. The 400GBASE-R PCS has the same functionality as the 400GXS, and therefore may be configured as the respective layer in order to implement the optional 400GMII Extender Sublayer.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add the following at the end of 116.2.3:
"The 200GBASE-R PCS has almost the same functionality as the 200GXS, and therefore may be configured as a 200GXS in order to implement part of the optional 200GMII Extender (see Clause 118). The 400GBASE-R PCS has almost the same functionality as the 400GXS, and therefore may be configured as a 400GXS in order to implement part of the optional 400GMII Extender (see Clause 118)."

In 116.2.2, change:
"It is identical in function to the 200GBASE-R PCS in Clause 119." to:
"It is identical in function to the 200GBASE-R PCS in Clause 119 with the exceptions defined in Clause 118."
and change:
"It is identical in function to the 400GBASE-R PCS in Clause 119." to:
"It is identical in function to the 400GBASE-R PCS in Clause 119 with the exceptions defined in Clause 118."

Cl **116** *SC* **116.3.2** *P* **109** *L* **13** # 193

Hidaka, Yasuo — Fujitsu Lab of America

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

PMA service interface is called not only by PCS but also called by another PMA, DTE 200GXS or DTE 400GXS sublayer.

SuggestedRemedy

Change "b) PMA: ." with the following:

b) PMA: -- for primitives issued on the interface between the PMA sublayer and one of PCS, DTE 200GXS, DTE 400GXS, or another PMA sublayer that is above the PMA sublayer.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change item b) to:
"PMA:-for primitives issued on the interface between the PMA sublayer and the PCS , DTE 200GXS, DTE 400GXS, or PMA sublayer above called the PMA service interface."

Cl **116** *SC* **116.3.2** *P* **109** *L* **15** # 195

Hidaka, Yasuo — Fujitsu Lab of America

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

DTE 200GXS and DTE 400GXS do not provide the service interface to PMA, because PMA is below DTE 200GXS and DTE 400GXS.
The upper interface of DTE 200GXS and DTE400GXS is 200GMII or 400GMII.
Only PHY 200GXS and PHY 400GXS provide the service interface to PMA above.
Also, we do not need separate prefixes. A single prefix of "PHY XS" is enough.

SuggestedRemedy

Change the definition of "c) 200GXS" and "d) 400GXS)" as follows:

c) PHY XS -- for primitives issued on the interface between the PHY 200GXS or PHY 400GXS sublayer and the PMA sublayer called the PHY XS service interface.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Replace "c) 200GXS" and "d) 400GXS" with:
"c) PHY_XS:-for primitives issued on the interface between the PMA sublayer and the PHY 200GXS sublayer or PHY 200GXS sublayer called the PHY XS service interface.

Cl **116** *SC* **116.3.2** *P* **109** *L* **19** # 194

Hidaka, Yasuo — Fujitsu Lab of America

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

The abstract prefix "inst" for the service interface is used but not defined.

SuggestedRemedy

Add the following prefix of the service interface:

inst: -- for primitives issued on the interface between the PMA sublayer and one of PMD, PHY 200GXS, PHY 400GXS, or another PMA sublayer that is below the PMA sublayer.

or

inst: -- abstract prefix representing PMD, PMA, or PHY XS.

Response *Response Status* **C**

REJECT.
The only place in the draft that "inst" is used is Clause 120 where its meaning is explained on page 188 line 1.

Cl **116** *SC* **116.5** *P* **114** *L* **34** # 196

Hidaka, Yasuo — Fujitsu Lab of America

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

SP6 is defined at the output of the PMA closest to the PCS, but it is not clear if there is PMA above PCS with 200GXS or 400GXS.

SuggestedRemedy

Insert "below and" in front of "closest to the PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"SP6 on the 200GAUI-n/400GAUI-n interface, at the output of the PMA closest to the PCS." to:
"SP6 on the 200GAUI-n/400GAUI-n interface, at the output of the PMA closest to the 200GBASE-R/400GBASE-R PCS or DTE 200GXS/400GXS."

Cl **116** *SC* **116.5** *P* **117** *L* **23** # 197

Hidaka, Yasuo — Fujitsu Lab of America

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

Table 116-8 gives max skew variation in PMD UI only for 26.5625 Gbd PMD lane, but there is also PMD lane operating at 53.125 Gbd for 400Gb/s PHY.

SuggestedRemedy

Add a new column of "Maximum Skew Variation for 53.125 Gbd PMD lane (UI)" with the following values:
SP1 ~ 11
SP2 ~ 21
SP3 ~ 32
SP4 ~ 181
SP5 ~ 191
SP6 ~ 202
PCS ~ 213

Add the following note to the new column:
The symbol ~ indicates approximate equivalent of maximum Skew Variation in UI based on 1UI equals 18.82353 ps at PMD lane signaling rate of 53.125 Gbd.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The only skew points that can have signals at 53.125 GBd are SP3 and SP4.

Add a new column for "Maximum Skew Variation for 53.125 GBd PMD lane (UI)" with the following values:
SP1 = N/A
SP2 = N/A
SP3 = 32
SP4 = 181
SP5 = N/A
SP6 = N/A
PCS = N/A

Add a new footnote to the inserted "(UI)" of:
"The symbol = indicates approximate equivalent of maximum Skew Variation in UI based on 1 UI equals 18.82353 ps at PMD lane signaling rate of 53.125 GBd."

where "=" in the above is the curley equals used in Table 116-8.

Cl **116** *SC* **116.7** *P* **118** *L* **20** # 198

Hidaka, Yasuo — Fujitsu Lab of America

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

"200 Gigabit" is missing.

SuggestedRemedy

Insert "200 Gigabit and" after "Each of the".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #7

Cl **116** *SC* **116.7** *P* **118** *L* **21** # 155

Dudek, Mike — Cavium

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

Clause 116 covers both 200G and 400G. The notation and conventions used in 21.6 should be applied to the 200G pics.

SuggestedRemedy

Replace "400 Gigabit" with "200 Gigabit or 400 Gigabit"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #7

Cl **116** *SC* **116.7** *P* **118** *L* **21** # 7

Hajduczenia, Marek — Charter Communicatio

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

PICS in 116.7 covers 200G and 400G, so the statement "Each of the 400 Gigabit Ethernet PICS conforms to the same notation and conventions
used in 21.6." is only partially complete

SuggestedRemedy

Change to "Each of the 200 Gigabit and 400 Gigabit Ethernet PICS conforms to the same notation and conventions used in 21.6."

Response *Response Status* **C**

ACCEPT.
See also comments #155 and 198

Cl **117** *SC* **117.1.7** *P* **121** *L* **33** # 199

Hidaka, Yasuo — Fujitsu Lab of America

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

The reference to 81.1.6 is inappropriate, because 81.1.6 is XLGMII/CGMII structure. It should be a reference to 81.1.7 that is Mapping of XLGMII/CGMII signals to PLS service primitives.

SuggestedRemedy

Change the reference to 81.1.6 with a reference to 81.1.7.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the reference to 81.1.7

Cl **117** *SC* **117.4** *P* **121** *L* **48** # 200

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not easy to find "PMA stop signaling" in clause 81.4.

SuggestedRemedy

Change the sentence as follows:

LPI assertion and detection function identically to the CGMII specified in 81.4, with the single exception that the PMA stop signaling described in 81.4.4 is not applicable.

Response *Response Status* **C**

ACCEPT.

Cl **117** *SC* **117.5.3** *P* **123** *L* **5** # 201

Hidaka, Yasuo — Fujitsu Lab of America

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

Item "XGE" is referenced by FS1 in p 125, but not defined.

SuggestedRemedy

Add a new row as follows:

Item: *XGE
Feature: PHY support of either 200GMII or 400GMII
Subclause: 117.2, 117.3
Value: (blank)
Status: O
Support: Yes [] No []

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove *PHY200, *PHY400, *RS200, *RS400.
These are not used elswhere.
Add in *MII
Feature: PHY support of either 200GMII or 400GMII
Subclause: 117.2, 117.3
Value: (blank)
Status: O
Support: Yes [] No []

Change all PICS entries that use RS:, XGE:, and PHY: to MII:

Cl **117** *SC* **117.5.3** *P* **123** *L* **11** # 202

Hidaka, Yasuo — Fujitsu Lab of America

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

At least one of RS200 or RS400 must be supported, because RS is mandatory.

SuggestedRemedy

Change the status of RS200 from "O" to "O.1".
Change the status of RS400 from "O" to "O.1".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #201

Cl **117** *SC* **117.5.3** *P* **123** *L* **16** # 253

Hidaka, Yasuo — Fujitsu Lab of America

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

Item "LPI" is referenced from items "L1" and "L2" in 117.5.4.6.

SuggestedRemedy

Insert "*" (asterisk) in front of "LPI" in the item column.

Response *Response Status* **C**

ACCEPT.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **6** # 203

Hidaka, Yasuo — Fujitsu Lab of America

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

Status should not be conditional for "RS", because RS is mandatory. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for PL1 through PL13 from "RS:M" to "M".
Remove "N/A []" from the support column for PL1 through PL13.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to comment #201.
RS is mandatory, but MII is not.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **9** # 204

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL2 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL2 from "117.1.7" to "117.1.7, 81.1.7.1.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **12** # 205

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL3 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL3 from "117.1.7" to "117.1.7, 81.1.7.1.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **15** # 206

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL4 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL4 from "117.1.7" to "117.1.7, 81.1.7.1.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **17** # 207

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL5 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL5 from "117.1.7" to "117.1.7, 81.1.7.1.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **21** # 208

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL6 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL6 from "117.1.7" to "117.1.7, 81.1.7.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **24** # 209

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL7 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL7 from "117.1.7" to "117.1.7, 81.1.7.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **28** # 210

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL8 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL8 from "117.1.7" to "117.1.7, 81.1.7.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **32** # 211

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL9 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL9 from "117.1.7" to "117.1.7, 81.1.7.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **35** # 212

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL10 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL10 from "117.1.7" to "117.1.7, 81.1.7.5.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **37** # 213

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL11 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL11 from "117.1.7" to "117.1.7, 81.1.7.5.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **42** # 214

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL12 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL12 from "117.1.7" to "117.1.7, 81.1.7.5.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.2** *P* **124** *L* **45** # 215

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.1.7 for PL13 is not helpful, because there is no much detail description in 117.1.7.

SuggestedRemedy

Change the subclause column for PL13 from "117.1.7" to "117.1.7, 81.1.7.5.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.1.7 (see comment #199) together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.3** *P* **125** *L* **6** # 217

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.2 for DS1 is not helpful, because there is no much detail description in 117.2.

SuggestedRemedy

Change the subclause column for DS1 from "117.2" to "117.2, 81.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.2 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.3** *P* **125** *L* **6** # 216

Hidaka, Yasuo — Fujitsu Lab of America

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

Status should not be conditional for "RS", because RS is mandatory. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for DS1 through DS4 from "RS:M" to "M".
Remove "N/A []" from the support column for DS1 through DS4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #201

Cl **117** *SC* **117.5.4.3** *P* **125** *L* **8** # 218

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.2 for DS2 is not helpful, because there is no much detail description in 117.2.

SuggestedRemedy

Change the subclause column for DS2 from "117.2" to "117.2, 81.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.2 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.3** *P* **125** *L* **11** # 219

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.2 for DS3 is not helpful, because there is no much detail description in 117.2.

SuggestedRemedy

Change the subclause column for DS3 from "117.2" to "117.2, 81.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.2 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.3** *P* **125** *L* **13** # 220

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.2 for DS4 is not helpful, because there is no much detail description in 117.2.

SuggestedRemedy

Change the subclause column for DS4 from "117.2" to "117.2, 81.2.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.2 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **22** # 221

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS1 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS1 from "117.3" to "117.3, 81.3.1.1".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **25** # 222

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS2 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS2 from "117.3" to "117.3, 81.3.1.1".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **27** # 224

Hidaka, Yasuo — Fujitsu Lab of America

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

FS3 depends on XGE (not RS), because it is mandatory only if either 200GMII or 400GMII is supported. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS3 from "RS:M" to "XGE:M".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #201

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **27** # 223

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS3 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS3 from "117.3" to "117.3, 81.3.1.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **29** # 225

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS4 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS4 from "117.3" to "117.3, 81.3.1.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **32** # 227

Hidaka, Yasuo — Fujitsu Lab of America

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

FS5 depends on XGE (not RS), because it is mandatory only if either 200GMII or 400GMII is supported. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS5 from "RS:M" to "XGE:M".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #201

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **32** # 226

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS5 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS5 from "117.3" to "117.3, 81.3.1.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **34** # 228

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS6 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS6 from "117.3" to "117.3, 81.3.1.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **36** # 229

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS7 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS7 from "117.3" to "117.3, 81.3.1.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **36** # 230

Hidaka, Yasuo — Fujitsu Lab of America

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

FS7 (start alignment) is a feature of RS that is mandatory, not optional. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS7 from "RS:M" to "M".
Remove "N/A []" from the support column for FS7.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #201

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **39** # 231

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS8 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS8 from "117.3" to "117.3, 81.3.2.1".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **41** # 232

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS9 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS9 from "117.3" to "117.3, 81.3.2.1".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **43** # 233

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS10 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS10 from "117.3" to "117.3, 81.3.2.1".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **43** # 234

Hidaka, Yasuo — Fujitsu Lab of America

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

FS10 depends on XGE (not PHY), because it is mandatory only if either 200GMII or 400GMII is supported. PHY is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS10 from "PHY:M" to "XGE:M".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to Comment #201

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **46** # 235

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS11 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS11 from "117.3" to "117.3, 81.3.2.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **46** # 236

Hidaka, Yasuo — Fujitsu Lab of America

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

FS11 depends on XGE (not PHY), because it is mandatory only if either 200GMII or 400GMII is supported. PHY is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS11 from "PHY:M" to "XGE:M".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to comment #201

Cl **117** *SC* **117.5.4.4** *P* **125** *L* **48** # 237

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS12 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS12 from "117.3" to "117.3, 81.3.2.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **3** # 238

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS13 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS13 from "117.3" to "117.3, 81.3.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **3** # 239

Hidaka, Yasuo — Fujitsu Lab of America

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

FS13 depends on XGE (not RS), because it is mandatory only if either 200GMII or 400GMII is supported. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS13 from "RS:M" to "XGE:M".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to comment #201

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **6** # 240

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS14 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS14 from "117.3" to "117.3, 81.3.2.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **8** # 242

Hidaka, Yasuo — Fujitsu Lab of America

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

FS15 (received error control character) is a feature of RS that is mandatory, not optional. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS15 from "RS:M" to "M".
Remove "N/A []" from the support column for FS15.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to comment #201

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **8** # 241

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS15 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS13 from "117.3" to "117.3, 81.3.3.1".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **10** # 243

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for FS16 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for FS16 from "117.3" to "117.3, 81.3.3.3".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.4** *P* **126** *L* **10** # 244

Hidaka, Yasuo — Fujitsu Lab of America

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

FS16 (DATA_VALID assertion) is a feature of RS that is mandatory, not optional. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for FS16 from "RS:M" to "M".
Remove "N/A []" from the support column for FS16.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to comment #201

Cl **117** *SC* **117.5.4.5** *P* **126** *L* **20** # 245

Hidaka, Yasuo — Fujitsu Lab of America

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

Status should not be conditional for "RS", because RS is mandatory. RS is not defined in the major capabilities/options as well.

SuggestedRemedy

Change the status column for LF1 through LF5 from "RS:M" to "M".
Remove "N/A []" from the support column for LF1 through LF5.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to comment #201

Cl **117** *SC* **117.5.4.5** *P* **126** *L* **20** # 246

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for LF1 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for LF1 from "117.3" to "117.3, 81.3.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.5** *P* **126** *L* **22** # 247

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for LF2 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for LF2 from "117.3" to "117.3, 81.3.4.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.5** *P* **126** *L* **25** # 248

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for LF3 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for LF3 from "117.3" to "117.3, 81.3.4.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.5** *P* **126** *L* **28** # 249

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for LF4 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for LF4 from "117.3" to "117.3, 81.3.4.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.5** *P* **126** *L* **31** # 250

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for LF5 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for LF5 from "117.3" to "117.3, 81.3.4.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.6** *P* **126** *L* **40** # 251

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for L1 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for L1 from "117.3" to "117.3, 81.3.1.2".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **117** *SC* **117.5.4.6** *P* **126** *L* **43** # 252

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 117.3 for L2 is not helpful, because there is no much detail description in 117.3.

SuggestedRemedy

Change the subclause column for L2 from "117.3" to "117.3, 81.3.2.4".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 81.3 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **118** *SC* **118.1** *P* **127** *L* **29** # 254

Hidaka, Yasuo — Fujitsu Lab of America

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

In Figure 118-1, DTE 200GXS and PHY 200GXS are not distinguished. DTE 400GXS and PHY 400GXS are not distinguished as well. Although their specifications are mostly identical, there have clear difference due to the location in the protocol stack.
I think we should not omit the prefix "DTE" or "PHY" whenever their distinction is important or effective so as to remind readers of their distinction and labeling.

SuggestedRemedy

Make the following changes in Figure 118-1:

Change the upper "200GXS" with "DTE 200GXS".
Change the lower "200GXS" with "PHY 200GXS".
Change the upper "400GXS" with "DTE 400GXS".
Change the lower "400GXS" with "PHY 400GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" at the bottom.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make the following changes to Figure 118-1:
Change the upper "200GXS" to "DTE 200GXS".
Change the lower "200GXS" to "PHY 200GXS".
Change the upper "400GXS" to "DTE 400GXS".
Change the lower "400GXS" to "PHY 400GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" and "PHY = PHYSICAL LAYER DEVICE" to the list of abbreviations at the foot of the figure.

Cl **118** *SC* **118.1.2** *P* **128** *L* **15** # 255

Hidaka, Yasuo — Fujitsu Lab of America

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

200GXS and 400GXS must be different from 200GBASE-R PCS and 400GBASE-R PCS regarding to IS_SIGNAL.indication.
However, such a difference is not described anywhere.

SuggestedRemedy

Change the paragraph in 118.1.2 to include the exception about SIGNAL.indication.

Add a new subclause for IS_SIGNAL.indication for 200GXS/400GXS sublayer. For PHY 200GXS and PHY 400GXS, the direction of IS_SIGNAL.indication is opposite to PCS. For DTE 200GXS and DTE 400GXS, the direction of IS_SIGNAL.indication is same as PCS.

Or, add a new subclause to define the PHY XS service interface that is identical to the PMA service interface except the direction of IS_SIGNAL.indication that the PMA service interface.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
While it is recognised that the SIGNAL.indication behavior of a PHY XS sublayer is somewhat different from that of a PCS sublayer, suitable text to describe the precise difference is requested.

Cl **118** *SC* **118.1.3** *P* **128** *L* **21** # 256

Hidaka, Yasuo — Fujitsu Lab of America

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

It is odd to call 200GAUI-n as physical instantiation of the 200GAUI-n.

SuggestedRemedy

Change "physical instantiations of the 200GAUI-n" with "physical instantiations of the PMA service interface".

Response *Response Status* **C**

REJECT.

Statement is correct as is.

Cl **118** *SC* **118.1.3** *P* **128** *L* **28** # 257

Hidaka, Yasuo — Fujitsu Lab of America

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

It is odd to call 400GAUI-n as physical instantiation of the 400GAUI-n.

SuggestedRemedy

Change "physical instantiations of the 400GAUI-n" with "physical instantiations of the PMA service interface".

Response *Response Status* **C**

REJECT.

Statement is correct as is.

Cl **118** *SC* **118.2** *P* **128** *L* **37** # 38

Ran, Adee — Intel

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

This paragraph probably means to say that if FEC degrade optional feature is implemented, then:
1. The DTE XS should behave as specified in clause 119 _plus additional requirements in 118.2.1_
2. the PHY XS should behave as specified in 118.2.2

But the way it is written makes it really difficult to understand what is required, and gives no clue to that it can be used for.

In addition, it is not specified what tx_am_sf and rx_am_sf should include if the option is not implemented. It makes sense that the rx_am_sf should still forward any indication that comes from the PHY... but it's not clear from the text that this part is not optional.

SuggestedRemedy

Rewrite this paragraph in plain standard language. Make it clear what _shall_ be done when the option is implemented and when it isn't. (Sorry but I can't think of a good replacement text)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

To make these features unconditional on FEC_degraded_SER_enable:
Move this text to the beginning of 118.2.1:
The variable tx_am_sf is set as follows:
tx_am_sf<2:0> = {FEC_degraded_SER + rx_local_degraded,0,0}

Move this text to the beginning of 118.2.2:
The variable tx_am_sf is set as follows:
tx_am_sf<2:0> = {adjacent_pcs_rm_degraded, adjacent_pcs_local_degraded, 0}

Cl **118** *SC* **118.2** *P* **128** *L* **41** # 105

Slavick, Jeff — Broadcom

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

When the degrade features is not-supported or enabled in the XS layer, I would think we'd want it to just echo the PCS value all the way back to the RS.

SuggestedRemedy

Add text stating tx_am_sf is a copy of rx_am_sf when degrade is not enabed or supported.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Pending a presentation within the task force.

[Editor's note: page changed from 8 to 128]

Cl **118** *SC* **118.2** *P* **130** *L* **27** # 52

Laubach, Mark — Broadcom Limited

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

Add period to end of sentence.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.1** *P* **128** *L* **44** # 36

Ran, Adee Intel

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

Cross reference seems incorrect - 118.3 does not mention FEC_degraded_SER_enable.

Also in 118.2.2, P129 L5.

Should it be 118.4? This subclause only lists the MDIO mapping, but does not describe the variable - the full description is only available in 45.2.4.11j.1, which is hard to find. So this cross-reference is not useful.

SuggestedRemedy

Either add the description from clause 45 to 118.4 and change the cross reference to 118.4, or point directly to clause 45, or remove the cross reference.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comments #262 and #263

Cl **118** *SC* **118.2.1** *P* **128** *L* **45** # 117

Ofelt, David Juniper Networks

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

Reference to 118.3 should be 118.4 since 118.4 is where the MDIO mapping tables live.

SuggestedRemedy

Change 118.3 to 118.4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #262

Cl **118** *SC* **118.2.1** *P* **128** *L* **45** # 262

Hidaka, Yasuo Fujitsu Lab of America

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

118.3 is referred for FEC_degraded_SER_enable, but there is no description of FEC_degraded_SER_enable in 118.3.

SuggestedRemedy

Change "see 118.3" with "see 118.4".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.1** *P* **128** *L* **52** # 8

Hajduczenia, Marek Charter Communicatio

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

Text "5.801.6 of the DTE XS FEC status register" uses font smaller than the rest of the text

SuggestedRemedy

Please use the consistent font size

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.2** *P* **128** *L* **19** # 39

Ran, Adee Intel

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

The text on the left says

"When the PHY 200GXS or PHY 400GXS detects FEC degrade, the signal is propagated to the adjacent PCS, which can propagate that signal as local degrade"

How can it propagate that signal?

I would expect that the PHY "adjacent PCS" (facing the partner, so that it is _not_ a part of the PHY XS) _should_ propagate a degradation detected by the DTE XS. But the signaling of that PCS is specified in 119.2.4.4 using only the variable FEC_degraded_SER (which is defined in clause 119), without any input from the PHY XS PCS. Clause 119 does not assume clause 118.

A similar problem exists in the receive direction (right side). Degradation detected by the "adjacent PCS" should be propagated to the DTE XS, but how?

Also in P129, lines 38 and 43, the text says "the adjacent PCS sublayer indicates" - how does it indicate?

It seems that some interface between the PCS in the PHY XS and the adjacent PCS (in both directions) is missing. The figure only has "200GMII or 400GMII" which does not have a way to encode the "degradation" indication.

SuggestedRemedy

For propagation in the TX direction, perhaps specify in 119.2.4.4 that the FEC_degraded_SER variable can be set and cleared not only by the conditions specified, but also by an adjacent XS in an implementation-dependent manner (regardless of whether the PCS has the feature enabled or not).

For propagation in the RX direction, perhaps specify in 118.2.2 that adjacent_pcs_local_degraded and adjacent_pcs_rm_degraded can be set and cleared by the adjacent PCS in an implementation-dependent manner.

Alternatively, add service interface primitives between the adjacent "PHY PCS" and "PHY XS" to convey this information.

Response *Response Status* **U**

REJECT.

It was purposely left to the designer to provide the signaling path. Also the PCS in the layer stack is not the clause 119 PCS, it is some to be defined in the future PCS.

[Editor's note: page changed from 128 to 129]

Cl **118** *SC* **118.2.2** *P* **129** *L* **5** # 263

Hidaka, Yasuo Fujitsu Lab of America

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

118.3 is referred for FEC_degraded_SER_enable, but there is no description of FEC_degraded_SER_enable in 118.3.

SuggestedRemedy

Change "see 118.3" with "see 118.4".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.2** *P* **129** *L* **5** # 118

Ofelt, David Juniper Networks

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

Reference to 118.3 should be 118.4 since 118.4 is where the MDIO mapping tables live.

SuggestedRemedy

Change 118.3 to 118.4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to Comment #263

Cl **118** *SC* **118.2.2** *P* **129** *L* **19** # 51

Laubach, Mark Broadcom Limited

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

As I view in the PDF at 100%: the bottom of the right vertical arrow appears to collide/overlap with the second "0" of "400GXS" in Figure 118-2. Same for Figure 118-3 on page 130. Suggest creating a little more white space separation between the bottom of the arrow and the text.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.2** *P* **129** *L* **30** # 61

Anslow, Pete Ciena

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

Figures 118-2 and 118-3 are missing the acronym expansion key as per other diagrams such as Figure 118-1

SuggestedRemedy

Add an acronym expansion key to Figures 118-2 and 118-3.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.2** *P* **129** *L* **34** # 264

Hidaka, Yasuo Fujitsu Lab of America

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

declared

SuggestedRemedy

asserted

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.2.2** *P* **129** *L* **39** # 265

Hidaka, Yasuo Fujitsu Lab of America

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

its

SuggestedRemedy

it is

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
Boolean variable that is asserted true when the adjacent PCS sublayer indicates it has FEC local degraded active (its equivalent to the FEC_degraded_SER variable is asserted or its equivalent to the rx_local_degraded variable is asserted).
To:
Boolean variable that is asserted true when the adjacent PCS sublayer indicates it has FEC local degraded active. This indicates the adjacent PCS has its equivalent to the FEC_degraded_SER or rx_local_degraded variable asserted.

Cl **118** *SC* **118.2.2** *P* **129** *L* **44** # 266

Hidaka, Yasuo Fujitsu Lab of America

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

its

SuggestedRemedy

it is

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
Boolean variable that is asserted true when the adjacent PCS sublayer indicates it has FEC remote degraded active (its equivalent to the rx_rm_degraded variable is asserted).
To:
Boolean variable that is asserted true when the adjacent PCS sublayer indicates it has FEC remote degraded active. This indicates the adjacent PCS has its equivalent to the rx_rm_degraded variable asserted.

Cl **118** *SC* **118.2.2** *P* **130** *L* **26** # 267

Hidaka, Yasuo Fujitsu Lab of America

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

It seems that "PHY XS" should be "DTE XS".

SuggestedRemedy

Change "PHY XS" with "DTE XS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
This variable is used to inform the adjacent PCS sublayer of the FEC degrade state of the PHY XS
To:
This variable is used to inform the adjacent PCS sublayer of the received FEC degrade state.

Cl **118** *SC* **118.3** *P* **131** *L* **8** # 62

Anslow, Pete Ciena

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

Figure 118-4 has the PMA layers shaded, but this clause is about the 200GXS or 400GXS

SuggestedRemedy

Remove the shading from the PMA layers and apply to the XS layers

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.4** *P* **130** *L* **15** # 97

Slavick, Jeff — Broadcom

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

Remove all references to Rx Test Mode since we removed the Rx checker from PCS (comment #46 from D1.1). Rx just operates in functional mode when Tx is in Test mode since it looks just like mission data

SuggestedRemedy

Remove references to rx_test_mode from Table 118-1, Table 118-3, Table 119-4, MDIO register 5.42.2, 119.2.1

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove the 3 references from the tables and bits 3.42.2, 4.42.2, and 5.42.2.

In 119.2.1 change:
The PCS transmit channel and receive channel can each operate in normal mode or test-pattern mode.
to:
The PCS transmit channel can operate in normal mode or test-pattern mode.

On page 144 line 29, change:
When the receive channel is in normal or test-pattern mode, the PCS Synchronization process continuously monitors
to:
The PCS Synchronization process continuously monitors

On page 144 line 44, change:
"The PCS shall provide transmit test-pattern mode for the scrambled idle pattern (see 119.2.4.9), and shall provide receive test-pattern mode for the scrambled idle pattern. Test-pattern mode is activated separately for transmit and receive. The PCS shall support transmit test-pattern mode and receive test-pattern mode operating simultaneously so as to support loopback testing."
to:
"The PCS shall provide transmit test-pattern mode for the scrambled idle pattern (see 119.2.4.9)."

On Page 165 line 36 remove:
"r_test_mode
Boolean variable that is asserted true when the receiver is in test-pattern mode."

On page 172 line 2, change:
"reset+ r_test_mode + !align_status"
to:
"reset + !align_status"

Cl **118** *SC* **118.4** *P* **130** *L* **40** # 268

Hidaka, Yasuo — Fujitsu Lab of America

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

"MDIO" is used twice.

SuggestedRemedy

Change "MDIO PHY XS and DTE XS MDIO status bits" with "MDIO PHY XS and DTE XS status bits".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.4** *P* **132** *L* **7** # 269

Hidaka, Yasuo — Fujitsu Lab of America

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

Table 118-1 has a column of "PCS register name", although this is a table for PHY XS.

SuggestedRemedy

Change "PCS register name" in the header row of Table 118-1 with "PHY XS register name".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.4** *P* **132** *L* **35** # 270

Hidaka, Yasuo — Fujitsu Lab of America

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

Table 118-2 has a column of "PCS register name", although this is a table for PHY XS.

SuggestedRemedy

Change "PCS register name" in the header row of Table 118-2 with "PHY XS register name".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.4** *P* **132** *L* **49** # 271

Hidaka, Yasuo — Fujitsu Lab of America

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

No prefix of "PHY XS". Inconsistent from other rows.

SuggestedRemedy

Change "FEC corrected codewords" in the column of MDIO status variable with "PHY XS FEC corrected codewords.

Response *Response Status* **C**

REJECT.

The MDIO variable name is "FEC corrected codewords". See Table 45-171j

Cl **118** *SC* **118.4** *P* **132** *L* **51** # 272

Hidaka, Yasuo — Fujitsu Lab of America

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

No prefix of "PHY XS". Inconsistent from other rows.

SuggestedRemedy

Change "FEC uncorrected codewords" in the column of MDIO status variable with "PHY XS FEC uncorrected codewords.

Response *Response Status* **C**

REJECT.

The MDIO variable name is "FEC uncorrected codewords". See Table 45-171k

Cl **118** *SC* **118.4** *P* **133** *L* **4** # 273

Hidaka, Yasuo — Fujitsu Lab of America

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

Table 118-2 has a column of "PCS register name", although this is a table for PHY XS.

SuggestedRemedy

Change "PCS register name" in the header row of Table 118-2 with "PHY XS register name".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate of comment #270 since a single heading row is repeated on the next page.

Cl **118** *SC* **118.4** *P* **133** *L* **24** # 274

Hidaka, Yasuo — Fujitsu Lab of America

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

Table 118-3 has a column of "PCS register name", although this is a table for DTE XS.

SuggestedRemedy

Change "PCS register name" in the header row of Table 118-3 with "DTE XS register name".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.4** *P* **134** *L* **4** # 275

Hidaka, Yasuo — Fujitsu Lab of America

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

Table 118-4 has a column of "PCS register name", although this is a table for DTE XS.

SuggestedRemedy

Change "PCS register name" in the header row of Table 118-4 with "DTE XS register name".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.4** *P* **134** *L* **18** # 276

Hidaka, Yasuo — Fujitsu Lab of America

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

No prefix of "DTE XS". Inconsistent from other rows.

SuggestedRemedy

Change "FEC corrected codewords" in the column of MDIO status variable with "DTE XS FEC corrected codewords.

Response *Response Status* **C**

REJECT.

The MDIO variable name is "FEC corrected codewords". See Table 45-182j

Cl **118** *SC* **118.4** *P* **134** *L* **20** # 277

Hidaka, Yasuo — Fujitsu Lab of America

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

No prefix of "DTE XS". Inconsistent from other rows.

SuggestedRemedy

Change "FEC uncorrected codewords" in the column of MDIO status variable with "DTE XS FEC uncorrected codewords.

Response *Response Status* **C**

REJECT.

The MDIO variable name is "FEC uncorrected codewords". See Table 45-182k

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Cl **118** *SC* **118.5.3** *P* **136** *L* **6** # 92

Trowbridge, Steve — Nokia

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

The "Support" column is ragged - the first vew rows have the entries centered, the last few have them left aligned. Similar issue with the receive function table further on in this clause

SuggestedRemedy

Use a consistent alignment for the support column

Response *Response Status* **C**

ACCEPT.

[Editor's note: Column should be right aligned per 802.3 template]

Cl **118** *SC* **118.5.3** *P* **136** *L* **6** # 278

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference to 118.1 may be helpful for item "CCE200".

SuggestedRemedy

Change the subclause column for CCE200 from "117, 119.1.4.1" to "117, 118.1, 119.1.4.1".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #282

Cl **118** *SC* **118.5.3** *P* **136** *L* **6** # 282

Hidaka, Yasuo — Fujitsu Lab of America

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

The item name "CCE200" is inconsistent with PICS in other clauses.

The following item names are used for GMII support in other clauses:
XGE XGMII is supported (Clause 48)
XGE XGMII is supported (Clause 49)
XGE XGMII is supported (Clause 55)
XGE40 XLGMII is supported (Clause 82)
XGE100 CGMII is supported (Clause 82)
25GE 25GMII is supported (Clause 107)

SuggestedRemedy

Change the item column for CCE200 from "CCE200" to "200GE".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace CCE200 and CDE400 with:
MII
Feature: 200GMII or 400GMII logical interface
Subclause: 117, 118.1
Value: Logical interface is supported
Status: O
Support: Yes [] No []

Cl **118** *SC* **118.5.3** *P* **136** *L* **6** # 53

Laubach, Mark — Broadcom Limited

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

The two subclauses for items CCE200 and CDE400 use a comma for separation. While in 118.5.4.3 Page 138, Line 6-11, the two subclauses for items C1 and C2 use "and" for separation. Suggest changing the subclauses for C1 and C2 to comma as looking at the PICS for the other clauses, the use of comma is dominant.

Looking ahead at 119.6.4.3 (page 179, line 6-11), same observation.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.3** *P* **136** *L* **8** # 283

Hidaka, Yasuo — Fujitsu Lab of America

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

The item name "CDE400" is inconsistent with PICS in other clauses.

The following item names are used for GMII support in other clauses:
XGE XGMII is supported (Clause 48)
XGE XGMII is supported (Clause 49)
XGE XGMII is supported (Clause 55)
XGE40 XLGMII is supported (Clause 82)
XGE100 CGMII is supported (Clause 82)
25GE 25GMII is supported (Clause 107)

SuggestedRemedy

Change the item column for CDE400 from "CDE400" to "400GE".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #282

Cl **118** *SC* **118.5.3** *P* **136** *L* **8** # 279

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference to 118.1 may be helpful for item "CDE400".

SuggestedRemedy

Change the subclause column for CCE200 from "117, 119.1.4.1" to "117, 118.1, 119.1.4.1".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #282

Cl **118** *SC* **118.5.3** *P* **136** *L* **11** # 280

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference to 119.1.1 may be inappropriate for item "200GXS".

SuggestedRemedy

Change the subclause column for 200GXS from "119.1.1" to "118.1".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.3** *P* **136** *L* **13** # 281

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference to 119.1.1 may be inappropriate for item "400GXS".

SuggestedRemedy

Change the subclause column for 400GXS from "119.1.1" to "118.1".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.3** *P* **136** *L* **14** # 284

Hidaka, Yasuo — Fujitsu Lab of America

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

We need items to distinguish distinctive feature of PHY XS and DTE XS.

SuggestedRemedy

Insert the following two items after 400GXS:

Item: *PHYXS
Feature: PHY 200GXS or PHY 400GXS
Subclause: 118.1
Value/Comment: (blank)
Status: O/2
Support: Yes [] No []

Item: *DTEXS
Feature: DTE 200GXS or DTE 400GXS
Subclause: 118.1
Value/Comment: (blank)
Status: O/2
Support: Yes [] No []

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.3** *P* **136** *L* **25** # 285
Hidaka, Yasuo Fujitsu Lab of America

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

Reference to 118.5.5 for JTM is inappropriate, because 118.5.5 is a PICS clause.

SuggestedRemedy

Change the subclause column for JTM from "118.5.5" to "119.2.1, 119.2.4.9".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.3** *P* **136** *L* **26** # 286
Hidaka, Yasuo Fujitsu Lab of America

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

JTM is mandatory.

SuggestedRemedy

Remove "No []" from the support column for JTM.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.2** *P* **137** *L* **20** # 287
Hidaka, Yasuo Fujitsu Lab of America

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

Item RF5 depends on the option item BI.

SuggestedRemedy

Add "N/A []" to the support column for RF5.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.2** *P* **137** *L* **25** # 288
Hidaka, Yasuo Fujitsu Lab of America

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

Item RF5 depends on the option item BI.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for RF6.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Refering to RF6, make the proposed change.

Cl **118** *SC* **118.5.4.3** *P* **138** *L* **7** # 289
Hidaka, Yasuo Fujitsu Lab of America

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

Choice of "No []" is given for mandatory items C1 through C9.

SuggestedRemedy

Remove "No []" from the support column for C1 through C9.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.3** *P* **138** *L* **22** # 290
Hidaka, Yasuo Fujitsu Lab of America

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

Reference to 119.2.3.5 for C7 is not helpful, because there is no much detail description in 119.2.3.5.

SuggestedRemedy

Change the subclause column for C7 from "119.2.3.5" to "119.2.3.5, 82.2.3.6".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 82.2.3.6 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **118** *SC* **118.5.4.3** *P* **138** *L* **24** # 291

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 119.2.3.5 for C8 is not helpful, because there is no much detail description in 119.2.3.5.

SuggestedRemedy

Change the subclause column for C8 from "119.2.3.5" to "119.2.3.5, 82.2.3.6".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 82.2.3.6 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **118** *SC* **118.5.4.3** *P* **138** *L* **27** # 292

Hidaka, Yasuo — Fujitsu Lab of America

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

Reference to 119.2.3.8 for C9 is not helpful, because there is no much detail description in 119.2.3.8.

SuggestedRemedy

Change the subclause column for C9 from "119.2.3.8" to "119.2.3.8, 82.2.3.9".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 82.2.3.9 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **118** *SC* **118.5.4.3** *P* **138** *L* **37** # 293

Hidaka, Yasuo — Fujitsu Lab of America

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

Choice of "No []" is given for mandatory items S1 and S2.

SuggestedRemedy

Remove "No []" from the support column for S1 and S2.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.5** *P* **139** *L* **7** # 294

Hidaka, Yasuo — Fujitsu Lab of America

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

Choice of "No []" is given for mandatory items AM1 and AM2.

SuggestedRemedy

Remove "No []" from the support column for AM1 and AM2.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.5** *P* **139** *L* **12** # 295

Hidaka, Yasuo — Fujitsu Lab of America

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

Item AM3 depends on the option item MD.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for AM3.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.5** *P* **139** *L* **13** # 296

Hidaka, Yasuo — Fujitsu Lab of America

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

Alignment marker shall be removed prior to descrambling (119.2.5.5, P162, L46).

SuggestedRemedy

Insert the following item after AM3:

Item: AM4
Feature: Alignment marker removal
Subclause: 119.2.5.5
Value/Comment: Alignment markers are removed prior to descrambling as described in 119.2.5.5
Status: M
Support: Yes []

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.4.5** *P* **139** *L* **21** # 297
Hidaka, Yasuo Fujitsu Lab of America

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

JT1 is mandatory.

SuggestedRemedy

Remove "No []" and "N/A []" in the support column for JT1.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.5.1** *P* **139** *L* **26** # 386
Hidaka, Yasuo Fujitsu Lab of America

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

It is odd to have "118.5.5.1 Bit order" as a sub clause of "118.5.5 Test-pattern modes".

SuggestedRemedy

Raise the level of subclause "118.5.5.1 Bit order", and renumber subclauses.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.5.1** *P* **139** *L* **32** # 299
Hidaka, Yasuo Fujitsu Lab of America

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

B1 is mandatory.

SuggestedRemedy

Remove "No []" in the support column for B1.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6** *P* **139** *L* **44** # 298
Hidaka, Yasuo Fujitsu Lab of America

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

Mapping of MDIO register bits are mandatory.

SuggestedRemedy

Insert the following items after M1:

Item: M2
Feature: Mapping of MDIO control bits and MDIO status bits for PHY 200GXS or PHY 400GXS
Sub clause: 118.4
Value/Comment: Table 118-1 and Table 118-2
Status: MD*PHYXS:M
Support: Yes []

Item: M3
Feature: Mapping of MDIO control bits and MDIO status bits for DTE 200GXS or DTE 400GXS
Sub clause: 118.4
Value/Comment: Table 118-3 and Table 118-4
Status: MD*DTEXS:M
Support: Yes []

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.1** *P* **140** *L* **7** # 300
Hidaka, Yasuo Fujitsu Lab of America

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

SM1 is mandatory for 200GXS.

SuggestedRemedy

Change "No []" in the support column for SM1 with "N/A []".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.1** *P* **140** *L* **10** # 324
Hidaka, Yasuo Fujitsu Lab of America

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

SM2 is mandatory for 400GXS.

SuggestedRemedy

Change "No []" in the support column for SM2 with "N/A []".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.1** *P* **140** *L* **13** # 326
Hidaka, Yasuo Fujitsu Lab of America

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

SM3 through SM6 are mandatory.

SuggestedRemedy

Remove "No []" in the support column for SM3 through SM6.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.1** *P* **140** *L* **13** # 325
Hidaka, Yasuo Fujitsu Lab of America

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

The SLIP functions evaluates all possible block "positions" rather than all possible "blocks".

SuggestedRemedy

Change the feature column for SM3 from "The SLIP function evaluates all possible blocks" to "The SLIP function evaluates all possible block positions".

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.2** *P* **140** *L* **29** # 328
Hidaka, Yasuo Fujitsu Lab of America

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

L1 is mandatory.

SuggestedRemedy

Remove "No []" and "N/A [] in the support column for L1.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.2** *P* **140** *L* **33** # 329
Hidaka, Yasuo Fujitsu Lab of America

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

L2 is mandatory.

SuggestedRemedy

Remove "No []" in the support column for L2.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.2** *P* **140** *L* **34** # 327
Hidaka, Yasuo Fujitsu Lab of America

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

When the 200GXS or 400GXS is in loopback, it shall ignore all data presented to it by the PMA sublayer.

SuggestedRemedy

Insert the following item after L2:

Item: L3
Feature: When in loopback, ignore all data presented by the PMA sublayer.
Subclause: 119.4
Status: M
Support: Yes []

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.3** *P* **140** *L* **43** # 330
Hidaka, Yasuo Fujitsu Lab of America

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

TIM1 is conditional mandatory only if 200GXS is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for TIM1.

Response *Response Status* **C**

ACCEPT.

Cl **118** *SC* **118.5.6.3** *P* **140** *L* **46** # 331

Hidaka, Yasuo — Fujitsu Lab of America

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

TIM2 is conditional mandatory only if 400GXS is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for TIM2.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.1.1** *P* **141** *L* **39** # 54

Laubach, Mark — Broadcom Limited

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

Add a period to end of sentence each for b) and c).

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.1.3** *P* **141** *L* **40** # 100

Slavick, Jeff — Broadcom

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

Featurs of PCS doesn't denote it converts data from 257 -> 66 but it does say it does the inverse for data octect generation and fec data.

SuggestedRemedy

Change b) to read: "Transcoding from 66-bit blocks to (from) 257-bit blocks"

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.1.3** *P* **141** *L* **40** # 93

Trowbridge, Steve — Nokia

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

Most elements in the list indicate both directions of processing, e.g., encoding/decoding, however this only lists "Transcoding from 66B blocks to 257B blocks"

SuggestedRemedy

Change to either "Transcoding between 66B blocks and 257B blocks" or "Transcoding of 66B blocks to/from 257B blocks"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #100

Cl **119** *SC* **119.1.4** *P* **141** *L* **54** # 332

Hidaka, Yasuo — Fujitsu Lab of America

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

Since a transfer on a PCS lane is always done by 1 bit per transfer, Gb/s is more easy to understand Gtransfer/s.

SuggestedRemedy

Change "26.5625 Gtransfer/s on each of 8 PCS lanes" with "26.5625 Gb/s on each of 8 PCS lanes" at L54 on P141.
Also change "26.5625 Gtransfer/s on each of 16 PCS lanes" with "26.5625 Gb/s on each of 16 PCS lanes" at L30 on P142.

Response *Response Status* **C**

REJECT.

This terminology is consistent with previous speeds.

Cl **119** *SC* **119.1.4.1** *P* **142** *L* **39** # 333

Hidaka, Yasuo — Fujitsu Lab of America

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

The PCS client is not the Reconciliation Sublayer, if there is an optional 200GMII Extender or 400GMII Extender.

SuggestedRemedy

Change "The PCS client is the Reconciliation Sublayer." with the following:

If there is no optional 200GMII Extender or 400GMII Extender, the PCS client is the Reconciliation Sublayer.
If there is an optional 200GMII Extender, the PCS client is a PHY 200GXS Sublayer.
If there is an optional 400GMII Extender, the PCS client is a PHY 400GXS Sublayer.

Response *Response Status* **C**

REJECT.

Correct as is. The PCS defined in clause 119 would not be the PCS adjacent to the XS. That would be a new future PCS.

Cl **119** *SC* **119.2.3.7** *P* **146** *L* **27** # 334

Hidaka, Yasuo — Fujitsu Lab of America

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

There is a reference to 82.2.3.8 which may need a maintenance.
In the second sentence of 82.2.3.8, it is written as the /T/ can occur on any octet of the XLGMII/CGMII and "within" any character of the block. This sentence is inappropriate, because it implicates that the /T/ can occur on "any bit" of the block, although the packet must be always an integer multiple of octets.
It is recommended to avoid a reference to 82.2.3.8.

The following clauses have the same problem:
49.2.4.9
55.3.2.2.12
82.2.3.8
113.3.2.2.12 (802.3bq)

SuggestedRemedy

Copy the paragraph of 82.2.3.8 here.
Remove "within" in front of "any character".
Change "XLGMII/CGMII" with "200GMII/400GMII".

Response *Response Status* **C**

REJECT.

It is correct as is. It says within any character of the block, not at any bit of any character of the block.

Cl **119** *SC* **119.2.4.1** *P* **146** *L* **52** # 335

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference for the transmit state diagram is missing.

SuggestedRemedy

Insert "shown in Figure 119-14" after "the transmit state diagram".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.2** *P* **147** *L* **28** # 336

Hidaka, Yasuo — Fujitsu Lab of America

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

"from" does not make sense.

91.5.2.5 has the same problem.

SuggestedRemedy

Change "from" with "form".

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Correct as is. With the subordinate clause omitted, this is "Omit tx_coded_c<9:6> from tx_xcoded per the following expressions."

Cl **119** *SC* **119.2.4.3** *P* **149** *L* **3** # 337

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not good to call tx_xcoded<256:0> as "payload", because tx_xcoded<0> is a tag bit and the actual "payload" is tx_xcoded<256:1>.

SuggestedRemedy

Change "payload" with "transcoded 257-bit block".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.3** *P* **149** *L* **3** # 352

Hidaka, Yasuo — Fujitsu Lab of America

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

Scrambler is a mandatory feature for S1 of PICS, but "shall" is missing.

SuggestedRemedy

Change "is scrambled" with "shall be scrambled".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.3** *P* **149** *L* **4** # 338

Hidaka, Yasuo — Fujitsu Lab of America

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

The scrambler in 49.2.6 scrambles only the payload of the block, whereas the scrambler in this clause scrambles the whole 257-bit block, not only the payload.

SuggestedRemedy

Replace the second sentence in 119.2.4.3 as follows:

The scrambler is identical to the scrambler used in Clause 49 excepting that the whole 257-bit block is scrambled instead of the payload. See 49.2.6 for the definition of the scrambler.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace the second sentence in 119.2.4.3 with:
"The scrambler polynomial is identical to that in Clause 49, see Equation (49-1) for the definition of the polynomial."

Cl **119** *SC* **119.2.4.4** *P* **149** *L* **9** # 339

Hidaka, Yasuo — Fujitsu Lab of America

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

The first paragraph of 119.2.4.4 is not well written. It is hard to follow, because a reference to 91.5.2.6 is useless (it is so different) and there is unnecessarily detail from the third sentence.

SuggestedRemedy

Remove the two sentences "In order . 91.5.2.6", and insert a new paragraph at the beginning of 119.2.4.4 which is a modified version of the first paragraph of 91.5.2.6. Avoid a reference to 91.5.2.6. The following is an example:

In order to support deskew and reordering of the individual PCS lanes at the receive PCS, alignment markers corresponding to PCS lanes are periodically inserted after being processed by the alignment marker mapping function.
The alignment marker mapping function compensates for the operation of the symbol distribution function defined in 119.2.4.7 and rearranges the alignment marker bits so that they appear on the FEC lanes intact and in the desired sequence. This preserves the properties of the alignment markers (e.g. DC balance, transition density) and provides a deterministic pattern for the purpose of synchronization. The RS-FEC receive function uses knowledge of this mapping to determine the FEC lane that is received on a given lane of the PMA service interface, to compensate for skew between FEC lanes, and to identify RS-FEC codeword boundaries.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
In order to support deskew and reordering of the individual PCS lanes at the receive PCS, alignment markers are added periodically for each PCS lane. The alignment marker for each PCS lane is composed of a fixed 96-bit block interleaved with fixed 24-pad bits to achieve alignment marker field positioning identical to that defined in 91.5.2.6.
To:
In order to support deskew and reordering of the individual PCS lanes at the receive PCS, alignment markers corresponding to PCS lanes are periodically inserted after being processed by the alignment marker mapping function.
The alignment marker mapping function compensates for the operation of the symbol distribution function and rearranges the alignment marker bits so that they appear on the PCS lanes intact and in the desired sequence. This preserves the properties of the alignment markers (e.g. DC balance, transition density) and provides a deterministic pattern for the purpose of synchronization.

Then continue with the current 3rd sentence, but in a new paragraph.

Cl **119** *SC* **119.2.4.4** *P* **149** *L* **11** # 101

Slavick, Jeff — Broadcom

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

Since both 96b pattern and the "24-pad bits" are fixed. Why not just state the AM is a fixed 120b pattern.

SuggestedRemedy

Change "96-bit block interleaved with fixed 24-pad bits" to read "120-bit block"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #339

[Editor's note: page changed to 149 from 147]

Cl **119** *SC* **119.2.4.4** *P* **149** *L* **12** # 119

Ofelt, David — Juniper Networks

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

Text describes the alignment marker structure for each lane and refers to the "field poisitioning identical to that defined in 91.5.2.6". It is unclear to me what that actually means- the alignment marker strucutre in that section seems to be different from what we have in 200/400GbE

SuggestedRemedy

Clarify the meaning

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #339

Cl **119** *SC* **119.2.4.4** *P* **149** *L* **39** # 340

Hidaka, Yasuo — Fujitsu Lab of America

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

The first 48 bits are not identical, because the first 48 bits include UP0 that is different between PCS lanes.

SuggestedRemedy

Change "the first 48 bits" with "CM0 through CM5".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.4** *P* **149** *L* **41** # 341

Hidaka, Yasuo — Fujitsu Lab of America

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

When this clause is referenced from XS, this is not the PMA service interface in the context of PHY XS, because PMA is the upper sublayer that receives the service, not the lower sublayer that provides the service.

SuggestedRemedy

Change "at the PMA service interface" with "the service interface between PMA and PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
The format shown in Table 119-1 defines how the alignment markers appear on the PCS lanes at the PMA service interface.
To:
The format shown in Table 119-1 defines how the alignment markers appear on a given PCS lane.

Cl **119** *SC* **119.2.4.4** *P* **152** *L* **19** # 102

Slavick, Jeff — Broadcom

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

Can Table 119-1 and Table 119-2 use fixed width font so everything lines up nicely?

SuggestedRemedy

See comment

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.4** *P* **152** *L* **20** # 99

Slavick, Jeff — Broadcom

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

Shift tx_am_sf to be the first nibble of the UP0 for lane 0. Make the 2nd nibble of UP0 for lane 0 be it's inverse. Then 802.3cd can insert it in the single lane implementations in the same "spot".

SuggestedRemedy

Change tx_am_sf to be {1,degrade,0,0} and update definition of UP0 to be tx_am_sf,~tx_am_sf for PCS lane 0.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **119** *SC* **119.2.4.4** *P* **152** *L* **20** # 98

Slavick, Jeff — Broadcom

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

Make all the UM for 200G PCS lanes 1-7 the same for as 400G. UM for lane 0 is unique. This will ensure no false link ups of 200G or 400G but minimize the patterns needed to be checked.

SuggestedRemedy

Make entries for PCS lanes 1-7 of Table 119-1 be the same as Table 119-2 PCS lanes 1-7

Response *Response Status* **C**

ACCEPT.

Staw Poll taken in the logic track:
Yes make the change (only 0 is unique): 8
No keep the Ams as they are: 1

Cl **119** *SC* **119.2.4.4.1** *P* **150** *L* **31** # 342

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not clear where am_mapped<1027:0> is inserted to.

SuggestedRemedy

Insert "to the output stream" after "inserted".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
shall be inserted so it appears every
to:
shall be inserted so it appears in the output stream every

Cl **119** *SC* **119.2.4.4.1** *P* **150** *L* **34** # 344

Hidaka, Yasuo — Fujitsu Lab of America

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

Two ways should be written in a parallel form.

SuggestedRemedy

Make a new paragraph starting at "For a 10280-bit block".
Remove an empty line after "group inserted:" to make it a single paragraph.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.4.2** *P* **151** *L* **33** # 343

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not clear where am_mapped<1027:0> is inserted to.

SuggestedRemedy

Insert "to the output stream" after "inserted".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
shall be inserted so it appears every
to:
shall be inserted so it appears in the output stream every

Cl **119** *SC* **119.2.4.4.2** *P* **151** *L* **35** # 345

Hidaka, Yasuo — Fujitsu Lab of America

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

Two ways should be written in a parallel form.

SuggestedRemedy

Make a new paragraph starting at "For a 10280-bit block".
Remove an empty line after "group inserted:" to make it a single paragraph.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.4.2** *P* **153** *L* **37** # 13

Gorshe, Steve — Microsemi Corp

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

Figure 119-5 is incorrect in that it shows all the AM values within a single FEC word. In fact, per Figure 119-10, the AM values are split across the FEC words output from encoders A and B.

SuggestedRemedy

Rather than showing a single FEC block for Figure 119-5, use two blocks side-by-side showing how the AM values divide across the two. A proposed revised figure will be sent to the editor in a separate file.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the figures as shown in anslow_3bs_03_0916.
Add in the figure key:
A = from FEC codeword A
B = from FEC codeword B

Change the colum title from:
10-bit Symbol index, k
to:
am_mapped 10-bit Symbol index, k

Change:
Alignment marker mapping and repetition rate are shown in Figure 119-5 and Figure 119-7.
to:
Alignment marker repetition rate is shown in Figure 119-7.

Insert 150, L30:
Alignment marker mapping is shown in Figure 119-5.

Change:
Alignment marker mapping and repetition rate are shown in Figure 119-6 and Figure 119-8.
to:
Alignment marker repetition rate is shown in Figure 119-8.

Insert 151, L32:
Alignment marker mapping is shown in Figure 119-6.

[Editor's note:
Attachment is gorshe_3bs_01_0916.pdf in
http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]

Cl **119** *SC* **119.2.4.4.2** *P* **153** *L* **37** # 11

Gorshe, Steve — Microsemi Corp

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

In Figure 119-5, the transmission order of the 10-bit symbols is not obvious. With careful reading of the text, it becomes apparent that the transmission is by column and then by row. Since telecommunications systems standards typically illustrate transmission by row and then by column, it would be very helpful to the reader to add arrows to indicate the transmission order being used here.

SuggestedRemedy

Add some arrows to Figure 119-5 to illustrate the symbol transmission order. A proposed revised figure will be sent to the editor in a separate file.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to Comment #13.

[Editor's note: Attachment is gorshe_3bs_01_0916.pdf in
http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]

Cl **119** *SC* **119.2.4.4.2** *P* **154** *L* **2** # 14

Gorshe, Steve — Microsemi Corp

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

Figure 119-6 is incorrect in that it shows all the AM values within a single FEC word. In fact, per Figure 119-11, the AM values are split across the FEC words output from encoders A and B.

SuggestedRemedy

Rather than showing a single FEC block for Figure 119-6, use two blocks side-by-side showing how the AM values divide across the two. A proposed revised figure will be sent to the editor in a separate file.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #13.

[Editor's note: Attachment is gorshe_3bs_01_0916.pdf in
http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]

Cl **119** *SC* **119.2.4.4.2** *P* **154** *L* **2** # 12

Gorshe, Steve — Microsemi Corp

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

In Figure 119-6, the transmission order of the 10-bit symbols is not obvious. With careful reading of the text, it becomes apparent that the transmission is by column and then by row. Since telecommunications systems standards typically illustrate transmission by row and then by column, it would be very helpful to the reader to add arrows to indicate the transmission order being used here.

SuggestedRemedy

Add some arrows to Figure 119-6 to illustrate the symbol transmission order. A proposed revised figure will be sent to the editor in a separate file.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #13.

[Editor's note: Attachment is gorshe_3bs_01_0916.pdf in http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]

Cl **119** *SC* **119.2.4.4.2** *P* **154** *L* **41** # 529

Nicholl, Gary — Cisco Systems

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

The text and curly bracket is technically incorrect.

SuggestedRemedy

The curly bracket should be changed to only include the 257-bit blocks "between" the AM blocks, and the text should be changed to read "81 919 × 257-bit blocks between AM insertions" or "81 919 × 257-bit blocks between alignment markers" The second option is consistent with CL82.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #562

Cl **119** *SC* **119.2.4.4.2** *P* **154** *L* **44** # 562

Wertheim, Oded — Mellanox Technologie

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

The drawing in Figures 119-7, 119-8 is correct but the description in 119-7 "81 920 × 257-bit blocks between AM insertions" may be misinterpreted since there are (81 920 - 4) × 257-bit blocks between insertions.

SuggestedRemedy

Change the text in Figure 119-7 to "81 920 × 257-bit blocks between the beginning of successive AMs"
Change the text in Figure 119-8 to "163 840 × 257-bit blocks between the beginning of successive AMs"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the diagrams to show am_mapped instead of AMs per lane.

Change the description for 119-7 to:
81 920x257-bit blocks

Change the description for 119-8 to:
163 840x257-bit blocks

Cl **119** *SC* **119.2.4.4.2** *P* **155** *L* **23** # 530

Nicholl, Gary — Cisco Systems

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

The text and curly bracket is technically incorrect.

SuggestedRemedy

The curly bracket should be changed to only include the 257-bit blocks "between" the AM blocks, and the text should be changed to read "163 839 × 257-bit blocks between AM insertions"or "163 839 × 257-bit blocks between alignment markers". The second option is consistent with CL82.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #562

Cl **119** *SC* **119.2.4.5** *P* **155** *L* **32** # 346

Hidaka, Yasuo — Fujitsu Lab of America

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

Distributing the data to two FEC code words is a mandatory feature for TF5 of PICS.

SuggestedRemedy

Change "performs" in front of "a 10-bit symbol round robin distribution" with "shall perform".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.5** *P* **155** *L* **37** # 46

Ran, Adee — Intel

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

The variables m_A and m_B appear here without definition or explanation of what they mean.

The text in the first paragraph explains the process but does not use the terms m_A and m_b. This makes it somewhat difficult to connect the text with the "equation".

A reference to figure 119-10 would also be helpful.

SuggestedRemedy

In the first paragraph, change
"...to form two 514-symbol FEC messages, which are subsequently each encoded by the RS FEC."

to
"...to form two 514-symbol FEC messages, m_A and m_B, which are subsequently each encoded by the PCS FEC, as illustrated in Figure 119-10."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In the first paragraph, change
"...to form two 514-symbol FEC messages, which are subsequently each encoded by the RS FEC."

to
"...to form two 514-symbol FEC messages, m_A and m_B, which are subsequently each encoded by the RS FEC"

Cl **119** *SC* **119.2.4.8** *P* **159** *L* **1** # 47

Ran, Adee — Intel

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

This subclause and the figure describe not only the transmit bit ordering, but also the various bit distribution and interleaving.

SuggestedRemedy

In the subclause and figure titles and the text, change "bit ordering" to "bit ordering and distribution".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In the subclause and figure titles change "bit ordering" to "bit ordering and distribution".
On line 3 change:
"transmit bit ordering is illustrated" to:
"transmit bit ordering and distribution are illustrated"

Cl **119** *SC* **119.2.4.8** *P* **159** *L* **24** # 531

Nicholl, Gary — Cisco Systems

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

MAk-1. Since we are using a fixed RS(544,514) FEC, then the value of k is known and fixed, i.e k=514.It would be easer to read/understand if 514 was substituted for k in the diagram, i.e. MAk-1 becomes MA513, etc.

SuggestedRemedy

Substitute k=514 in the diagram.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.8** *P* **159** *L* **32** # 532

Nicholl, Gary — Cisco Systems

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

Should show CA543=MA513, CA542=MA512, etc .

SuggestedRemedy

Show CA543=MA513, CA542=MA512, etc throughout diagram

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.8** *P* **159** *L* **35** # 533

Nicholl, Gary — Cisco Systems

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

CA2t-1. We are using a signle FEC in this clause and the value of t is known. It would be easier to read/understand if 15 was substituted for t thoughtout the diagram, i.e. CA2t-1becomes cA29 and PA2t-1 becomes PA29.

SuggestedRemedy

Substitute t=15 in the diagram.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.8** *P* **160** *L* **24** # 534

Nicholl, Gary — Cisco Systems

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

MAk-1. Since we are using a fixed RS(544,514) FEC, then the value of k is known and fixed, i.e k=514.It would be easer to read/understand if 514 was substituted for k in the diagram, i.e. MAk-1 becomes MA513, etc.

SuggestedRemedy

Substitute k=514 in the diagram.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.8** *P* **160** *L* **32** # 535

Nicholl, Gary — Cisco Systems

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

Should show CA543=MA513, CA542=MA512, etc .

SuggestedRemedy

Show CA543=MA513, CA542=MA512, etc throughout diagram

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.8** *P* **160** *L* **35** # 536

Nicholl, Gary — Cisco Systems

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

CA2t-1. We are using a signle FEC in this clause and the value of t is known. It would be easier to read/understand if 15 was substituted for t thoughtout the diagram, i.e. CA2t-1becomes cA29 and PA2t-1 becomes PA29.

SuggestedRemedy

Substitute t=15 in the diagram.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.9** *P* **161** *L* **3** # 347

Hidaka, Yasuo — Fujitsu Lab of America

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

Generating a scrambled idle test pattern is a mandatory feature for JT1 of PICS.

SuggestedRemedy

Change "PCS has" with "PCS shall have".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.4.9** *P* **161** *L* **6** # 348

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not clear whether the alignment markers are inserted or not in the test-pattern mode. I think it should be so that the receive PCS can align and deskew the PCS lanes.

SuggestedRemedy

Change "transcoded, scrambled and encapsulated by the FEC" with "transcoded, scrambled, inserted with alignment makers, and encapsulated by the FEC".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
This is sent continuously and is transcoded, scrambled and encapsulated by the FEC.
To:
The test pattern is sent continuously and is transcoded, scrambled, alignment markers are inserted and finally encapsulated by the FEC.

Cl **119** *SC* **119.2.5.2** *P* **161** *L* **37** # 349

Hidaka, Yasuo
Fujitsu Lab of America

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

It is not clear what is "proper order".

SuggestedRemedy

Change "in the proper order" with "in the proper order based on PCS_lane_mapping<x> assigned in 2_GOOD state of the alignment marker lock state diagram (see Figure 119-12)".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
After all PCS lanes are aligned, deskewed, and reordered, the two FEC codewords are de-interleaved in the proper order to reconstruct the original stream of two FEC codewords.
To:
After all PCS lanes are aligned, deskewed, and reordered, the two FEC codewords are de-interleaved to reconstruct the original stream of two FEC codewords.

Cl **119** *SC* **119.2.5.3** *P* **161** *L* **45** # 48

Ran, Adee
Intel

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

There is no RS-FEC sublayer in this amendment. This is part of the decoder functionality.

Also in the fifth paragraph, P162 L6.

SuggestedRemedy

Change "The RS-FEC sublayer" to "the FEC decoder", in both places.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change :
The RS-FEC sublayer shall
to:
The Reed-Solomon decoder shall

And on page 162, L6 Change:
the RS-FEC sublayer to reduce
to:
the Reed-Solomon decoder to reduce

And on page 338, L28, change:
The eye height, eye width, and vertical eye closure are as specified in 109B.3.2.1 for a PHY that includes an RS-FEC sublayer.
To:
The eye height, eye width, and vertical eye closure are as specified in 109B.3.2.1.

And on page 339, L12, change:
The module output eye height, eye width, and vertical eye closure are measured as specified in 109B.3.2.1 for a PHY that includes an RS-FEC sublayer..
To:
The module output eye height, eye width, and vertical eye closure are measured as specified in 109B.3.2.1.

Cl **119** *SC* **119.2.5.3** *P* **161** *L* **52** # 34

Ran, Adee Intel

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

"it shall ensure that (...) the synchronization header for all 66-bit blocks (...) is set to 11"

In this architecture the FEC is part of the PCS, not a separate sublayer, so the synchronization header is internal to the PCS and does not appear on any interface. Thus, the normative requirement is on unobservable behavior.

The observable behavior is that all 200GMII/400GMII blocks included in the received codeword are replaced with EBLOCK_R. The "shall" should refer to this behavior.

Similarly in the 5th paragraph of this subclause.

SuggestedRemedy

Replace this paragraph (3rd) with the following:

"If the bypass indication feature is not supported or not enabled, when the Reed-Solomon decoder determines that a codeword contains errors that were not corrected, it shall cause the PCS receive function to mark all 160 200GMII/400GMII blocks that contain data from either the uncorrected codeword or the codeword it is interleaved with, as error (set to EBLOCK_R). This may be achieved by setting the synchronization header to 11 for all 66-bit blocks created from these codewords by the 256B/257B to 64B/66B transcoder."

Replace the 5th paragraph with the following:

"If the bypass indication feature is supported and enabled, additional error monitoring is performed to reduce the likelihood that errors in a packet are not detected. The Reed-Solomon decoder counts
the number of symbol errors detected in consecutive non-overlapping blocks of 8192 codewords. When the number of symbol errors in a block of 8192 codewords exceeds 5560, the Reed-Solomon decoder shall cause the PCS receive function to mark all 200GMII/400GMII blocks as error (set to EBLOCK_R) for a period of 60 ms to 75 ms."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
The Reed-Solomon decoder indicates errors to the 64B/66B decoder by intentionally corrupting 66-bit block synchronization headers. When the Reed-Solomon decoder determines that a codeword contains errors that
were not corrected (and the bypass indication feature is not supported or not enabled), it shall ensure that, for every 257-bit block within the two associated codewords, the synchronization header for all 66-bit blocks at
the output of the 256B/257B to 64B/66B transcoder, rx_coded_j<1:0> for j=0 to 3, is set to 11. This causes the PCS to mark (set to EBLOCK_R) all blocks that contain data from the uncorrected codeword.
To:
If bypass error indication is not supported or not enabled, when the Reed-Solomon decoder determines that a codeword contains errors that were not corrected, it shall cause the PCS receive function to set every 66-bit block within the two associated codewords to an error block (set to EBLOCK_R). This may be achieved by setting the synchronization header to 11 for all 66-bit blocks created from these codewords by the 256B/257B to 64B/66B transcoder.

And change:
When FEC_bypass_indication_enable is asserted, additional error monitoring is performed by the RS-FEC sublayer to reduce the likelihood that errors in a packet are not detected. The Reed-Solomon decoder counts
the number of symbol errors detected on all PCS lanes in consecutive non-overlapping blocks of 8192 codewords. When the number of symbol errors in a block of 8192 codewords exceeds 5560, the Reed-Solomon
decoder shall cause synchronization header rx_coded<1:0> of each subsequent 66-bit block that is delivered to the PCS decoder to be assigned a value of 11 for a period of 60 ms to 75 ms.
To:
When FEC_bypass_indication_enable is asserted, additional error monitoring is performed by the Reed-Solomon decoder to reduce the likelihood that errors in a packet are not detected. The Reed-Solomon decoder counts
the number of symbol errors detected on all PCS lanes in consecutive non-overlapping blocks of 8192 codewords. When the number of symbol errors in a block of 8192 codewords exceeds 5560, the Reed-Solomon
decoder shall cause the PCS receive function to set every 66-bit block to an error block (set to EBLOCK_R) for a period of 60 ms to 75 ms. This may be achieved by setting the synchronization header to 11 for all 66-bit blocks created by the 256B/257B to 64B/66B transcoder for this time period.

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **14** # 156

Dudek, Mike Cavium

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

I believe this is the first use of SER in this clause. SER isn't listed in the abbreviations in sub clause 1.5.

SuggestedRemedy

Replace "SER" with "RS-FEC symbol error ratio(SER)" here. Add SER - RS-FEC Symbol Error Ratio to the abbreviations in sub clause 1.5

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #35

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **14** # 35

Ran, Adee Intel

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

SER is not a defined acronym and "symbol error ratio" is not defined anywhere. In previous clauses, "ser" was only used in as part of variable name and in corresponding register names. Compare to 91.5.3.3, 91.6.5, 108.5.3.2 and 108.6.6.

It would be preferable to avoid using the term "symbol error ratio" and instead describe the intended functionality, as done in other features here and in the referenced precedent subclauses. The actual behavior is specified in the next paragraph anyway

SuggestedRemedy

Change
"The Reed-Solomon decoder may optionally provide a FEC degrade function with the ability to signal the presence of a degraded SER."
to
"The Reed-Solomon decoder may optionally provide the ability to signal a degradation of the received signal."

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **15** # 96

Slavick, Jeff Broadcom

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

Missing 3rd sentence of the "optional feature" template for degrade_SER

SuggestedRemedy

Add the end of the paragraph that introduces FEC_degrade_SER feature. "When the option is provided it is enabled by the assertion of the FEC_degraded_SER_enable variable (see 119.3)" and remove the (see 119.3) from the next paragraph for the FEC_degraded_SER_enable

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **17** # 40

Ran, Adee Intel

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

FEC_degraded_SER_interval, FEC_degraded_SER_assert_threshold and FEC_degraded_SER_deassert_threshold defined here do not have default values. In addition, all three are 32-bit long.

This enables a huge number of combinations of interval and threshold values. Only a small part of these combinations makes sense; for example, any threshold larger than 544*FEC_degraded_SER_interval would be inherently invalid. Additionally, both threshold values should be less than 15*FEC_degraded_SER_interval, otherwise the indication of degradation would only occur after at least one complete codeword in the period is uncorrectable; and the assert threshold should be higher than the deassert threshold.

There should be default values for all three variables, and a recommendation for setting them together.

Also, the parameters and scenarios should be analyzed to show the mean time to assert/deassert, and check whether this feature is useful or not. I am planning a presentation for that.

SuggestedRemedy

Specify default values as follows:
- FEC_degraded_SER_interval: default 8192 (as when indication is bypass)
- FEC_degraded_SER_assert_threshold: default 5560 (MTTFPA or uncorrectable codeword concern).
- FEC_degraded_SER_deassert_threshold: default 5000 (very healthy link)

Add text to indicate that unless the threshold values are set such that the assert threshold is higher than the deassert threshold, the behavior is unspecified (or degradation always asserted - see other comment)

Add as a note (informative) that in typical use, both values should be lower than the interval value.

Response *Response Status* **C**

REJECT.

There was no support for introducing default values as proposed in http://www.ieee802.org/3/bs/public/16_09/ran_3bs_01a_0916.pdf

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **17** # 44

Ran, Adee Intel

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

The current "FEC degrade" function provides only a binary indication of exceeding a threshold, and its behavior depends on setting of multiple parameters. Analysis of its expected performance detailed use cases were not demonstrated.

Even if we assume stationary noise conditions, exceeding a threshold is a random event, and with settings intended to identify "degradation" this may happen occasionally in healthy links and cause false alarms. In practice noise conditions may be far from stationary and cause very erratic behavior. Accurate analysis may be impractical.

It is desirable to provide more detailed symbol error statistics that would enable online indication of received signal "health" to the link partner. Criteria for defining "degradation" can then be more robust, and this would enable various application-specific methods.

SuggestedRemedy

A detailed presentation is planned.

Response *Response Status* **C**

REJECT.

There was no support for changing the FEC degrade feature along the lines in http://www.ieee802.org/3/bs/public/16_09/ran_3bs_02a_0916.pdf

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **17** # 103

Slavick, Jeff Broadcom

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

For the FEC_degrade_SER function assumed you want to assert the indicator as soon as you exceed the threshold, but clear on the first interval that's below. Also the text does not align with the MDIO registers names

SuggestedRemedy

When FEC_degraded_SER_enable is asserted, additional error monitoring is performed by the PCS. The Reed-Solomon decoder counts the number of symbol errors detected on all PCS lanes in consecu-tive non-overlapping blocks of FEC_degraded_SER_interval (see 119.3) codewords. When the number of symbol errors exceeds the threshold set in FEC_degraded_SER_activate_threshold (see 119.3) the FEC_degraded_SER bit (see 119.3) is set. At the end of each interval, if the number of symbol errors is less than FEC_degraded_SER_deactivate_threshold the FEC_degraded_SER bit is cleared. If either FEC_degraded_SER_ability or FEC_degraded_SER_enable is de-asserted than FEC_degraded_SER bit is cleared.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change this:
When FEC_degraded_SER_enable (see 119.3) is asserted, additional error monitoring is performed by the PCS. The Reed-Solomon decoder counts the number of symbol errors detected on all PCS lanes in consecutive
non-overlapping blocks of FEC_degraded_SER_interval (see 119.3) codewords. When the number of symbol errors in this interval exceeds the threshold set in
FEC_degraded_SER_assert_threshold (see 119.3)
and the FEC_degraded_SER bit (see 119.3) is clear, the Reed-Solomon decoder asserts the FEC_degraded_SER bit. If the FEC_degraded_SER bit is set and there are fewer than FEC_degraded_SER_deassert_threshold (see 119.3) symbol errors in the interval, then the FEC_degraded_SER bit is cleared. If the FEC degraded option is not present, the FEC_degraded_SER bit is cleared.

To this:
When FEC_degraded_SER_enable is asserted, additional error monitoring is performed by the PCS. The Reed-Solomon decoder counts the number of symbol errors detected on all PCS lanes in consecutive non-overlapping blocks of FEC_degraded_SER_interval (see 119.3.1) codewords. When the number of symbol errors exceeds the threshold set in FEC_degraded_SER_activate_threshold (see 119.3.1), the FEC_degraded_SER bit (see 119.3.1) is set. At the end of each interval, if the number of symbol errors is less than FEC_degraded_SER_deactivate_threshold, the FEC_degraded_SER bit is cleared. If either FEC_degraded_SER_ability or FEC_degraded_SER_enable is de-asserted then the FEC_degraded_SER bit is cleared.

Cl **119** *SC* **119.2.5.3** *P* **162** *L* **17** # 37

Ran, Adee Intel

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

Cross reference seems incorrect - 119.3 does not mention FEC_degraded_SER_enable.

Also in lines 19, 20, 21, 23 (other variables).

Should it be 119.3.1? This subclause only lists the MDIO mapping, but does not describe the variables. The descriptions are given only in clause 45 and are hard to find.

SuggestedRemedy

Either add the descriptions from clause 45 to 119.3.1 and change the cross reference to 119.3.1, or point directly to the relevant subclauses of clause 45, or remove the cross references.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #103

Cl **119** *SC* **119.2.5.5** *P* **162** *L* **34** # 561

Wertheim, Oded Mellanox Technologie

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

The alignment markers removal is performed after the post FEC interleaving, and therefore it's more clear to base the description on transcoding blocks and not codewords as done in the alignment markers insertion (119.2.4.4) and depicted in figures 119-7 / 119-8.

SuggestedRemedy

Replace: "For the 200GBASE-R PCS, every 4096th codewords"
With: "For the 200GBASE-R PCS, every 81920 x 257-bit blocks (corresponds to 4096 codewords)"

Replace: "For the 400GBASE-R PCS, every 8192nd codewords"
With: "For the 400GBASE-R PCS, every 163840 x 257-bit blocks (corresponds to 8192 codewords)"

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.5.6** *P* **162** *L* **50** # 353

Hidaka, Yasuo Fujitsu Lab of America

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

Descrambler is a mandatory feature for S2 of PICS, but "shall" is missing.

SuggestedRemedy

Change "is descrambled" with "shall be descrambled".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.5.6** *P* **162** *L* **50** # 350

Hidaka, Yasuo Fujitsu Lab of America

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

It is not good to call rx_xcoded<256:0> as "payload", because rx_xcoded<0> is a tag bit and the actual "payload" is rx_xcoded<256:1>.

SuggestedRemedy

Change "payload" with "received 257-bit block".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.5.6** *P* **162** *L* **53** # 351

Hidaka, Yasuo Fujitsu Lab of America

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

The descrambler in 49.2.10 descrambles only the payload of the block, whereas the descrambler in this clause descrambles the whole 257-bit block, not only the payload.

SuggestedRemedy

Replace the second sentence in 119.2.5.6 as follows:

The descrambler is identical to that used in Clause 49 excepting that the whole 257-bit block is descrambled instead of the payload. See 49.2.10 for the definition of the descrambler.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
"The payload, rx_scrambled<256:0>, is descrambled with a self-synchronizing scrambler to generate rx_xcoded<256:0>.
The descrambler is identical to that used in Clause 49, see 49.2.10 for the definition."
To:
"The descrambler processes rx_scrambled<256:0> to reverse the effect of the scrambler using the polynomial given in Equation (49-1)."

Cl **119** *SC* **119.2.5.8** *P* **163** *L* **51** # 42

Ran, Adee Intel

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

Style manual: "use of the word must is deprecated and shall not be used when stating mandatory requirements; must is used only to describe unavoidable situations"

This is a mandatory requirement, not an unavoidable situation, and it is easily verifiable.

SuggestedRemedy

Change "must" to "shall", add PICS item.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See the response to #94

Cl **119** *SC* **119.2.5.8** *P* **163** *L* **51** # 94

Trowbridge, Steve Nokia

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

There are circumstances where the Rx PCS does not insert any idles when removing AMs, e.g., when no rate matching is necessary such as delivering packets to an NPU, or when the reduction in bit-rate from rate matching exceeds the amount of space occupied by the AMs.

SuggestedRemedy

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

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.5.9** *P* **164** *L* **5** # 43

Ran, Adee Intel

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

(nonexistent subclause)

A "receive ordering" subclause and especially a matching diagram is missing here (as in Figure 91-7, Figure 108-5).

SuggestedRemedy

Create suitable figures for 200G and 400G received bit ordering and add them in a new subclause.

Response *Response Status* **C**

REJECT.

Since receive ordering is the exact reverse of transmit this is not necessary.

Cl **119** *SC* **119.2.6.2.2** *P* **165** *L* **11** # 354

Hidaka, Yasuo Fujitsu Lab of America

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

"The PCS alignment process" is not defined.

SuggestedRemedy

Change "the PCS alignment process" with "the PCS synchronization process".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.2.2** *P* **165** *L* **12** # 355

Hidaka, Yasuo Fujitsu Lab of America

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

"The deskew process" is not defined.

SuggestedRemedy

Change "the deskew process" with "the PCS synchronization process".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.2.2** *P* **165** *L* **31** # 364

Hidaka, Yasuo — Fujitsu Lab of America

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

A variable PCS_lane_mapping<x> is used in 2_GOOD state of alignment marker lock state diagram, but it is not defined.

SuggestedRemedy

Add a definition of PCS_lane_mapping<x> after pcs_lane something like:

PCS_lane_mapping<x>
A variable that holds the value of pcs_lane.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add this variable definition:
PCS_lane_mapping<x>
A variable that holds the value of the pcs_lane received on physical lane x.

Change the variable from:
lane_mapping
to:
PCS_lane_mapping<x>
In MDIO tables in clause 118 and 119.

Cl **119** *SC* **119.2.6.2.2** *P* **165** *L* **42** # 356

Hidaka, Yasuo — Fujitsu Lab of America

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

"The PCS alignment process" is not defined.

SuggestedRemedy

Change "the PCS alignment process" with "the PCS synchronization process".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.2.2** *P* **165** *L* **42** # 357

Hidaka, Yasuo — Fujitsu Lab of America

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

It seems that this is not to reset the synchroization process.

SuggestedRemedy

Change "reset the synchronization process" with "restart the alignment marker lock process".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.2.2** *P* **166** *L* **8** # 358

Hidaka, Yasuo — Fujitsu Lab of America

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

SLIP is not requested by "the synchronization state diagram", but requested by "the alignment marker lock state diagram".

SuggestedRemedy

Change "the synchronization state digaram" with "the alignment marker lock state diagram".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.2.3** *P* **166** *L* **34** # 359

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not correct to send tx_coded<65:2> to the scrambler or to bypass the sync header.

SuggestedRemedy

Change "of which tx_coded<65:2> is sent to the scrambler. The two bits of the sync header bypass the scrambler." with "which is sent to the 64B/66B to 256B/257B transcoder".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
Encodes the 72-bit vector returning tx_coded<65:0> of which tx_coded<65:2> is sent to the scrambler. The two bits of the sync header bypass the scrambler.
To:
Encodes the 72-bit vector returning tx_coded<65:0>.

Cl **119** *SC* **119.2.6.3** *P* **168** *L* **6** # 360

Hidaka, Yasuo — Fujitsu Lab of America

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

It may be discouraged to write "the number of the PCS lane", because it is easy to be confused with "the number of the PCS lanes", which I believe not correct.

SuggestedRemedy

Change "the number of PCS lane" with "the PCS lane number".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.2.6.3** *P* **168** *L* **13** # 361

Hidaka, Yasuo — Fujitsu Lab of America

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

There is no synchronization lock. Also, what is restarted is "process", not "lock".

SuggestedRemedy

Change "Synchronization lock, along with alignment marker lock, are restarted" with "Synchronization process, along with alignment marker lock process, are restarted".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
Synchronization lock, along with alignment marker lock, are restarted
To:
The synchronization process, along with the alignment marker lock process, are restarted

Cl **119** *SC* **119.2.6.3** *P* **168** *L* **17** # 362

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not clear which block is processed, e.g. 64B66B block or 256B257B block.

SuggestedRemedy

Change "for each transmit block processed" with "for each transfer on the 200GMII/400GMII interface in the transmit direction".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
The Transmit state diagram shown in Figure 119-14 controls the encoding of transmitted blocks. It makes
exactly one transition for each transmit block processed.
To:
The Transmit state diagram shown in Figure 119-14 controls the encoding of 66-bit transmitted blocks. It makes
exactly one transition for each 66-bit transmit block processed.

Cl **119** *SC* **119.2.6.3** *P* **168** *L* **22** # 363

Hidaka, Yasuo — Fujitsu Lab of America

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

It is not clear which block is processed, e.g. 64B66B block or 256B257B block.

SuggestedRemedy

Change "for each transmit block processed" with "for each transfer on the 200GMII/400GMII interface in the receive direction".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
It makes exactly one transition for each receive block processed.
To:
It makes exactly one transition for each receive 66-bit block processed.

Cl **119** *SC* **119.2.6.3** *P* **169** *L* **1** # 67

Gustlin, Mark — Xilinx

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

Currently the alignement marker lock SM does not continously monitor the AMs after reaching the locked state, instead lock is restarted only when 3 FEC codewords in a row are not correctable. This leaves the SM vulnerable to a case where the Ethernet signal is transported by an OTN network, and under some fault conditions on the far end of the network the AM location might change and not be detected by the reciver. This can lead to continously corrupted data being received.

SuggestedRemedy

The proposed changes to figure 119-13 are included in gustlin_3bs_01_0916. We now look for correct AMs on all lanes after lock, and if 5 are found to not match expectations (pre FEC correction) on a given lane, then lock is restarted.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make the changes proposed in gustlin_3bs_01_0916, with the exception of using the state machine format from butter_3bs_01_0916.

Cl **119** *SC* **119.2.6.3** *P* **169** *L* **39** # 115

Chacon, Geoffrey — HPE

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

Variable PCS_lane_mapping<x> does not have a definition in 119.2.6.2 State Variables

SuggestedRemedy

Add a definition for PCS_lane_mapping. This variable does not seem to be used anywhere else, but it is needed by the lane reorder logic.

PCS_lane_mapping<x>
A variable that holds the index of the for the lane received by the alignment marker state machine x to be used by the PCS lane reorder function.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to #364

[Editor's note: Subclause changed from 119-12 to 119.2.6.3]

Cl **119** *SC* **119.3** *P* **173** *L* **4** # 55

Laubach, Mark — Broadcom Limited

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

Missing a period at end of sentence. Add the period.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.3** *P* **173** *L* **4** # 365

Hidaka, Yasuo — Fujitsu Lab of America

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

A grammer error.

SuggestedRemedy

Change "be provided" with "is provided".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.3.1** *P* **174** *L* **23** # 366

Hidaka, Yasuo — Fujitsu Lab of America

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

A range of the lane number should not include an unspecified index variable "i".

SuggestedRemedy

Change "lane 0 to i" with "lane 0 to 15" in the column of MDIO status variable and the column of PCS register name.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change
PCS FEC symbol errors, PCS
lanes 0 to i
to:
PCS FEC symbol errors, PCS
lanes 0 to x

Change:
PCS FEC symbol error counter
register, lanes 0 to i
to:
PCS FEC symbol error counter
register, lanes 0 to x

Cl **119** *SC* **119.6.3** *P* **177** *L* **6** # 87

Trowbridge, Steve — Nokia

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

The "Support" column is ragged. The first few rows have the entries centered, and later on they are left aligned.

SuggestedRemedy

Use a consistent alignment for the support column

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.3** *P* **177** *L* **6** # 367

Hidaka, Yasuo — Fujitsu Lab of America

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

The item name "CDE200" is inconsistent with PICS in other clauses.

The following item names are used for GMII support in other clauses:
XGE XGMII is supported (Clause 48)
XGE XGMII is supported (Clause 49)
XGE XGMII is supported (Clause 55)
XGE40 XLGMII is supported (Clause 82)
XGE100 CGMII is supported (Clause 82)
25GE 25GMII is supported (Clause 107)

SuggestedRemedy

Change the item column for CDE200 from "CDE200" to "200GE".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace CDE200 and CDE400 with:
MII
Feature: 200GMII or 400GMII logical interface
Subclause: 117, 119.1.4.1
Value: Logical interface is supported
Status: O
Support: Yes [] No []

Cl **119** *SC* **119.6.3** *P* **177** *L* **8** # 368

Hidaka, Yasuo — Fujitsu Lab of America

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

The item name "CDE400" is inconsistent with PICS in other clauses.

The following item names are used for GMII support in other clauses:
XGE XGMII is supported (Clause 48)
XGE XGMII is supported (Clause 49)
XGE XGMII is supported (Clause 55)
XGE40 XLGMII is supported (Clause 82)
XGE100 CGMII is supported (Clause 82)
25GE 25GMII is supported (Clause 107)

SuggestedRemedy

Change the item column for CDE400 from "CDE400" to "400GE".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #367

Cl **119** *SC* **119.6.3** *P* **177** *L* **24** # 369
Hidaka, Yasuo Fujitsu Lab of America

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

A reference to 119.6.5 is inappropriate, because 119.6.5 is a PICS clause.

SuggestedRemedy

Change the subclause column for JTM from "119.6.5" to "119.2.1".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.3** *P* **177** *L* **25** # 370
Hidaka, Yasuo Fujitsu Lab of America

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

JTM is mandatory.

SuggestedRemedy

Remove "No []" in the support column for JTM.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.2** *P* **178** *L* **22** # 371
Hidaka, Yasuo Fujitsu Lab of America

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

RF5 is mandatory only if BI is supported.

SuggestedRemedy

Add "N/A []" to the support column for RF5.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.2** *P* **178** *L* **27** # 372
Hidaka, Yasuo Fujitsu Lab of America

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

RF6 is mandatory only if BI is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for RF6.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.3** *P* **179** *L* **7** # 373
Hidaka, Yasuo Fujitsu Lab of America

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

Choice of "No []" is given for mandatory items C1 through C9.

SuggestedRemedy

Remove "No []" from the support column for C1 through C9.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.3** *P* **179** *L* **22** # 374
Hidaka, Yasuo Fujitsu Lab of America

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

Reference to 119.2.3.5 for C7 is not helpful, because there is no much detail description in 119.2.3.5.

SuggestedRemedy

Change the subclause column for C7 from "119.2.3.5" to "119.2.3.5, 82.2.3.6".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 82.2.3.6 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **119** *SC* **119.6.4.3** *P* **179** *L* **24** # 375
Hidaka, Yasuo Fujitsu Lab of America

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

Reference to 119.2.3.5 for C8 is not helpful, because there is no much detail description in 119.2.3.5.

SuggestedRemedy

Change the subclause column for C8 from "119.2.3.5" to "119.2.3.5, 82.2.3.6".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 82.2.3.6 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **119** *SC* **119.6.4.3** *P* **179** *L* **27** # 376
Hidaka, Yasuo Fujitsu Lab of America

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

Reference to 119.2.3.8 for C9 is not helpful, because there is no much detail description in 119.2.3.8.

SuggestedRemedy

Change the subclause column for C9 from "119.2.3.8" to "119.2.3.8, 82.2.3.9".

Response *Response Status* **C**

REJECT.

The reference is to the local subclause which already contains a reference to 82.2.3.9 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **119** *SC* **119.6.4.3** *P* **179** *L* **29** # 377
Hidaka, Yasuo Fujitsu Lab of America

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

If EEE has not been negotiated, LPI shall not be transmitted and shall be treated as an error if received.

SuggestedRemedy

Change "EEE" with "*EEE" (insert *) in the PICS table in clause 119.6.3.
Insert the following items after C9:

Item: C10
Feature: If EEE has not been negotiated, LPI is not transmitted.
Subclause: 119.2.3.3
Value/Comment: (blank)
Status: EEE:M
Support: Yes [] N/A []

Item: C11
Feature: If EEE has not been negotiated, LPI is treated as an error if received.
Subclause: 119.2.3.3
Value/Comment: (blank)
Status: EEE:M
Support: Yes [] N/A []

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Make suggested changes except insert new PICS items before C7

Cl **119** *SC* **119.6.4.4** *P* **179** *L* **37** # 378
Hidaka, Yasuo Fujitsu Lab of America

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

Scrambler is mandatory.

SuggestedRemedy

Remove "No []" from the support column for S1.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.4** *P* **179** *L* **39** # 379
Hidaka, Yasuo Fujitsu Lab of America

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

Descrambler is mandatory.

SuggestedRemedy

Remove "No []" from the support column for S2.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.5** *P* **180** *L* **7** # 380
Hidaka, Yasuo Fujitsu Lab of America

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

AM1 is mandatory.

SuggestedRemedy

Remove "No []" from the support column for AM1.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.5** *P* **180** *L* **10** # 381
Hidaka, Yasuo Fujitsu Lab of America

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

AM2 is mandatory.

SuggestedRemedy

Remove "No []" from the support column for AM2.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.5** *P* **180** *L* **12** # 382
Hidaka, Yasuo Fujitsu Lab of America

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

AM3 is mandatory only if MD is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for AM3.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.4.5** *P* **180** *L* **13** # 383
Hidaka, Yasuo Fujitsu Lab of America

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

Alignment marker shall be removed prior to descrambling (119.2.5.5, P162, L46).

SuggestedRemedy

Insert the following item after AM3:

Item: AM4
Feature: Alignment marker removal
Subclause: 119.2.5.5
Value/Comment: Alignment markers are removed prior to descrambling as described in 119.2.5.5
Status: M
Support: Yes []

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.5** *P* **180** *L* **21** # 384
Hidaka, Yasuo Fujitsu Lab of America

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

JT1 is mandatory.

SuggestedRemedy

Remove "No []" and "N/A []" from the support column for JT1.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.5.1** *P* **180** *L* **26** # 387
Hidaka, Yasuo Fujitsu Lab of America

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

It is odd to have "119.6.5.1 Bit order" as a sub clause of "119.6.5 Test-pattern modes".

SuggestedRemedy

Raise the level of subclause "119.6.5.1 Bit order", and renumber subclauses.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.5.1** *P* **180** *L* **32** # 385
Hidaka, Yasuo Fujitsu Lab of America

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

B1 is mandatory.

SuggestedRemedy

Remove "No []" from the support column for B1.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6** *P* **180** *L* **44** # 388
Hidaka, Yasuo Fujitsu Lab of America

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

Mapping of MDIO register bits are mandatory.

SuggestedRemedy

Insert the following items after M1:

Item: M2
Feature: Mapping of MDIO control bits and MDIO status bits
Sub clause: 119.3.1
Value/Comment: Table 119-4 and Table 119-5
Status: MD:M
Support: Yes [] N/A []

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.1** *P* **181** *L* **7** # 390
Hidaka, Yasuo Fujitsu Lab of America

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

SM1 is mandatory for PCS200.

SuggestedRemedy

Change "No []" in the support column for SM1 with "N/A []".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.1** *P* **181** *L* **10** # 391
Hidaka, Yasuo Fujitsu Lab of America

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

SM2 is mandatory for PCS400.

SuggestedRemedy

Change "No []" in the support column for SM2 with "N/A []".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.1** *P* **181** *L* **13** # 392
Hidaka, Yasuo Fujitsu Lab of America

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

SM3 through SM6 are mandatory.

SuggestedRemedy

Remove "No []" in the support column for SM3 through SM6.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.1** *P* **181** *L* **13** # 389
Hidaka, Yasuo Fujitsu Lab of America

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

The SLIP functions evaluates all possible block "positions" rather than all possible "blocks".

SuggestedRemedy

Change the feature column for SM3 from "The SLIP function evaluates all possible blocks" to "The SLIP function evaluates all possible block positions".

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.2** *P* **181** *L* **29** # 394
Hidaka, Yasuo Fujitsu Lab of America

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

L1 is mandatory.

SuggestedRemedy

Remove "No []" and "N/A []" in the support column for L1.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.2** *P* **181** *L* **33** # 395
Hidaka, Yasuo Fujitsu Lab of America

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

L2 is mandatory.

SuggestedRemedy

Remove "No []" in the support column for L2.

Response *Response Status* **C**

ACCEPT.

Cl **119** *SC* **119.6.6.2** *P* **181** *L* **34** # 393
Hidaka, Yasuo Fujitsu Lab of America

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

When the PCS is in loopback, it shall ignore all data presented to it by the PMA sublayer.

SuggestedRemedy

Insert the following item after L2:

Item: L3
Feature: When in loopback, ignore all data presented by the PMA sublayer.
Subclause: 119.4
Status: M
Support: Yes []

Response *Response Status* **C**

ACCEPT.

Cl **119A** *SC* **119A** *P* **315** *L* **18** # 159

Dudek, Mike — Cavium

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

extra words.

SuggestedRemedy

Replace "stream of stream of" with "stream of"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
"resulting is a continuous stream of stream of" to:
"resulting in a continuous stream of"

Cl **119A** *SC* **119A** *P* **315** *L* **36** # 493

Hidaka, Yasuo — Fujitsu Lab of America

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

The sentence starting with "Immediately before the tx_scrambled" until "S<0:57>=24e6959d0fa5dbd" should appear earlier, because the scramble is done prior to alignment marker insertion.

SuggestedRemedy

Move the sentence starting with "Immediately before the tx_scrambled" until "S<0:57>=24e6959d0fa5dbd" before the paragraph starting with "In this example" on line 22.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove the sentence starting with "Immediately before the tx_scrambled" up to "S<0:57>=24e6959d0fa5dbd"

On line 22 change:
"In this example, an alignment marker is due for insertion."
to:
"In this example, an alignment marker is due for insertion and the the scrambler seed (see 49.2.6) just before the first 257-bit block was scrambled was:

S<0:57> = 24e6959d0fa5dbd."

Cl **120** *SC* **120.1.2** *P* **182** *L* **28** # 396

Hidaka, Yasuo — Fujitsu Lab of America

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

A period is missing.

SuggestedRemedy

Add a period.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.1.4** *P* **183** *L* **34** # 397

Hidaka, Yasuo — Fujitsu Lab of America

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

MMD addresses 11 is also available for PMA.

SuggestedRemedy

Change "1, 8, 9, and 10" with "1, 8, 9, 10, and 11".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
IEEE Std 802.3ba requires more PMA sublayers than P802.3bs: given the PPI, there is the possibility for the lowest PMA not to be co-packaged with the PMD, and there is the possibility of a separated FEC sublayer. The largest reasonable number of PMA sublayers for a P802.3bs implementation including the extender sublayer is four.

Make the following change to clarify this in clause 45.2.1:
From:
For devices operating at 40 Gb/s or higher speeds, the PMA may be instantiated as multiple sublayers (see 83.1.4 for how MMD addresses are allocated to multiple PMA sublayers).
To:
For devices operating at 40 Gb/s or higher speeds, the PMA may be instantiated as multiple sublayers (see 83.1.4 or 120.1.4 for how MMD addresses are allocated to multiple PMA sublayers for the respective speeds).

Cl **120** *SC* **120.1.4** *P* **183** *L* **39** # 398

Hidaka, Yasuo — Fujitsu Lab of America

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

"Towards the PCS" is ambiguous, because some PMA for XS is between RS and PCS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "toward the PCS" with "toward the MAC".
Make the equivalent change in:
45.2.1.116d page 55, line 35
45.2.1.116e page 57, line 48
120.5.3.4 page 191, line 40
120.5.6.3 page 192, line 6

Cl **120** *SC* **120.1.4** *P* **183** *L* **41** # 399

Hidaka, Yasuo — Fujitsu Lab of America

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

A description for 200GAUI-n is missing.

SuggestedRemedy

Change "MMD 8 addressing the PMA sublayer above the 400GAUI-8 below the 400GAUI-16" with "MMD 8 addressing the PMA sublayer above the 200GAUI-4 below the 200GAUI-8 or above the 400GAUI-8 below the 400GAUI-16".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.1.4** *P* **184** *L* **47** # 400

Hidaka, Yasuo — Fujitsu Lab of America

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

Maximum 5 PMAs (i.e MMD 1, 8, 9, 10, and 11) are addressable.

SuggestedRemedy

Change "maximum of four" with "maximum of five".

Response *Response Status* **C**

REJECT.
See comment 307

Cl **120** *SC* **120.2** *P* **184** *L* **52** # 401

Hidaka, Yasuo — Fujitsu Lab of America

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

The word "signals" in the sentence may be unnecessary and/or inappropriate.

SuggestedRemedy

Remove "signals".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.2** *P* **184** *L* **53** # 402

Hidaka, Yasuo — Fujitsu Lab of America

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

A bit mux function is applied to input/output lanes, not input/output lane counts.

SuggestedRemedy

Change "lane counts" with "lanes".

Response *Response Status* **C**

REJECT.
This sentence is describing the fact that the bit mux function is generic across all lane counts, i.e. it is the same function for an 8-lane PMA as it is for a 4-lane PMA. It is not saying that it is applied across all lanes.

Cl **120** *SC* **120.2** *P* **185** *L* **1** # 403

Hidaka, Yasuo — Fujitsu Lab of America

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

If the input and the output have the same number of lanes, PMA does not have to employ any mux.

SuggestedRemedy

Change "employs" with "may employ".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.2** *P* **185** *L* **48** # 404

Hidaka, Yasuo — Fujitsu Lab of America

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

A period is missing in a note in Figure 120-4.

SuggestedRemedy

Add a period after "an output PCSL position".

Response *Response Status* **C**

REJECT.
This is not a note, it is text in a diagram.
See Figure 83-4, in force since 2010.

Cl **120** *SC* **120.2** *P* **186** *L* **9** # 405

Hidaka, Yasuo — Fujitsu Lab of America

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

Instead of PCS, the PMA may be adjacent to DTE 200GXS or DTE 400GXS.

SuggestedRemedy

Change "adjacent to the PCS" with "adjacent to the PCS, DTE 200GXS, or DTE 400GXS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "adjacent to the PCS" to "adjacent to the PCS or DTE XS"

Cl **120** *SC* **120.2** *P* **186** *L* **10** # 406

Hidaka, Yasuo — Fujitsu Lab of America

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

Instead of PMD, the PMA may be adjacent to PHY 200GXS or PHY 400GXS.

SuggestedRemedy

Change "adjacent to the PMD" with "adjacent to the PMD, PHY 200GXS, or PHY 400GXS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "adjacent to the PMD" to "adjacent to the PMD or PHY XS"

Cl **120** *SC* **120.2** *P* **186** *L* **42** # 407

Hidaka, Yasuo — Fujitsu Lab of America

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

DTE 200GXS or DTE 400GXS will not be below PMA.

SuggestedRemedy

Change "200GXS" with "PHY 200GXS".
Change "400GXS" with "PHY 400GXS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "PMD, PMA, 200GXS, or 400GXS" to "PMD, PMA, or PHY_XS"
See also comment #195

Cl **120** *SC* **120.3** *P* **187** *L* **10** # 408

Hidaka, Yasuo — Fujitsu Lab of America

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

The primitives are defined for each PMA service interface, not for each PMA sublayer.

SuggestedRemedy

Change "For a PMA with p planes at the PMA service interface" with "For a PMA service terface with p planes".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.3** *P* **187** *L* **12** # 409

Hidaka, Yasuo — Fujitsu Lab of America

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

The PMA client may be DTE 200GXS or DTE 400GXS instead of PCS.

SuggestedRemedy

Change "PCS" with "PCS, DTE 200GXS, or DTE 400GXS" on line 12 and line 13.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "PCS" to "PCS or DTE XS"

Cl **120** *SC* **120.3** *P* **187** *L* **34** # 410

Hidaka, Yasuo — Fujitsu Lab of America

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

The paragraph starting "In the Rx direction" is not well written. Double use of "that" is discouraged.

SuggestedRemedy

Rewrite the paragraph as follows:

In the Rx direction, when data is being received from the sublayer below the PMA on every input lane associated with an output lane, received bits are routed through the PMA to the output lane at the PMA service interface, and symbols are transferred over the output lane to the PMA client via the PMA:IS_UNITDATA_i.indication primitive.
If necessary, buffers are filled to allow tolerating the Skew Variation that may appear between the input lanes, PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and PAM4 symbols are converted to pairs of bits on the input lanes and/or pairs of bits are converted to PAM4 symbols on the output lanes.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #157

Cl **120** *SC* **120.3.** *P* **187** *L* **34** # 157

Dudek, Mike — Cavium

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

This is a very long sentence that is difficult to follow.

SuggestedRemedy

Change the sentence "In the Rx direction, when data is being received from every input lane from the sublayer below the PMA thathas a PCSL that is routed to a particular output lane at the PMA service interface, and (if necessary), buffersare filled to allow tolerating the Skew Variation that may appear between the input lanes, PCSLs aredemultiplexed from the input lanes, demultiplexed to the output lanes, and symbols are transferred over each output lane to the PMA client via the PMA:IS_UNITDATA_i.indication primitive."

to "In the Rx direction, when data is being received from every input lane from the sublayer below the PMA that has a PCSL that is routed to a particular output lane at the PMA service interface, PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and symbols are transferred over each output lane to the PMA client via the PMA:IS_UNITDATA_i.indication primitive. If necessary the received data fills buffers to allow tolerating the Skew Variation that may appear between the input lanes, "

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "In the Rx direction, when data is being received from every input lane from the sublayer below the PMA that has a PCSL that is routed to a particular output lane at the PMA service interface, and (if necessary), buffers are filled to allow tolerating the Skew Variation that may appear between the input lanes, PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and symbols are transferred over each output lane to the PMA client via the PMA:IS_UNITDATA_i.indication primitive."
to
"The PMA passes symbols from the input lanes to the output lanes in the Rx direction when data is being received from every input lane from the sublayer below the PMA that has a PCSL that is routed to a particular output lane at the PMA service interface, and (if necessary), buffers are filled to allow tolerating the Skew Variation that may appear between the input lanes.
PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and symbols are transferred over each output lane to the PMA client via the PMA:IS_UNITDATA_i.indication primitive."

Cl **120** *SC* **120.4** *P* **187** *L* **53** # 88

Trowbridge, Steve Nokia

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

Should llist the extender sublayer as a possible sublayer below the PMA

SuggestedRemedy

Change "including the PMD or another PMA" to "including the PMD, an extender sublayer, or another PMA"

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.4** *P* **187** *L* **53** # 411

Hidaka, Yasuo Fujitsu Lab of America

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

PHY 200GXS and PHY 400GXS may also appear below PMA.

SuggestedRemedy

Change "the PMD or another PMA" with "the PMD, PHY 200GXS, PHY 400GXS, or another PMA".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #88

Cl **120** *SC* **120.4** *P* **188** *L* **16** # 412

Hidaka, Yasuo Fujitsu Lab of America

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

The status indicates a good signal "being received" (not sent) by the sublayer below the PMA on the interface further below.

SuggestedRemedy

Change "sent" with "being received".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
for data transfer and a status indicating a good signal sent by the sublayer below the PMA (see Figure 120-5).
To:
for data transfer and a status indicating a good signal from the sublayer below the PMA (see Figure 120-5).

Cl **120** *SC* **120.4** *P* **188** *L* **18** # 413

Hidaka, Yasuo Fujitsu Lab of America

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

The paragraph starting "In the Tx direction" is not well written. Double use of "that" is discouraged.

SuggestedRemedy

Rewrite the paragraph as follows:

In the Tx direction, when data is being received from the PMA client at the PMA service interface (see 120.3) on every input lane associated with an output lane, received bits are routed through the PMA to the output lane at the service interface below the PMA, and symbols are transferred over the output lane to the sublayer below the PMA via the inst:IS_UNITDATA_i.request primitive.
If necessary, buffers are filled to allow tolerating the Skew Variation that may appear between the input lanes, PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and PAM4 symbols are converted to pairs of bits on the input lanes and/or pairs of bits are converted to PAM4 symbols on the output lanes.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "In the Tx direction, when data is being received via the PMA:IS_UNITDATA_i.request primitive from every input lane from the PMA client at the PMA service interface (see 120.3) that has a PCSL that is routed to this output lane, and (if necessary), buffers are filled to provide the ability to tolerate the Skew Variation that may appear between the input lanes from the PMA client, PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and symbols are transferred over each output lane to the sublayer below the PMA."
to
"The PMA transfers symbols from the input lanes to the output lanes in the Tx direction when data is being received via the PMA:IS_UNITDATA_i.request primitive from every input lane from the PMA client at the PMA service interface (see 120.3) that has a PCSL that is routed to this output lane, and (if necessary), buffers are filled to provide the ability to tolerate the Skew Variation that may appear between the input lanes from the PMA client. PCSLs are demultiplexed from the input lanes, remultiplexed to the output lanes, and symbols are transferred over each output lane to the sublayer below the PMA."

Cl **120** *SC* **120.5.1** *P* **189** *L* **7** # 414

Hidaka, Yasuo Fujitsu Lab of America

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

Which service interface is not clear.

SuggestedRemedy

Change "the service interface" with "the service interface below the PMA".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.2** *P* **189** *L* **35** # 415

Hidaka, Yasuo — Fujitsu Lab of America

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

z/m is not the number of input lanes. It is the number of possible positions in the input lane.

SuggestedRemedy

Change "the z/m input lanes" with "the z/m possible positions in the input lane".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "Each PCSL is mapped from a position in the sequence on one of the z/m input lanes to a position in the sequence on one of the z/n output lanes" to
"Each PCSL is mapped from a position in the sequence on one of the m input lanes to a position in the sequence on one of the n output lanes"

Cl **120** *SC* **120.5.2** *P* **189** *L* **35** # 416

Hidaka, Yasuo — Fujitsu Lab of America

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

z/n is not the number of output lanes. It is the number of possible positions in the output lane.

SuggestedRemedy

Change "the z/n output lanes" with "the z/n possible positions in the output lane".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment #415

Cl **120** *SC* **120.5.2** *P* **190** *L* **25** # 417

Hidaka, Yasuo — Fujitsu Lab of America

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

"11.6" is incorrect.

SuggestedRemedy

Change "11.6" below mux with "11.8".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.2** *P* **190** *L* **32** # 418

Hidaka, Yasuo — Fujitsu Lab of America

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

"11.5" is incorrect.

SuggestedRemedy

Change "11.5" with "11.7".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.2** *P* **190** *L* **39** # 419

Hidaka, Yasuo — Fujitsu Lab of America

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

"11.4" is incorrect.

SuggestedRemedy

Change "11.4" with "11.6".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.2** *P* **190** *L* **43** # 420

Hidaka, Yasuo — Fujitsu Lab of America

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

"15.1" is incorrect.

SuggestedRemedy

Change the lowest "15.1" with "15.0".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.3.3** *P* **191** *L* **29** # 421

Hidaka, Yasuo — Fujitsu Lab of America

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

Here, "skew" is not capitalize, although it is capitalized in most locations.

SuggestedRemedy

Change "skew" with "Skew".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.3.4** *P* **191** *L* **37** # 422

Hidaka, Yasuo — Fujitsu Lab of America

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

Here, "skew" is not capitalize, although it is capitalized in most locations.

SuggestedRemedy

Change "skew" with "Skew".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.3.6** *P* **192** *L* **6** # 423

Hidaka, Yasuo — Fujitsu Lab of America

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

We should specify tolerance of Skew (not only Skew Variation) at SP6 to maintain the PCS receive function, because the Skew tolerance of PCS does not include the Skew generated by the PMA between SP6 and PCS.

SuggestedRemedy

Insert the following phrase at the end of the last sentence in 120.5.3.6:

"and the maximum amount of Skew allowed at SP6 (160ns) between input lanes while maintaining the PCS receive function".

Response *Response Status* **C**

REJECT.
The PMA isn't even aware of (total) Skew, and doesn't need to be tolerant of it. The PMA needs to have sufficient buffer fill to tolerate Skew Variation. The total Skew limits are relevant in the Skew Generation subclauses for the PMA, but not in the Skew Tolerance.

Cl **120** *SC* **120.5.4** *P* **192** *L* **10** # 424

Hidaka, Yasuo — Fujitsu Lab of America

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

There may be up to five PMAs (i.e MMD 1, 8, 9, 10, and 11).

SuggestedRemedy

Change "three PMA stages" with "five PMA stages".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
The maximum cumulative delay contributed by up to three PMA stages in a PHY
To:
The maximum cumulative delay contributed by up to four PMA stages in a PHY

Cl **120** *SC* **120.5.5** *P* **192** *L* **48** # 425

Hidaka, Yasuo — Fujitsu Lab of America

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

Description is inaccurate, because PMA(2:1) is not defined.
In particular, PMA(2:1) is not clear in terms of data rate (i.e. same aggregate data rate or same per lane data rate).

SuggestedRemedy

Change the last sentence of 120.5.5 as follows:

For example, a PMA(8:4) could be implemented using four independent 2-1 multiplexers in the Tx direction and four independent 1-2 demultiplexers in the Rx direction.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Delete:
"For example, a PMA(8:4) could be implemented as four independent PMA(2:1) entities"

Cl **120** *SC* **120.5.6** *P* **193** *L* **12** # 426

Hidaka, Yasuo — Fujitsu Lab of America

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

There is no 400GAUI-4. This clause specifies signal drivers for the physically instantiated interface below or above PMA that is either 200GAUI-n or 400GAUI-n. It does not include the PMD service interface that is not physicall instantiated such as for 400GBASE-DR4.

SuggestedRemedy

Change "400GBASE-R, where the number of input or output lanes is 8 or 4" with "400GBASE-R, where the number of input or output lanes is 8".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Replace the final paragraph of 120.5.6 with
"For 200GAUI-8 or 400GAUI-16, the modulation format is NRZ. For 200GAUI-4 or 400GAUI-8, the modulation format is PAM4."

Cl **120** *SC* **120.5.8** *P* **193** *L* **44** # 427

Hidaka, Yasuo — Fujitsu Lab of America

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

We need a description about IS_SIGNAL.indication primitive for the cases the service interface is physically instantiated e.g. 200GAUI-n and 400GAUI-n.

SuggestedRemedy

Add some description which may be referred from 120B, 120C, 120D, and 120E.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This notation comes from the generic inter-sublayer interface description in 116.3.1.

Change:
200GAUI-n is a physical instantiation of the connection between two adjacent 200GBASE-R PMA sublayers.
To:
200GAUI-n is a physical instantiation of the connection between two adjacent 200GBASE-R PMA sublayers with the exception of the inst:IS_SIGNAL.indication which is carried outside of this physically instantiated interface.

Change:
400GAUI-n is a physical instantiation of the connection between two adjacent 400GBASE-R PMA sublayers.
To:
400GAUI-n is a physical instantiation of the connection between two adjacent 400GBASE-R PMA sublayers with the exception of the inst:IS_SIGNAL.indication which is carried outside of this physically instantiated interface.

Cl **120** *SC* **120.5.9** *P* **193** *L* **53** # 428

Hidaka, Yasuo — Fujitsu Lab of America

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

The direction of the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "in the direction of the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "in the direction of the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.10** *P* **194** *L* **19** # 429

Hidaka, Yasuo — Fujitsu Lab of America

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

DTE 200GXS or DTE 400GXS do not provide the service interface below the PMA.

SuggestedRemedy

Change "200GXS" with "PHY 200GXS".
Change "400GXS" with "PHY 400GXS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change
"Note that the service interface below the PMA can be provided by the 200GXS, 400GXS, PMD, or another PMA sublayer"
to
"Note that the service interface below the PMA can be provided by the PHY XS, PMD, or another PMA sublayer"

Cl **120** *SC* **120.5.11** *P* **194** *L* **32** # 528

Hidaka, Yasuo — Fujitsu Lab of America

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

Although there are a lot of concerns about burst errors due to DFE, this specification lacks for a capability to evaluate burst errors.
Since it is easy to add such a capability with minor modifications and a small amount of logic, we should add such an optional feature, because DFEs are widely used in the electrical interfaces.

SuggestedRemedy

The detail of the proposal will be presented in the September meeting.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Cl **120** *SC* **120.5.11.1.1** *P* **195** *L* **23** # 430

Hidaka, Yasuo — Fujitsu Lab of America

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

The restriction of error counter "for isolated single bit errors" implicates that it does not increment for burst errors. It seems contradictory to the next sentence which says it should count at least one error whenever one or more errors occur in a sliding 1000-bit window.

SuggestedRemedy

Remove the phrase of "for isolated single bit errors" at the end of the sentence which begin with "The checker shall increment" in the fourth paragraph of 120.5.11.1.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

There is agreement that the text should be improved, but no consensus on a proposed change.

Cl **120** *SC* **120.5.11.1.3** *P* **196** *L* **15** # 431

Hidaka, Yasuo — Fujitsu Lab of America

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

Here, "PMA" does not make sense and is not required.

SuggestedRemedy

Remove "PMA" after "Tx direction".

Response *Response Status* **C**

REJECT.
While not necessary, it doesn't hurt anything and it is the PMA that generates this test pattern. This is the same wording as in 83.5.10

Cl **120** *SC* **120.5.11.2.1** *P* **196** *L* **40** # 432

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.1** *P* **196** *L* **45** # 149

Dudek, Mike — Cavium

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

The JP03A test pattern is used for measuring Jitter. With this pattern on all lanes crosstalk will not appear in the jitter measurement while it will degrade the jitter in the real application. We need to create the effect of the crosstalk during these tests by having a different pattern on the lanes not under test.

SuggestedRemedy

Add a per-lane enable for this pattern (and MDIO registers to match). Section 120.5.11.1.3 (square wave test pattern) provides a template for this.

Consider doing the same for JP03B however JP03B is not presently used. If it were used (eg for measuring EOJ) then this shold be done for that pattern as well.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Modify the text of 120.5.11.2.1 in accordance with the response to Comment #29

Even odd jitter is measured using JP03B through reference to 94.3.12.6.4.2. See response to D1.3 comment #33 where this test pattern was restored to the draft.
See response to comment #133.

Cl **120** *SC* **120.5.11.2.1** *P* **196** *L* **50** # 433

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.2** *P* **197** *L* **1** # 133

Dawe, Piers — Mellanox

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

JP03B test pattern is not used

SuggestedRemedy

Remove the JP03B test pattern generator and registers.

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

Even odd jitter is measured using JP03B through reference to 94.3.12.6.4.2. See response to D1.3 comment #33 where this test pattern was restored to the draft.
This response may be affected by the response to comment #565 which proposes to remove the need for the JP03B pattern.

Cl **120** *SC* **120.5.11.2.2** *P* **197** *L* **5** # 434

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.2** *P* **197** *L* **18** # 435

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.3** *P* **197** *L* **28** # 436

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.3** *P* **197** *L* **30** # 114

Chacon, Geoffrey — HPE

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

Typo: PRSBS13Q

SuggestedRemedy

Correct to PRBS13Q

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2.3** *P* **197** *L* **44** # 150

Dudek, Mike — Cavium

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

There is no skew requirement between lanes for the PRBS13Q generation. Also for the type of tests that PRBS13Q is being used for(scope measurements) crosstalk from other lanes is an important factor. Providing a required pattern offset between lanes would help but this would still produce crosstalk which is locked to the pattern under test and would create deterministic effects rather than random effects with some measurements not seeing the crosstalk at all and others mis-classifying it.

SuggestedRemedy

Add a per-lane enable for this pattern (and MDIO registers to match). Section 120.5.11.1.3 (square wave test pattern) provides a template for this.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Comment #23 has made changes that require per-lane enable for PRBS13Q.
Add this feature in Clause 120 and Clause 45 with editorial licence.

Cl **120** *SC* **120.5.11.2.3** *P* **197** *L* **47** # 437

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.4** *P* **198** *L* **6** # 438

Hidaka, Yasuo — Fujitsu Lab of America

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

Towards the PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change "towards the PCS" with "towards the RS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "towards the PCS" with "towards the MAC".

Cl **120** *SC* **120.5.11.2.4** *P* **198** *L* **11** # 9

Smith, Daniel — Seagate Technology

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

misspelled "abillity" at first occurance

SuggestedRemedy

change to: "ability"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "abilty" to "ability"

Cl **120** *SC* **120.5.11.2.4** *P* **198** *L* **26** # 301

Hidaka, Yasuo — Fujitsu Lab of America

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

The restriction of error counter "for isolated single bit errors" implicates that it does not increment for burst errors. It seems contradictory to the next sentence which says it should count at least one error whenever one or more errors occur in a sliding 1000-bit window.

SuggestedRemedy

Remove the phrase of "for isolated single bit errors" at the end of the sentence which begin with "The checker shall increment" in the second paragraph of 120.5.11.2.4.

Response *Response Status* **U**

REJECT.
See response to comment #430

Cl **120** *SC* **120.5.11.2.4** *P* **198** *L* **27** # 552

Palkert, Thomas — Macom

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

The method of generating a PRBS31Q pattern is complex and we have seen differences in bit sequences generated between vendors. Correnct implementation of the test procedures requires that the sequence is the same across vendors.

SuggestedRemedy

To provide clarity we propose that we provide the first 50 bits of the sequence of the PAM4 signal which will ensure that various implementation are in agreement.
50 bit sequence should be sufficient to ensure correct coding. Note that the proposed solution would follow what is current done for the PRBS13Q sequence which shows the bits on page 197 line 41.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

(Editor's Note: Subclause corrected to 120.5.11.2.4)

Add sentence after ". the next repetition of the PRBS31 sequence."
"For example, if the PRBS31 generator used to create the PRBS31Q sequence is initialized to a seed value of all ones, the PRBS31Q sequence begins with the following Gray coded PAM4 symbols:
2222222222222201222222222222000222222222201201222."

Cl **120** *SC* **120.5.11.2.4** *P* **199** *L* **15** # 116

Chacon, Geoffrey HPE

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

Typo in PRSBS31Q

SuggestedRemedy

Correct to PRBS31Q

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2.5** *P* **199** *L* **36** # 128

Dawe, Piers Mellanox

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

This SSPRQ pattern will give inconsistent results when testing a range of transmitters.

SuggestedRemedy

If we can find a less extreme pattern that better achieves the objective of allowing TDEC measurements that correlate to the TDP we don't want to measure at line rate, change to that pattern.
If we can't, change to a pattern that is less extreme, and don't use it for TDEC testing.

Response *Response Status* **U**

REJECT.
No alternative test pattern proposed. If the optical track selects a different test pattern than SSPRQ, the PMA can generate it.

Cl **120** *SC* **120.5.11.2.5** *P* **199** *L* **44** # 302

Hidaka, Yasuo Fujitsu Lab of America

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

A reference to Figure 49-7 is inappropriate, because Figure 49-7 is 64B/66B block format.

SuggestedRemedy

Change the reference to Figure 49-7 with a reference to Figure 49-9.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2.5** *P* **199** *L* **44** # 571

Zivny, Pavel Tektronix

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

In the text "shift register implementation shown in Figure 49-7." the reference is in error.

SuggestedRemedy

Change to
"shift register implementation shown in Figure 49-9".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: This comment was sent after the close of the comment period]
See response to comment #302.

Cl **120** *SC* **120.5.11.2.5** *P* **199** *L* **46** # 303

Hidaka, Yasuo Fujitsu Lab of America

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

I think bit sequence B is a 65534-bit sequence (not 65535-bit sequence), because it is formed by removing two bits from two repetation of bit sequence A that is a 32768-bit sequence.

SuggestedRemedy

Change "65535-bit" with "65534-bit".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2.5** *P* **200** *L* **4** # 304

Hidaka, Yasuo Fujitsu Lab of America

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

PAM4 sequence 4 must be a 16384-symbol sequence, not a 16364-symbol sequence.

SuggestedRemedy

Change "16364-symbol" with "16384-symbol".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.5.11.2.5** *P* **200** *L* **8** # 568

Hanan, Leizerovich — MultiPhy

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

The SSPRQ pattern is eventualy a repeating sequence of 2^16-1 PAM4 symbols.
Pattern length is not a round power of 2, which mat complicate some implementations.

SuggestedRemedy

Pad the suggested pattern by an additional symbol, generating a 2^16 symbols length sequence.

Response *Response Status* **C**

REJECT.
[Editor's note: Comment type set to T and
this comment was sent after the close of the comment period]

None of the patterns such as PRBS31 nor the typically used (but less stressful) shorter patterns of PRBS13 or PRBS9 are powers of two in length, and this has never created any difficulty for measurement with scope capture for NRZ signals. Both the PRBS13Q and PRBS31Q patterns are odd numbers of symbols in length. Having a length of 2^16-1 means that anything that happens at a fractional rate (e.g. Baud/32) sees a different pattern each occurrence.

Cl **120** *SC* **120.5.11.2.5** *P* **200** *L* **10** # 148

Dudek, Mike — Cavium

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

There is no skew requirement between lanes for the SSPRQ generation. Also for the type of tests that SSPRQ is being used for(scope measurements such as TDEC) crosstalk from other lanes can be an important factor. Providing a required pattern offset between lanes would help but this would still produce crosstalk which is locked to the pattern under test and would create deterministic effects rather than random effects with some measurements not seeing the crosstalk at all and others misclassifying it.

SuggestedRemedy

Add a per-lane enable for this pattern (and MDIO registers to match). Section 120.5.11.1.3 (square wave test pattern) provides a template for this.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment #305.

Cl **120** *SC* **120.5.11.2.5** *P* **200** *L* **10** # 305

Hidaka, Yasuo — Fujitsu Lab of America

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

The skew requirement between lanes should be defined but not defined for SSPRQ.
It should be defined to avoid the aggressor of the crosstalk being synchronous to the lane under measurement.

SuggestedRemedy

Define the requirement for the skew between lanes.

Or, alternatively, separate the test control for SSPRQ from other test patterns and make it lane-by-lane in a similar way to Square wave testing control, which allows us to run PRBS13Q or PRBS31Q on other lanes.
Define the priority between square wave and SSPRQ.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change:
If supported, when send SSPRQ test pattern is enabled by the SSPRQ_enable control variable, the PMA shall generate an SSPRQ pattern on each of its lanes in the Tx direction towards the PMD.
To:
If supported, when send SSPRQ test pattern is enabled by the SSPRQ_enable control variable, the PMA shall generate an SSPRQ pattern on each of its lanes in the Tx direction towards the PMD with at least a 31 UI delay between the SSPRQ pattern on one lane and any other lane.

Cl **120** *SC* **120.6** *P* **200** *L* **21** # 306

Hidaka, Yasuo — Fujitsu Lab of America

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

MMD addresses 11 is also available for PMA.

SuggestedRemedy

Change "MMD 8, 9, and 10" with "MMD 8, 9, 10, and 11".

Response *Response Status* **C**

REJECT.
IEEE Std 802.3ba requires more PMA sublayers than P802.3bs: given the PPI, there is the possibility for the lowest PMA not to be co-packaged with the PMD, and there is the possibility of a separated FEC sublayer. The largest reasonable number of PMA sublayers for a P802.3bs implementation including the extender sublayer is four.

Cl **120** *SC* **120.6** *P* **200** *L* **28** # 307

Hidaka, Yasuo — Fujitsu Lab of America

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

MMD addresses 11 is also available for PMA.

SuggestedRemedy

Change "MMDs 8, 9, and 10" with "MMDs 8, 9, 10, and 11".

Response *Response Status* **C**

REJECT.
See comment #306.

Cl **120** *SC* **120.6** *P* **201** *L* **6** # 89

Trowbridge, Steve — Nokia

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

In Table 120-4, the "PMA status variable" column has several entries that wrap the name of the variable over to the next line in the middle of a word

SuggestedRemedy

Make the rightmost column wide enough to not wrap any of the text, shrinking the PMA/PMD register name column (which wraps at word boundaries) and Register/Bit number column as necessary

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **11** # 308

Hidaka, Yasuo — Fujitsu Lab of America

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

In direction of PCS is not clear, because PMA may be between PCS and RS, if there is 200GXS or 400GXS.

SuggestedRemedy

Change the feature column for LNS_UPSTRM from "Number of lanes in direction of PCS" to "Number of lanes in the PMA service interface".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to "Number of lanes in the direction of MAC" to be consistent with the language of other resolved comments

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Cl **120** *SC* **120.7.3** *P* **206** *L* **15** # 309

Hidaka, Yasuo — Fujitsu Lab of America

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

The PMD is not necessarily the adjacent sublayer under the PMA.

SuggestedRemedy

Change the feature column for LNS_DNSTRM from "Number of lanes in direction of PMD" to "Number of lanes in the service interface below the PMA".

Response *Response Status* **C**

REJECT.
It says "in the direction of", not "adjacent to". This is the same language used in clause 83

Cl **120** *SC* **120.7.3** *P* **206** *L* **16** # 310

Hidaka, Yasuo — Fujitsu Lab of America

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

No space between "4" and "[]".

SuggestedRemedy

Insert a white space between "4" and "[]".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **19** # 311

Hidaka, Yasuo — Fujitsu Lab of America

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

No space between "4" and "[]".

SuggestedRemedy

Insert a white space between "4" and "[]".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **20** # 312

Hidaka, Yasuo — Fujitsu Lab of America

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

Capability/option items for NRZ or PAM4 in the PMA service interface is useful to simplify the PICS.

SuggestedRemedy

Insert the following items after LNS_DNSTRM:

Item: UP_NRZ
Feature: Lane count supported in the PMA service interface above the PMA
Subclause: 120.1.4
Value/Comment: 8 lanes for 200GBASE-R PMA or 16 lanes for 400GBASE-R PMA
Status: O.2
Support: Yes [] No []

Item: UP_PAM4
Feature: Lane count supported in the PMA service interface above the PMA
Subclause: 120.1.4
Value/Comment: 4 lanes for 200GBASE-R PMA or 8 lanes for 400GBASE-R PMA
Status: O.2
Support: Yes [] No []

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Item "LNS_UPSTRM" to "*LNS_UPSTRM"

Insert the following items after LNS_UPSTRM:

Item: *UP_NRZ
Feature: NRZ modulation for PMA service interface
Subclause: 120.1.4
Status: (PMA200*LNS_UPSTRM=8 or PMA400*LNS_UPSTRM=16):M
Support: Yes [] N/A []

Item: *UP_PAM4
Feature: PAM4 modulation for PMA service interface
Subclause: 120.1.4
Status: (PMA200*LNS_UPSTRM=4 or PMA400*LNS_UPSTRM=8):M
Support: Yes [] N/A []

Cl **120** *SC* **120.7.3** *P* **206** *L* **20** # 313

Hidaka, Yasuo — Fujitsu Lab of America

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

Capability/option items for NRZ or PAM4 in the service interface below the PMA is useful to simplify the PICS.

SuggestedRemedy

Insert the following items after LNS_DNSTRM:

Item: DN_NRZ
Feature: Lane count supported in the service interface below the PMA
Subclause: 120.1.4
Value/Comment: 8 lanes for 200GBASE-R PMA or 16 lanes for 400GBASE-R PMA
Status: O.3
Support: Yes [] No []

Item: DN_PAM4
Feature: Lane count supported in the service interface below the PMA
Subclause: 120.1.4
Value/Comment: 4 lanes for 200GBASE-R PMA or 4 or 8 lanes for 400GBASE-R PMA
Status: O.3
Support: Yes [] No []

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Item "LNS_DNSTRM" to "*LNS_DNSTRM"

Insert the following items after LNS_DNSTRM:

Item: *DN_NRZ
Feature: NRZ modulation used for service interface below the PMA
Subclause: 120.1.4
Status: (PMA200*LNS_DNSTRM=8 or PMA400*LNS_DNSTRM=16):M
Support: Yes [] N/A []

Item: *DN_PAM4
Feature: PAM4 modulation used for service interface below the PMA
Subclause: 120.1.4
Status: (PMA200*LNS_DNSTRM=4 or PMA400*LNS_DNSTRM<16):M
Support: Yes [] N/A []

Cl **120** *SC* **120.7.3** *P* **206** *L* **22** # 314
Hidaka, Yasuo Fujitsu Lab of America

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

RX_CLOCK is mandatory.

SuggestedRemedy

Remove "No []" in the support column for RX_CLOCK.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **24** # 315
Hidaka, Yasuo Fujitsu Lab of America

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

TX_CLOCK is mandatory only if either PMA200 or PMA400 is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for TX_CLOCK (two locations).

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **30** # 316
Hidaka, Yasuo Fujitsu Lab of America

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

LANE_MAPPING is mandatory

SuggestedRemedy

Remove "No []" in the support column for LANE_MAPPING.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **33** # 317
Hidaka, Yasuo Fujitsu Lab of America

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

LNKS is mandatory

SuggestedRemedy

Remove "No []" in the support column for LNKS.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **35** # 452
Hidaka, Yasuo Fujitsu Lab of America

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

To make a reference to JTP from other feature.

SuggestedRemedy

Insert "*" (asterisk) in front of "JTP" in the item column.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Delete the line for JTP, since it isn't used elsewhere. *JTP1 and *JTP2 are used to control which test patterns are optional, and they already have asterisks.

Cl **120** *SC* **120.7.3** *P* **206** *L* **35** # 318
Hidaka, Yasuo Fujitsu Lab of America

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

Test pattern is an optional feature if the PMA service interface above the PMA or the service interface below the PMA includes physically instantiated 200GAUI-n, 400GAUI-n, or the PMD service interface (whether or not physically instantiated). See 120.5.11, P194, L33.

SuggestedRemedy

Change the status column for JTP from "O" to "PINST:O".
Insert the following item before JTP:

Item: *PINST
Feature: The PMA service interface above the PMA or the service interface below the PMA
Subclause: 120.5.11
Value/Comment: Include physically instantiated 200GAUI-n, 400GAUI-n, or the PMD service interface (whether or not physically instantiated).
Status: O
Support: Yes [] No []

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
JTP entry deleted by comment #452

Cl **120** *SC* **120.7.3** *P* **206** *L* **40** # 319

Hidaka, Yasuo — Fujitsu Lab of America

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

PMA local loopback is not conditional option.

SuggestedRemedy

Remove "N/A []" in the support column for LBL.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **43** # 320

Hidaka, Yasuo — Fujitsu Lab of America

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

PMA remote loopback is not conditional option.

SuggestedRemedy

Remove "N/A []" in the support column for LBR.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **206** *L* **47** # 321

Hidaka, Yasuo — Fujitsu Lab of America

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

USP1SP6 is not a proper condition for some conditional mandatory features.

SuggestedRemedy

Replace USP1SP6 with the following items:

Item: *UP_PINST
Feature: PMA service interface above PMA
Subclause: 120.5.1, 120.5.5
Value/Comment: Physically instantiated 200GAUI-n or 400GAUI-n
Status: O
Support: Yes [] No []

Item: *USP1
Feature: PMA service interface above PMA
Subclause: 120.5.3.2
Value/Comment: Physically instantiated 200GAUI-n or 400GAUI-n that is closest to PMD (SP1 in Figure 116-4 and 116-5)
Status: O
Support: Yes [] No []

Item: *USP6
Feature: PMA service interface above PMA
Subclause: 120.5.3.5
Value/Comment: Physically instantiated 200GAUI-n or 400GAUI-n that is closest to PCS (SP6 in Figure 116-4 and 116-5)
Status: O
Support: Yes [] No []

Response *Response Status* **C**

REJECT.

This is arguably a "cheat" with the skew budget requirements, but it is one that has been used since 802.3ba, and the proposed remedy would make the situation worse.

The overall skew model avoided a detailed allocation of smaller portions of the skew budget to multiple PMAs in a stack. SP1 in the Tx direction was the input to the lowest PMA, and SP6 in the Rx direction was the output from the highest PMA, and hence represented a kind of "worst case". If a PMA were the only PMA in the stack, these represent the skew requirements that single PMA must meet. If there are multiple PMAs, each PMA may be called on to contribute less skew and less skew variation than the single PMA case.

Since the PICs in general will be filled out for an individual PMA in an individual device, the aggregate skew behavior of multiple PMAs in a stack cannot be judged by examining the single PMA. So the skew requirements are judged AS IF this were the only PMA in the

stack, and if SP1 and SP6 were actually adjacent to the device. And every PMA in the stack must be at least this good (in fact, some may need to be better).

Unbundling the PICSs and only considering the SP1 and SP6 requirements in the case where SP1 and SP6 are actually adjacent would have the effect of absolving PMAs in the middle of the stack from any responsibility for meeting the skew requirements. But in fact all PMAs must at least meet the SP1 SP6 requirements as if they were the only PMA.

Cl **120** *SC* **120.7.3** *P* **206** *L* **51** # 322

Hidaka, Yasuo — Fujitsu Lab of America

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

DSP1SP6 is not a proper condition for some conditional mandatory features.

SuggestedRemedy

Replace DSP1SP6 with the following items:

Item: *DN_PINST
Feature: Service interface below PMA
Subclause: 120.5.3.1, 120.5.5
Value/Comment: Physically instantiated 200GAUI-n or 400GAUI-n
Status: O
Support: Yes [] No []

Item: *DSP1
Feature: Service interface below PMA
Subclause: 120.5.3.1
Value/Comment: Physically instantiated 200GAUI-n or 400GAUI-n that is closest to PMD (SP1 in Figure 116-4 and 116-5)
Status: O
Support: Yes [] No []

Item: *DSP6
Feature: Service interface below PMA
Subclause: 120.5.3.6
Value/Comment: Physically instantiated 200GAUI-n or 400GAUI-n that is closest to PCS (SP6 in Figure 116-4 and 116-5)
Status: O
Support: Yes [] No []

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.3** *P* **207** *L* **5** # 323

Hidaka, Yasuo — Fujitsu Lab of America

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

SP1 and SP6 are not only the cases to apply 200GAUI-n or 400GAUI-n to UNAUI. UNAUI is mandatory whenever the upper interface is 200GAUI-n or 400GAUI-n.

SuggestedRemedy

Change the status column for UNAUI from "USP1SP6:M" to "UP_PINST:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.3** *P* **207** *L* **6** # 441

Hidaka, Yasuo — Fujitsu Lab of America

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

UNAUI is mandatory if the upper interface is 200GAUI-n or 400GAUI-n.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for UNAUI.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **207** *L* **11** # 440

Hidaka, Yasuo — Fujitsu Lab of America

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

The terms "upstream" and "downstream" are not appropriate here, because they implicate the direction of the flow. We should distinguish up side and down side without implicating direction of flow.

SuggestedRemedy

Change "upstream 200GAUI-n or 400GAUI-n" in the row of UNAUI with "200GAUI-n or 400GAUI-n of the PMA service interface above the PMA".
Change "downstream 200GAUI-n or 400GAUI-n" in the row of DNAUI with "200GAUI-n or 400GAUI-n of the service interface below the PMA".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "upstream 200GAUI-n or 400GAUI-n" in the row of UNAUI to "200GAUI-n or 400GAUI-n of the PMA service interface".
Change "downstream 200GAUI-n or 400GAUI-n" in the row of DNAUI to "200GAUI-n or 400GAUI-n of the service interface below the PMA".

Cl **120** *SC* **120.7.3** *P* **207** *L* **14** # 439

Hidaka, Yasuo — Fujitsu Lab of America

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

SP1 and SP6 are not only the cases to apply 200GAUI-n or 400GAUI-n to the service interface below PMA.

SuggestedRemedy

Change the status column for DNAUI from "DSP1SP6:M" to "DN_PINST:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.3** *P* **207** *L* **14** # 442

Hidaka, Yasuo — Fujitsu Lab of America

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

DNAUI is mandatory if the upper interface is 200GAUI-n or 400GAUI-n.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for DNAUI.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **207** *L* **23** # 443

Hidaka, Yasuo — Fujitsu Lab of America

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

DELAY200 is mandatory if PMA200 is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for DELAY200.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.3** *P* **207** *L* **25** # 444

Hidaka, Yasuo — Fujitsu Lab of America

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

DELAY400 is mandatory if PMA400 is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for DELAY400.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.4** *P* **208** *L* **6** # 446

Hidaka, Yasuo — Fujitsu Lab of America

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

S1 is mandatory if the lower interface is SP1.

SuggestedRemedy

Change the status column for S1 from "DSP1SP6:M" to "DSP1:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.4** *P* **208** *L* **6** # 445

Hidaka, Yasuo — Fujitsu Lab of America

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

S1 through S9 are mandatory if condition is met.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for S1 through S9.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.4** *P* **208** *L* **8** # 448

Hidaka, Yasuo — Fujitsu Lab of America

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

S3 is mandatory if the upper interface is SP1.

SuggestedRemedy

Change the status column for S3 from "USP1SP6:M" to "USP1:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.4** *P* **208** *L* **8** # 447
Hidaka, Yasuo Fujitsu Lab of America

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

S2 is mandatory if the lower interface is SP1.

SuggestedRemedy

Change the status column for S2 from "DSP1SP6:M" to "DSP1:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.4** *P* **208** *L* **20** # 449
Hidaka, Yasuo Fujitsu Lab of America

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

S7 is mandatory if the upper interface is SP6.

SuggestedRemedy

Change the status column for S7 from "USP1SP6:M" to "USP6:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.4** *P* **208** *L* **22** # 450
Hidaka, Yasuo Fujitsu Lab of America

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

S8 is mandatory if the upper interface is SP6.

SuggestedRemedy

Change the status column for S8 from "USP1SP6:M" to "USP6:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.4** *P* **208** *L* **25** # 451
Hidaka, Yasuo Fujitsu Lab of America

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

S9 is mandatory if the lower interface is SP6.

SuggestedRemedy

Change the status column for S9 from "DSP1SP6:M" to "DSP6:M".

Response *Response Status* **C**

REJECT.
See comment #321

Cl **120** *SC* **120.7.5** *P* **208** *L* **42** # 453
Hidaka, Yasuo Fujitsu Lab of America

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

Send PRBS31 Tx is an optional feature, if the lower interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J1 to "JTP*DN_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J1 to "JTP2*DN_NRZ:O"

Cl **120** *SC* **120.7.5** *P* **208** *L* **44** # 454
Hidaka, Yasuo Fujitsu Lab of America

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

Send PRBS31 Tx is an optional feature, if the lower interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J1.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **208** *L* **48** # 455

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS31 Rx is an optional feature, if the upper interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J2 to "JTP*UP_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J2 to "JTP1*UP_NRZ:O".

Cl **120** *SC* **120.7.5** *P* **208** *L* **50** # 456

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS31 Rx is an optional feature, if the upper interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J2.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **3** # 457

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31 Tx is an optional feature, if the upper interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J3 to "JTP*UP_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J3 to "JTP1*UP_NRZ:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **5** # 458

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31 Tx is an optional feature, if the upper interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J3.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **9** # 459

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31 Rx is an optional feature, if the lower interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J4 to "JTP*DN_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J4 to "JTP2*DN_NRZ:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **11** # 460

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31 Rx is an optional feature, if the lower interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J4.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **15** # 461

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS9 Tx is an optional feature, if the lower interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J5 to "JTP*DN_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J5 to "JTP2*DN_NRZ:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **17** # 462

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS9 Tx is an optional feature, if the lower interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J5.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **21** # 463

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS9 Rx is an optional feature, if the upper interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J6 to "JTP*UP_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J6 to "JTP1*UP_NRZ:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **23** # 464

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS9 Rx is an optional feature, if the upper interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J6.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **26** # 467

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference to 120.5.11.1.2 is inappropriate, because 120.5.11.1.2 specifies PRBS9 test pattern.

SuggestedRemedy

Change the sublcause column for J7 from "120.5.11.1.2" to "120.5.11.1.3".

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **26** # 465

Hidaka, Yasuo — Fujitsu Lab of America

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

Send square wave Tx is an optional feature, if the lower interface supports NRZ and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J7 to "JTP*DN_NRZ:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J7 to "JTP2*DN_NRZ:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **28** # 466

Hidaka, Yasuo — Fujitsu Lab of America

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

Send square wave Tx is an optional feature, if the lower interface supports NRZ and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J7.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **32** # 468

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03A Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J8 to "JTP*DN_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J8 to "JTP2*DN_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **34** # 469

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03A Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J8.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **38** # 470

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03A Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J9 to "JTP*UP_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J9 to "JTP1*UP_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **40** # 471

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03A Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J9.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **44** # 472

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03B Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J10 to "JTP*DN_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J10 to "JTP2*DN_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **46** # 473

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03B Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J10.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **209** *L* **49** # 474

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03B Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J11 to "JTP*UP_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J11 to "JTP1*UP_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **209** *L* **51** # 475

Hidaka, Yasuo — Fujitsu Lab of America

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

Send JP03B Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J11.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **3** # 476

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS13Q Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J12 to "JTP*DN_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J12 to "JTP2*DN_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **5** # 477

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS13Q Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J12.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **9** # 478

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS13Q Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J13 to "JTP*UP_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J13 to "JTP1*UP_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **11** # 479

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS13Q Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J13.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **15** # 480

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS31Q Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J14 to "JTP*DN_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J14 to "JTP2*DN_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **17** # 481

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS31Q Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J14.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **21** # 482

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS31Q Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J15 to "JTP*UP_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J15 to "JTP1*UP_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **23** # 483

Hidaka, Yasuo — Fujitsu Lab of America

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

Send PRBS31Q Rx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J15.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **26** # 484

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31Q Tx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J16 to "JTP*UP_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J16 to "JTP1*UP_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **28** # 485

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31Q Tx is an optional feature, if the upper interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J16.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **32** # 486

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31Q Rx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J17 to "JTP*DN_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J17 to "JTP2*DN_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **34** # 487

Hidaka, Yasuo — Fujitsu Lab of America

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

Check PRBS31Q Rx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J17.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.5** *P* **210** *L* **38** # 488

Hidaka, Yasuo — Fujitsu Lab of America

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

Send SSPRQ Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.
The expression currently written in the status column is not consistent with clause 21.6.

SuggestedRemedy

Change the status column for J18 to "JTP*DN_PAM4:O".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the status column for J18 to "DN_PAM4:O".

Cl **120** *SC* **120.7.5** *P* **210** *L* **40** # 489

Hidaka, Yasuo — Fujitsu Lab of America

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

Send SSPRQ Tx is an optional feature, if the lower interface supports PAM4 and test pattern is supported.

SuggestedRemedy

Add "N/A []" to the support column for J18.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.6** *P* **210** *L* **48** # 490

Hidaka, Yasuo — Fujitsu Lab of America

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

LB1 is mandatory if LBL is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for LB1.

Response *Response Status* **C**

ACCEPT.

Cl **120** *SC* **120.7.6** *P* **210** *L* **50** # 491

Hidaka, Yasuo — Fujitsu Lab of America

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

LB2 is mandatory if LBR is supported.

SuggestedRemedy

Change "No []" with "N/A []" in the support column for LB2.

Response *Response Status* **C**

ACCEPT.

Cl **120A** *SC* **120A.4** *P* **328** *L* **1** # 160

Dudek, Mike — Cavium

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

It should be "example" instead of "examples" in the title. (There is only one diagram, and the figure says "example" however there is one example for 200GXS and another for 400GXS)

SuggestedRemedy

Change to "example" in the title.

Response *Response Status* **C**

ACCEPT.

Cl **120B** *SC* **120B** *P* **329** *L* **1** # 258

Hidaka, Yasuo — Fujitsu Lab of America

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

IS_SIGNAL.indication primitive is mandaory for chip-to-chip 200GAUI-8 and 400GAUI-16, because they are physical instantiations of the PMA service interface, but it is completely missing.

It was also missing in CAUI-4, CAUI-10 and 25GAUI.

SuggestedRemedy

Add a specification of IS_SIGNAL.indication.
It is a uni-directional signal from lower PMA to upper PMA.
It may refer to 120.5.8 Link status for the detail.

Response *Response Status* **U**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive. How this is communicated between the PMA sublayers is implementation dependent. Consequently, it would be inappropriate to add this here.

Cl **120B** *SC* **120B.1** *P* **329** *L* **27** # 140

D'Ambrosia, John — Futurewei, Subsidiary

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

Diagram (120B-1) can be improved to better communicate the 200GXS functionality.

SuggestedRemedy

Move the stack without the extender sublayer to the left column, and the extender sublayer based stack to the right. Move the PCS and PMA for the non-extender sublayer stack to be across from the 200GXS/PMA at the top of the Extender Sublayer Stack side. Keep the bottom PMA / PMD of both stacks in the same location.

Response *Response Status* **C**

ACCEPT.

Cl **120B** *SC* **120B.1** *P* **329** *L* **27** # 494

Hidaka, Yasuo — Fujitsu Lab of America

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

In Figure 120B-1, DTE 200GXS and PHY 200GXS are not distinguished. Although their specifications are mostly identical, there have clear difference due to the location in the protocol stack.
I think we should not omit the prefix "DTE" or "PHY" whenever their distinction is important or effective so as to remind readers of their distinction and labeling.

SuggestedRemedy

Make the following changes in Figure 120B-1:

Change the upper "200GXS" with "DTE 200GXS".
Change the lower "200GXS" with "PHY 200GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" at the bottom.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the following changes to Figure 120B-1:
Change the upper "200GXS" to "DTE 200GXS".
Change the lower "200GXS" to "PHY 200GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" and "PHY = PHYSICAL LAYER DEVICE" to the list of abbreviations at the foot of the figure.

Cl **120B** *SC* **120B.1** *P* **329** *L* **35** # 498

Hidaka, Yasuo
Fujitsu Lab of America

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

PCS is labeled inconsistently in Figure 120B-1.

SuggestedRemedy

Change "200 Gb/s PCS" on the left stack with "200GBASE-R PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In the layer diagrams throughout the draft showing the extender sublayers:
Change "200 Gb/s PCS" to "PCS" and
Change "400 Gb/s PCS" to "PCS"

Cl **120B** *SC* **120B.1** *P* **329** *L* **35** # 170

Dudek, Mike
Cavium

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

Although the GAUI chip to chip interface can be connected to a module (combination PMA/PMD) as shown in figures 120B-1, and 120B-2 it is not the primary target application. It would be better to show the primary target application. (Note that annex 120A does not differentiate between chip to chip and chip to module). (See also similar comment against 120D)

SuggestedRemedy

Add a PMA box to the right hand side of these diagrams between the two PMA's. The GAUI chip to chip filled in link being between the PMA adjacent to the PCS and this new PMA box. The PMA to the PMA adjacent to the PMD link should just be labelled 200GAUI-n or 400GAUI-n(neither chip to chip or chip to module) and either not filled in or maybe striped. At the end of the paragraph at line 21 add the sentences "Although the 200GAUI-8 and 400GAUI-16 chip to chip interfaces are primarily intended for connections between PMA's that are not co-located with the PMD, they can be used between any PMA's. Note that the 200GAUI-n and 400GAUI-n chip to module interfaces specified in Annex 120C and Annex 120E are intended for connection from a PMA to the PMA co-located with the PMD

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The diagram already shows the primary target application. The layer diagram for a chip-to-chip GAUI is the same as that for a chip-to-module GAUI:
PCS, PMA, GAUI, PMA, PMD
The only difference is in the implementation of the signal connections.
This figure is the same as Figure 83D-1 in that regard.

Add a figure to Annex 120A showing two AUI interfaces with editorial licence.

Cl **120B** *SC* **120B.1** *P* **330** *L* **8** # 495

Hidaka, Yasuo
Fujitsu Lab of America

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

In Figure 120B-2, DTE 400GXS and PHY 400GXS are not distinguished. Although their specifications are mostly identical, there have clear difference due to the location in the protocol stack.
I think we should not omit the prefix "DTE" or "PHY" whenever their distinction is important or effective so as to remind readers of their distinction and labeling.

SuggestedRemedy

Make the following changes in Figure 120B-2:

Change the upper "400GXS" with "DTE 400GXS".
Change the lower "400GXS" with "PHY 400GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" at the bottom.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the following changes to Figure 120B-2:
Change the upper "400GXS" to "DTE 400GXS".
Change the lower "400GXS" to "PHY 400GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" and "PHY = PHYSICAL LAYER DEVICE" to the list of abbreviations at the foot of the figure.

Cl **120B** *SC* **120B.1** *P* **330** *L* **16** # 499

Hidaka, Yasuo
Fujitsu Lab of America

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

PCS is labeled inconsistently in Figure 120B-2.

SuggestedRemedy

Change "400 Gb/s PCS" on the left stack with "400GBASE-R PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #498

Cl **120B** *SC* **120B.1** *P* **331** *L* **16** # 502

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120B-3 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 200GAUI-8 chip-to-chip application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.
Label the left component as "With upper PMA".
Label the right component as "With lower PMA".

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120B** *SC* **120B.1** *P* **331** *L* **33** # 503

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120B-4 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 400GAUI-16 chip-to-chip application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.
Label the left component as "With upper PMA".
Label the right component as "With lower PMA".

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120B** *SC* **120B.1** *P* **331** *L* **38** # 510

Hidaka, Yasuo — Fujitsu Lab of America

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

Channel for 200GAUI-8 and 400GAUI-16 chip-to-chip is described in 120B.4 including the difference from 83D.4.

SuggestedRemedy

Change the reference to "83D.4" with a reference to "120B.4".

Response *Response Status* **C**

ACCEPT.

Cl **120B** *SC* **120B.2** *P* **330** *L* **27** # 141

D'Ambrosia, John — Futurewei, Subsidiary

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

Diagram (120B-2) can be improved to better communicate the 200GXS functionality.

SuggestedRemedy

Move the stack without the extender sublayer to the left column, and the extender sublayer based stack to the right. Move the PCS and PMA for the non-extender sublayer stack to be across from the 400GXS/PMA at the top of the Extender Sublayer Stack side. Keep the bottom PMA / PMD of both stacks in the same location.

Response *Response Status* **C**

ACCEPT.

Cl **120B** *SC* **120B.4** *P* **332** *L* **38** # 171

Dudek, Mike — Cavium

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

The target SER for this interface is 1e-5 (see 120B.3.2). However with the DFE tap weight allowed to be equal to 1 the probability of error extension is 0.5. This results in the probability of RS-FEC symbol errors caused by this one detector error to be 1.1

SuggestedRemedy

Change the DER from 1e-6 to 9e-7 (or reduce the normalized DFE coefficient magnitude limit.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In 120B.3.2, change:
"The “Bit error ratio” parameter in Table 83D-5 is replaced with “RS-FEC symbol error ratio” with max values of 10–5." to:
"The “Bit error ratio” parameter in Table 83D-5 is replaced with “RS-FEC symbol error ratio” with max values of 1.1 x 10–5."

Cl **120B** *SC* **120B.5.3** *P* **334** *L* **11** # 511

Hidaka, Yasuo — Fujitsu Lab of America

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

Negative description "not applicable" in the Value/Comment column for CHAN may be confusing and may cause an error to choose Yes or No.
The term of "PHY manufacturer" is also not clear.

SuggestedRemedy

Change the Value/Comment column for CHAN as follows:

This PICS is for conformance of channel between two PMAs. (A manufacturer responsible only for PMA with this interface may choose "No" for this item.)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Although the term "PHY manufacturer" has been used in previous clauses and Annexes in this context, "PMA manufacturer" is more accurate (for a chip-to-chip link) than "PHY manufacturer"
Change "PHY manufacturer" to "PMA manufacturer"

Cl **120B** *SC* **120B.5.4.1** *P* **334** *L* **46** # 512

Hidaka, Yasuo — Fujitsu Lab of America

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

There are exceptions to Table 83D-1 described in 120B.3.1.

SuggestedRemedy

Change the Value/Comment column for TC9 to "Meet Table 83D-1 constraints with exceptions in 120B.3.1".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the Value/Comment entry for TC9 to "Meets Table 83D-1 constraints with the exceptions in 120B.3.1".

Cl **120C** *SC* **120C** *P* **336** *L* **1** # 259

Hidaka, Yasuo — Fujitsu Lab of America

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

IS_SIGNAL.indication primitive is mandaory for chip-to-module 200GAUI-8 and 400GAUI-16, because they are physical instantiations of the PMA service interface, but it is completely missing.

It was also missing in CAUI-4, CAUI-10, and 25GAUI.

SuggestedRemedy

Add a specification of IS_SIGNAL.indication.
It is a uni-directional signal from lower PMA to upper PMA.
It may refer to 120.5.8 Link status for the detail.

Response *Response Status* **U**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive. How this is communicated between the PMA sublayers is implementation dependent. Consequently, it would be inappropriate to add this here.

Cl **120C** *SC* **120C.1** *P* **337** *L* **16** # 506

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120C-2 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 200GAUI-8 chip-to-module application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120C** *SC* **120C.1** *P* **337** *L* **39** # 507

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120C-3 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 400GAUI-16 chip-to-module application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120C** *SC* **120C.2** *P* **338** *L* **1** # 161

Dudek, Mike — Cavium

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

Unfortunate line and page break leaving "definitions" on a separate page

SuggestedRemedy

Keep it on the same page as the rest of the title.

Response *Response Status* **C**

ACCEPT.
This is an error in the 802.3 Framemaker template which will be corrected.

Cl **120C** *SC* **120C.3.3** *P* **338** *L* **38** # 138

D'Ambrosia, John — Futurewei, Subsidiary

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

The sentence is confusing because the BER is specified in 83E.3.3 through a note reference to 83E.1 though the requirement in the .3bs draft states it must meet all requirements in 83E.3.

SuggestedRemedy

Change reference to the BER specified in 83E.3.3 or just modify sentence to - The BER meets the requirement in 120C.1.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The BER meets the requirement in 120C.1.1 rather than that in 83E.1.1." to:
"The BER for the host stressed input test meets the requirement in 120C.1.1 rather than those in 83E.1.1."

Cl **120C** *SC* **120C.3.3** *P* **338** *L* **47** # 139

D'Ambrosia, John — Futurewei, Subsidiary

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

The sentence is confusing because the BER is specified in 83E.3.3 through a note reference to 83E.1 though the requirement in the .3bs draft states it must meet all requirements in 83E.3.

SuggestedRemedy

Change reference to the BER specified in 83E.3.3 or just modify sentence to - The BER meets the requirement in 120C.1.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The BER meets the requirement in 120C.1.1 rather than that in 83E.1.1." to:
"The BER for the module stressed input test meets the requirement in 120C.1.1 rather than those in 83E.1.1."

Cl **120C** *SC* **120C.5.3** *P* **341** *L* **13** # 513

Hidaka, Yasuo — Fujitsu Lab of America

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

What is adaptive is equalizer rather than receiver.

SuggestedRemedy

Change the feature column for ADR with "Adaptive equalizer".
Change the Value/Comment column for ADR with "Module equalizer does not use Recommended_CTLE_value".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change item entry "ADR" to "ADE"
Change feature entry "Adaptive receiver" to "Adaptive equalizer"

Cl **120C** *SC* **120C.5.4.1** *P* **341** *L* **28** # 514

Hidaka, Yasuo — Fujitsu Lab of America

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

For item TH2 through TH14, a reference to 120C.3.1 is useless, because it does not provide useful information.

SuggestedRemedy

Change the subclause column as follows:

TH2 : 83E.3.1.2
TH3 : 83E.3.1.2
TH4 : 83E.3.1
TH5 : 83E.3.1
TH6 : 83E.3.1.3
TH7 : 83E.3.1.3
TH8 : 83E.3.1.3
TH9 : 83E.3.1, 86A.5.3.2
TH10 : 83E.3.1.5, 86A.5.3.3
TH11 : 83E.3.1
TH12 : 83E.3.1
TH13 : 83E.3.1
TH14 : 83E.3.1.6

Response *Response Status* **C**

REJECT.
The reference is to the local subclause which already contains a reference to 83E.3.1 together with any exceptions that are there now or may be added in later versions of the draft.

Cl **120C** *SC* **120C.5.4.1** *P* **341** *L* **45** # 515

Hidaka, Yasuo — Fujitsu Lab of America

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

For item TH9, the differential termination mismatch is measured over AC cap using a method described in 86A.5.3.2. A reference to the equation may be helpful.

SuggestedRemedy

Change the Value/Comment column for TH9 with "Equation (86A-10) or (86A-11) is less than 10%".

Response *Response Status* **C**

REJECT.
This entry follows that for PICS entry TH9 in 83E.5.4.1. The relevent equations and other details can easily be found via the reference to 120C.3.1.

Cl **120C** *SC* **120C.5.4.2** *P* **342** *L* **8** # 516

Hidaka, Yasuo — Fujitsu Lab of America

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

A reference to Pattern 5 and Pattern 3 may be helpful.

SuggestedRemedy

Change "Pattern 5, Pattern 3," in the Value/Comment column for TH14 with "Pattern 3 or 5 in Table 86-11".

Response *Response Status* **C**

REJECT.
The pattern details can be found by following the existing reference chain.

Cl **120D** *SC* **120D** *P* **344** *L* **1** # 260

Hidaka, Yasuo — Fujitsu Lab of America

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

IS_SIGNAL.indication primitive is mandaory for chip-to-chip 200GAUI-4 and 400GAUI-8, because they are physical instantiations of the PMA service interface, but it is completely missing.

It was also missing in CAUI-4, CAUI-10, and 25GAUI.

SuggestedRemedy

Add a specification of IS_SIGNAL.indication.
It is a uni-directional signal from lower PMA to upper PMA.
It may refer to 120.5.8 Link status for the detail.

Response *Response Status* **U**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive. How this is communicated between the PMA sublayers is implementation dependent. Consequently, it would be inappropriate to add this here.
See also comment #261

Cl **120D** *SC* **120D** *P* **344** *L* **29** # 172

Dudek, Mike — Cavium

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

Although the GAUI chip to chip interface can be connected to a module (combination PMA/PMD) as shown in figure 120B-1, and 120B-2 (is not the primary target application. It would be better to show the primary target application. (Note that annex 120A does not differentiate between chip to chip and chip to module). (Also see similar comment against 120B)

SuggestedRemedy

The GAUI chip to chip filled in link being between the PMA adjacent to the PCS and this new PMA box. The PMA to the PMA adjacent to the PMD link should just be labelled 200GAUI-n or 400GAUI-n(neither chip to chip or chip to module) and either not filled in or maybe striped. At the end of the paragraph at line 21 add the sentences "Although the 200GAUI-4 and 400GAUI-8 chip to chip interfaces are primarily intended for connections between PMA's that are not co-located with the PMD, they can be used between any PMA's. Note that the 200GAUI-n and 400GAUI-n chip to module interfaces specified in Annex 120C and Annex 120E are intended for connection from a PMA to the PMA co-located with the PMD

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #170.

Cl **120d** *SC* **120d.1** *P* **344** *L* **27** # 142

D'Ambrosia, John — Futurewei, Subsidiary

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

Diagram (120D-1) can be improved to better communicate the 200GXS functionality.

SuggestedRemedy

Move the stack without the extender sublayer to the left column, and the extender sublayer based stack to the right. Move the PCS and PMA for the non-extender sublayer stack to be across from the 200GXS/PMA at the top of the Extender Sublayer Stack side. Keep the bottom PMA / PMD of both stacks in the same location.

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.1** *P* **344** *L* **27** # 496

Hidaka, Yasuo — Fujitsu Lab of America

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

In Figure 120D-1, DTE 200GXS and PHY 200GXS are not distinguished. Although their specifications are mostly identical, there have clear difference due to the location in the protocol stack.
I think we should not omit the prefix "DTE" or "PHY" whenever their distinction is important or effective so as to remind readers of their distinction and labeling.

SuggestedRemedy

Make the following changes in Figure 120D-1:

Change the upper "200GXS" with "DTE 200GXS".
Change the lower "200GXS" with "PHY 200GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" at the bottom.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the following changes to Figure 120D-1:
Change the upper "200GXS" to "DTE 200GXS".
Change the lower "200GXS" to "PHY 200GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" and "PHY = PHYSICAL LAYER DEVICE" to the list of abbreviations at the foot of the figure.

Cl **120D** *SC* **120D.1** *P* **344** *L* **35** # 500

Hidaka, Yasuo — Fujitsu Lab of America

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

PCS is labeled inconsistently in Figure 120D-1.

SuggestedRemedy

Change "200 Gb/s PCS" on the left stack with "200GBASE-R PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #498

Cl **120D** *SC* **120D.1** *P* **345** *L* **8** # 497

Hidaka, Yasuo — Fujitsu Lab of America

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

In Figure 120D-2, DTE 400GXS and PHY 400GXS are not distinguished. Although their specifications are mostly identical, there have clear difference due to the location in the protocol stack.
I think we should not omit the prefix "DTE" or "PHY" whenever their distinction is important or effective so as to remind readers of their distinction and labeling.

SuggestedRemedy

Make the following changes in Figure 120D-2:

Change the upper "400GXS" with "DTE 400GXS".
Change the lower "400GXS" with "PHY 400GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" at the bottom.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the following changes to Figure 120D-2:
Change the upper "400GXS" to "DTE 400GXS".
Change the lower "400GXS" to "PHY 400GXS".
Add "DTE = DATA TERMINAL EQUIPMENT" and "PHY = PHYSICAL LAYER DEVICE" to the list of abbreviations at the foot of the figure.

Cl **120D** *SC* **120D.1** *P* **345** *L* **16** # 501

Hidaka, Yasuo — Fujitsu Lab of America

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

PCS is labeled inconsistently in Figure 120D-2.

SuggestedRemedy

Change "400 Gb/s PCS" on the left stack with "400GBASE-R PCS".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #498

Cl **120D** *SC* **120D.1** *P* **346** *L* **16** # 504

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120D-3 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 200GAUI-4 chip-to-chip application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.
Label the left component as "With upper PMA".
Label the right component as "With lower PMA".

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120D** *SC* **120D.1** *P* **346** *L* **33** # 505

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120D-4 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 400GAUI-8 chip-to-chip application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.
Label the left component as "With upper PMA".
Label the right component as "With lower PMA".

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120D** *SC* **120D.2** *P* **345** *L* **27** # 143

D'Ambrosia, John — Futurewei, Subsidiary

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

Diagram (120D-2) can be improved to better communicate the 200GXS functionality.

SuggestedRemedy

Move the stack without the extender sublayer to the left column, and the extender sublayer based stack to the right. Move the PCS and PMA for the non-extender sublayer stack to be across from the 400GXS/PMA at the top of the Extender Sublayer Stack side. Keep the bottom PMA / PMD of both stacks in the same location.

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.2** *P* **347** *L* **29** # 517

Hidaka, Yasuo — Fujitsu Lab of America

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

The electrical characteristics of test fixture was specified from 0.05GHz to 25GHz in Equation 93-1 and 93-2 in 93.8.1.1, whereas the informative channel insertion loss is specified from 0.01GHz to 28.05GHz in Equation 120D-1.
We need to expand the range of frequency of the characteristics of test fixture.

SuggestedRemedy

Insert the folllowing phrase after "Figure 93-5 and 93.8.1.1":
"with the exception of min frequency for the IL and RL specification is 0.01GHz and max frequency of the IL and RL specification is 28.05GHz".

Also, insert the same phrase after "Figure 93-10 and 93.8.2.1".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment was discussed at the 29th August electrical ad hoc, where there was felt to be merit in expanding the range even if it did require re-characterization of existing boards. However we only need a maximum frequency of baud rate in the informative channel loss equation.
Change:
"are defined in Figure 93-5 and 93.8.1.1, respectively." to:
"are defined in Figure 93-5 and 93.8.1.1, respectively, with the exception that the upper frequency for Equation 93-1 and Equation 93-2 is 26.5625 GHz."

Change:
"are defined in Figure 93-10 and 93.8.2.1, respectively." to:
"are defined in Figure 93-10 and 93.8.2.1, respectively, with the exception that the upper frequency for Equation 93-1 and Equation 93-2 is 26.5625 GHz."

Change the maximum frequency in Equation 120D-1 from 28.05 to 26.5625.

See also comment #525

Cl **120D** *SC* **120D.3.1** *P* **348** *L* **19** # 23

Healey, Adam — Broadcom Ltd.

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

The steady state voltage and linear fit pulse peak parameters refer to 94.3.12.5.3. However, 94.3.12.5.3 refers to 94.3.12.5.2 which states that the linear fit pulse is derived using ES1 and ES2 as defined in 94.3.12.5.1. The ES1 and ES2 definition in 120D.3.1.2.1 should be used instead. In fact, all of the exceptions currently listed in 120D.3.1.2 should also apply to the steady state voltage and linear fit pulse peak measurements.

SuggestedRemedy

Insert a new subclause under 120D.3.1 named "Linear fit to the measured waveform" (suggest 120D.3.1.2). The contents of the new subclause include the following paragraph followed by the lettered items a) through c) from the current 120D.3.1.2. "The test procedure in 94.3.12.5.2 is followed to determine the linear fit pulse response, linear fit error, and normalized transmitter coefficient values with the following exceptions." Insert a new subclause of 120D.3.1 named "Steady-state voltage and linear fit pulse peak" (suggest 120D.3.1.3) with the following contents: "The linear fit pulse, p(k), is determined according to the linear fit procedure in 120D.3.1.2. The steady-state voltage vf is defined to be the sum of the linear fit pulse p(k) divided by M, determined in step 3 of the linear fit procedure." Renumber 120D.3.1.2 accordingly (suggest 120D.3.3). Change the last sentence of the first paragraph of subclause to the following and remove lettered items a) through c): "The transmitter output equalization is characterized using the linear fit method described in 120D.3.1.2). Promote "Transmitter linearity", currently 120D.3.1.2.1, to the same level in the heirarchy as the other transmitter parameters (suggest 120D.3.1.4). The subclause 120D.3.1.2.2 should be a subclause of the new 120D.3.1.4 (suggest 120D.3.1.4.1). Update all cross-references accordingly, including in Table 120D-1 where the references for steady-state voltage and linear fit pulse peak parameters should now be to 120D.3.1.3. This is expected to clearly incorporate the referenced content with all of the agreed upon exceptions.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the changes detailed in
http://www.ieee802.org/3/bs/public/16_09/szczepanek_3bs_02_0916.pdf
with the exception that in 120D.3.1.6, "and transmitting PRBS31Q ..." is changed to "and the lanes not under test transmitting PRBS31Q ..."
See also comments 564 & 24.

Cl **120D** *SC* **120D.3.1** *P* **348** *L* **24** # 24

Healey, Adam — Broadcom Ltd.

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

The signal-to-noise-and-distortion ratio parameter refers to 94.3.12.7. However, the stringent 31 dB limit requires a more accurate and repeatable test procedure.

SuggestedRemedy

A presentation will provided with a description and analysis of the proposed test method.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Compute the linear fit pulse and linear fit error with Dp = 2 and Np = 200.

Make the changes detailed in szczepanek_3bs_02_0916.pdf
See also comments 564 & 23.

Presentations on how to account for uncontrolled ISI are solicited.

There was a straw poll on this change.
Straw Poll
1) In D2.1 compute the linear fit pulse and linear fit error with Dp = 2 and Np = 200.
2) In D2.1 make no change.

1): 10; 2): 1

Cl **120D** *SC* **120D.3.1.1** *P* **347** *L* **48** # 131

Dawe, Piers — Mellanox

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

Should not use such an unrepresentative pattern

SuggestedRemedy

Measure jitter with PRBS13Q. Either apply the spec to a subset of emphasis settings, or apply to all emphasis settings but ignore the edges that are not present when emphasis is off.
Remove the JP03A test pattern generator and registers.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Further contributions are solicited on jitter measurement using the PRBSQ13 test pattern.

Cl **120D** *SC* **120D.3.1.1** *P* **347** *L* **48** # 132

Dawe, Piers — Mellanox

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

If the target BER is 1e-5...

SuggestedRemedy

We should specify J4 jitter rather than J5 jitter.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In 120D.3.1.1 change "Jrms and J5 jitter are measured" to "Jrms and J4 jitter are measured"

Change "J5 (max)" in Table 120D-1 to "J4 (max)".
Set J4 (max) value to 0.118 in Table 120D-1

Change
"J5 is defined as the time interval that includes all but 10-5 of the jitter distribution"
to
"J4 is defined as the time interval that includes all but 10-4 of the jitter distribution"

Straw Poll
1) Change J5 jitter to J4 Jitter (with updated values)
2) Stay with J5 Jitter
Results 1): 4; 2): 1;

Cl **120D** *SC* **120D.3.1.1** *P* **347** *L* **49** # 573

Zivny, Pavel — Tektronix

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

The statement "The jitter is measured with a single-pole high-pass filter with a 3 dB bandwidth of 4 MHz." is not appropriate since on next page the footnote (d) states: "the clock recovery unit (CRU) used in the jitter measurement has a corner frequency of 4 MHz and a slope of 20 dB/decade".

SuggestedRemedy

change line 49 to read:
"The jitter is measured with a the clock recovery unit (CRU)".

Response *Response Status* **C**

REJECT.
The statement "The jitter is measured with a single-pole high-pass filter with a 3 dB bandwidth of 4 MHz.", applies to Jrms and J5 jitter, whereas footnote d applies to even-odd jitter, so there is no conflict.

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

Cl **120D** *SC* **120D.3.1.1** *P* **347** *L* **51** # 162

Dudek, Mike — Cavium

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

measurements of BER are irrelevant to this jitter section

SuggestedRemedy

Delete "BER or"

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.1** *P* **347** *L* **53** # 153

Dudek, Mike — Cavium

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

Crosstalk from the other lanes will not create jitter if they are also transmitting the JP03A test pattern. An uncorrelated pattern is needed on the other lanes. (I have made a separate comment against clause 120 to provide individual lane enablement of JP03A)

SuggestedRemedy

Replace "enabled and transmitting the same pattern with identical transmit equalizer settings" with "enabled with the identical transmit equalizer settings and transmitting pattern 3,5 or scrambled idle"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #28

Cl **120D** *SC* **120D.3.1.1** *P* **347** *L* **53** # 28

Healey, Adam — Broadcom Ltd.

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

It is stated that jitter measurements are performed with transmitters on all lanes enabled and transmitting the same pattern. This implies the aggressor lanes will also be transmitting JP03A. It would be better if they were transmitting a more spectrally rich pattern such as PRBS31Q. Note that the "PRBS pattern testing control" registers (see 45.2.1.124) currently do not permit mixing JP03A on one lane with different test patterns on other lanes. This is the subject of a separate comment.

SuggestedRemedy

Replace the second paragraph of 120D.3.1.1 with the following: "Jitter measurements are performed with transmitters on all lanes enabled and using identical transmitter equalizer settings. Transmitters on lanes not under test transmit PRBS13Q, PRBS31Q, 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.
see also comment #153

Replace the second paragraph of 120D.3.1.1 with the following: "Jitter measurements are performed with transmitters on all lanes enabled and using identical transmitter equalizer settings. Transmitters on lanes not under test transmit PRBS13Q, PRBS31Q, 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."

Straw Poll
1) Transmitters on lanes not under test should use an uncorrelated pattern
2) Transmitters on lanes not under test should use the same pattern
1): 6; 2): 1;

Cl **120D** *SC* **120D.3.1.1** *P* **348** *L* **24** # 564

Dawe, Piers — Mellanox

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

94.3.12.7 refers to 94.3.12.5.2 which uses QPRBS13; and 94.3.12.5.1, 94.2.9.4, transmitter linearity test pattern; and runs of at least 8 consecutive identical levels.

SuggestedRemedy

Should be PRBS13Q; and PRBS13Q; and runs of at least 6 consecutive identical levels.
There may be other corrections / exceptions needed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make the changes detailed in szczepanek_3bs_02_0916.pdf
See also comments 23 & 24.

Cl **120D** *SC* **120D.3.1.1** *P* **348** *L* **28** # 565

Dawe, Piers — Mellanox

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

Should not use such an unrepresentative pattern; should not require such a strange pattern for just one spec item.
Should not rely on Clause 94.

SuggestedRemedy

Either: measure EOJ with PRBS13Q (or a shorter PRBSnQ if we have one) as in D1.4 120E.3.3.2 Even-odd jitter, but with 120D style slicing levels based on 120D.3.1.2.2. Apply the spec to a subset of emphasis settings, or apply to all emphasis settings but ignore the edges that are not present when emphasis is off. This will be a by-product of the SNDR and other jitter measurement, avoiding a separate measurement.
Or, if we think that J_RMS, J5 (J4), SNDR, and linear fit components provide good enough coverage, remove the EOJ spec.
Remove the JP03B test pattern generator and registers.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
Further contributions are solicited on EOJ measurement using the PRBS13Q test pattern.

Cl **120D** *SC* **120D.3.1.1** *P* **348** *L* **28** # 574

Zivny, Pavel — Tektronix

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

In the table "Table 120D-1-200GAUI-4 and 400GAUI-8 transmitter characteristics at TP0a" the footnote (d) is anchored on "even odd jitter(max)."
This footnote describes the CR to use for jitter measurements.
This shoudl be anchored on the very first word in the jitter section, "Output jitter".

SuggestedRemedy

Anchor the footnote (d) on the words "Ooutput jitter".

Response *Response Status* **C**

REJECT.
The footnote needs to provides an exception to the reference clause.
See also comment 573.

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

Cl **120D** *SC* **120D.3.1.2.1** *P* **349** *L* **54** # 154

Dudek, Mike Cavium

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

The word signal is split between two pages with a table between the two halves.

SuggestedRemedy

keep the whole word on one page.

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.1.2.1** *P* **350** *L* **30** # 30

Healey, Adam Broadcom Ltd.

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

The sentence "RLM shall be greater than or equal to 0.95." is unnecessary since it is stated in 120D.3.1 that "the transmitter shall meet the specifications given in Table 120D-1 if measured at TP0a." RLM is one of the specification listed in Table 120D-1.

SuggestedRemedy

Remove the last sentence of the last paragraph of 120D.3.1.2.1: "RLM shall be greater than or equal to 0.95."

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2.1** *P* **351** *L* **33** # 27

Healey, Adam Broadcom Ltd.

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

While most are likely to understand what it means for the transmit equalizer to be "turned off", a simple yet more precise requirement can be stated.

SuggestedRemedy

Replace the phrase "the transmit equalizer turned off" with "Local_eq_cm1 and Local_eq_c1 set to zero (see 120D.3.1.2)."

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2.1** *P* **351** *L* **37** # 25

Healey, Adam Broadcom Ltd.

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

The jitter parameters CRJrms and CDJ have been replaced by J_RMS and J5. As a result, the definition of the mapping of measured jitter parameters to sigma_RJ and A_DD needs to be modified.

SuggestedRemedy

Given J_RMS and J5, specify that A_DD = ((J5/2)+Q5*sqrt((Q5^2+1)*J_RMS^2-(J5/2)^2))/(Q5^2+1). This equation assumes that the bounded uncorrelated jitter has a dual-Dirac distribution (as COM also assumes). Given J5 and A_DD, specify that sigma_RJ = ((J5/2)-ADD)/Q5. Note that Q5 is approximately 4.4172.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See also comment #163
Note that J5 jitter has been replaced by J4 jitter in the response to comment #132.

Replace the current mapping between (CRJrms, CDJ) and (A_DD, sigma_RJ) with the following.

Given J_RMS and J4, specify that A_DD = ((J4/2)+Q4*sqrt((Q4^2+1)*J_RMS^2-(J4/2)^2))/(Q4^2+1). Given J4 and A_DD, specify that sigma_RJ = ((J4/2)-ADD)/Q4. Note that Q4 is approximately 3.8906.

Cl **120D** *SC* **120D.3.2.1** *P* **351** *L* **38** # 163

Dudek, Mike Cavium

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

We don't have measurement methods for CRJrms or CDJ.

SuggestedRemedy

Replace "CRJrms" with "Jrms" and replace "CDJ" with "(J5-4.41*Jrms)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #25

Cl **120D** *SC* **120D.3.2.2** *P* **352** *L* **18** # 26

Healey, Adam — Broadcom Ltd.

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

The subclause states that the test procedure for jitter tolerance is the same as the one described in 120D.3.2.1 with the exception that no broadband noise is added. In 120D.3.2.1, items c) through f) pertain to the calculation of the test channel COM but the jitter tolerance specification includes no requirement for test channel COM. It is important to state a COM requirement since there is no other guarantee that the test setup supports the target RS-FEC symbol error ratio even prior to the application of the sinusoidal jitter (insertion loss at the fundamental frequency may not be enough).

SuggestedRemedy

Require that the test channel COM, calculated per items c) through f) in 120D.3.2.1, be at least 3 dB. In addition, for the COM parameter calibration described in item d), require that the test channel transmitter J_RMS and J5 values are measured with the jitter frequency and amplitude set according to Case E from Table 120D-6.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Editorial license granted to implement suggested remedy.

Cl **120D** *SC* **120D.3.2.3** *P* **352** *L* **46** # 518

Hidaka, Yasuo — Fujitsu Lab of America

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

There is no such variable as "Request_eq_cm1" or "Request_eq_c1".

SuggestedRemedy

Change "Request_eq_cm1" with "Requested_eq_cm1".
Change "Request_eq_c1" with "Requested_eq_c1".

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.3.2.3** *P* **352** *L* **46** # 519

Hidaka, Yasuo — Fujitsu Lab of America

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

In this context, "indicate the requested values" seems relevant.

SuggestedRemedy

Change "indicate the request values" with "indicate the requested values".

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.5.3** *P* **356** *L* **11** # 520

Hidaka, Yasuo — Fujitsu Lab of America

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

Negative description "not applicable" in the Value/Comment column for CHAN may be confusing and may cause an error to choose Yes or No.
The term of "PHY manufacturer" is also not clear.

SuggestedRemedy

Change the Value/Comment column for CHAN as follows:

This PICS is for conformance of channel between two PMAs. (A manufacturer responsible only for PMA with this interface may choose "No" for this item.)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Although the term "PHY manufacturer" has been used in previous clauses and Annexes in this context, "PMA manufacturer" is more accurate (for a chip-to-chip link) than "PHY manufacturer"
Change "PHY manufacturer" to "PMA manufacturer"

Cl **120D** *SC* **120D.5.4.3** *P* **357** *L* **22** # 521

Hidaka, Yasuo — Fujitsu Lab of America

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

COM parameter for 200GAUI-4 and 400GAUI-8 chip-to-chip is described in 120D.4.

SuggestedRemedy

Change the reference to 83D.4 with a reference to 120D.4

Response *Response Status* **C**

ACCEPT.

Cl **120D** *SC* **120D.5.4.3** *P* **357** *L* **23** # 164

Dudek, Mike — Cavium

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

It is not appropriate to be calling out clause 83D for COM when this clause has many differences from that COM table.

SuggestedRemedy

Change 83D.4 to 120D.4

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E** *P* **358** *L* **1** # 261

Hidaka, Yasuo — Fujitsu Lab of America

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

IS_SIGNAL.indication primitive is mandaory for chip-to-module 200GAUI-4 and 400GAUI-8, because they are physical instantiations of the PMA service interface, but it is completely missing.

It was also missing in CAUI-4, CAUI-10, and 25GAUI.

SuggestedRemedy

Add a specification of IS_SIGNAL.indication.
It is a uni-directional signal from lower PMA to upper PMA.
It may refer to 120.5.8 Link status for the detail.

Response *Response Status* **U**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive. How this is communicated between the PMA sublayers is implementation specific.
Consequently, it would be inappropriate to add this here..
See also comment #260

Cl **120E** *SC* **120E** *P* **358** *L* **1** # 522

Hidaka, Yasuo — Fujitsu Lab of America

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

"Annex 120E (normative)" is not shown in the bookmark of the PDF file.
It is inconsistent with other clauses.

SuggestedRemedy

Include "Annex 120E (normative)" in the bookmark text.

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.1** *P* **358** *L* **16** # 508

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120E-2 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 200GAUI-4 chip-to-module application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120E** *SC* **120E.1** *P* **358** *L* **39** # 509

Hidaka, Yasuo — Fujitsu Lab of America

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

Figure 120E-3 is a good place to show the IS_SIGNAL.indication primitive that is mandatory for 400GAUI-8 chip-to-module application.

SuggestedRemedy

Draw a unidirectonal arrow from the right component to left component with a label of IS_SIGNAL.indication.

Response *Response Status* **C**

REJECT.
The AUI is a physical instantiation of the IS_UNITDATA_i.request and PMA:IS_UNITDATA_i.indication primitives between two adjacent PMA sublayers. There is no specification for the physical instantiation of the IS_SIGNAL.indication primitive, so it would be inappropriate to add this to the diagram.

Cl **120E** *SC* **120E.3.1** *P* **361** *L* **47** # 563

Dawe, Piers — Mellanox

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

For a high loss host output with a peak-to-peak voltage of 900 mV as measured with PRBS13Q, the peak-to-peak voltage in service will be greater, by an amount that is more than I expected. It is too much to expect the receiver designer to second-guess this; we should expect the receiver to work with 900 mV for any reasonable pattern.

SuggestedRemedy

Reduce the 900 mV here by a few percent. This makes no difference to a high-loss host. The output swing in a low-loss host might have to be reduced slightly, but that's OK, the module will still have an easier task than with the high-loss host.
Reduce the crosstalk amplitude in module output test and host stressed input calibration similarly, as they are also specified with PRBS13Q.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change value of "Differential peak-to-peak output voltage (max) - Transmitter enabled" in Table 120E-1 from 900mV to 880mV
Change PICS item TH2 appropriately

In 120E.3.2.1 Change
The crosstalk generator
is calibrated at TP1a with target differential peak-to-peak amplitude of 900 mV
to
The crosstalk generator
is calibrated at TP1a with target differential peak-to-peak amplitude of 880 mV

In 120E.3.3.2.1
Change
"The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with
target amplitude of 900 mV"
to
"The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with
target amplitude of 880 mV"

Straw Poll
1) Change the Host peak-to-peak output amplitude at TP1A and related crosstalk amplitude from 900mV to 880mV
2) Retain existing value of 900mV
1): 5; 2): 4;

Cl **120E** *SC* **120E.3.1** *P* **361** *L* **48** # 31

Healey, Adam — Broadcom Ltd.

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

The limit for ESMW appears to be identical to the limit for eye width in all cases. As a result, it seems any measured signal that meets the ESMW requirement will, by definition, also meet the eye width limit. If this is the case, is the eye width specification necessary?

SuggestedRemedy

Remove the eye width requirement if it is not needed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove eye width specification from Table 120E-1.

Remove near end eye width, and far end eye width specifications from Table 120E-3.

Cl **120E** *SC* **120E.3.1** *P* **361** *L* **51** # 83

Ghiasi, Ali — Ghiasi Quantum LLC

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

Based simulation to show feasibility 200GAUI-4/400GAUI-8 C2M were base on hypotitical connector haivng ~1/3 the connector crosstalk specified in 120E.4.1
http://www.ieee802.org/3/bs/public/adhoc/elect/24Aug_15/dallaire_01_082415_elect.pdf

SuggestedRemedy

Need to verify if current eye width and eye height are feasible with QSFP28 like connector having ~3x the crosstalk. Attach presentation provide background
http://www.ieee802.org/3/cd/public/July16/ghiasi_3cd_02_0716.pdf
Plan to update the presentation as ghiasi_3bs_01_0916.

Response *Response Status* **C**

REJECT.
No change to draft proposed
Presentations on this subject are solicited.

Cl **120E** *SC* **120E.3.1** *P* **361** *L* **51** # 33

Healey, Adam — Broadcom Ltd.

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

Between P802.3bs/D1.2 and P802.3bs/D1.3, the module near-end eye height and width limits were decreased (from 120 mV/400 mUI to 90 mV/265 mUI) after a thorough investigation based on more recent assumptions of requirements (pre-cursor equalization) and device capabilities (see <http://www.ieee802.org/3/bs/public/16_03/hegde_3bs_01_0316.pdf>and follow-ons). However, the commenter is unaware of any recent verification that the host output eye requirements (50 mV/200 mUI) are achievable with a host transmitter whose capabilities are similar to the those implied by Annex 120D (chip-to-chip 200G/400GAUI-4/8) over representative host channels.

SuggestedRemedy

Verify the limits are still appropriate or adjust them accordingly. A presentation will be provided that explores this issue.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The presentation indicates that the existing host output eye requirements (50 mV/250 mUI) in Table 120E-1 are not appropriate.

Change value of eye height in Table 120E-1 from 50mV to 32mV.
Change values of eye width and ESMW in Table 120E-1 from 0.25UI to 0.22UI

Straw Poll (Chicago Rules)
1) Change host output eye height requirement to 32mV
2) Change host output eye height requirement to 40mV
3) Retain existing host output eye height requirement of 50mV
1): 10; 2): 5; 3): 1;

Straw Poll (Chicago Rules)
1) Change host output eye width/ESMW requirement to 0.2UI
2) Change host output eye width/ESMW requirement to 0.22UI
3) Retain existing host output eye width/ESMW requirement of 0.25UI
1): 6; 2): 9; 3): 5;

Straw Poll
1) Change host output eye width/ESMW requirement to 0.22UI
2) Retain existing host output eye width/ESMW requirement of 0.25UI
1): 12; 2): 3;

Cl **120E** *SC* **120E.3.1.6** *P* **363** *L* **28** # 523

Hidaka, Yasuo — Fujitsu Lab of America

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

The compliance boards for this clause are defined in 120E.2.

SuggestedRemedy

Change the reference to "83E.2" with a reference to "120E.2".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
120E.2 is compliance point definitions
this should be 120E.4.1 (HCB/MCB characteristics)
Change the reference to "83E.2" to a reference to "120E.4.1".

Cl **120E** *SC* **120E.3.1.6** *P* **363** *L* **35** # 126

Dawe, Piers — Mellanox

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

This crosstalk generator is intended to represent a module, and generate broadband energy. The spec allows an implementer to achieve the letter of the spec by using a lot of emphasis but miss the intention.

SuggestedRemedy

This transition time spec should be replaced by a slew time spec, e.g. 4.5 ps between +/- 0.1 V. Definition of slew time similar to transition time but with fixed thresholds instead of the signal-dependent 20% and 80%. Same for the counter propagating crosstalk channels during calibration of the module stressed input signal (120E.3.4.1.1).
We don't need to change the spec for the crosstalk generator in the opposite direction because that's a slower signal so an implementer won't be using emphasis.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.
No change to the document on this draft due to lack of consensus. Further presentations solicited.
See response to comment #127

Cl **120E** *SC* **120E.3.2** *P* **366** *L* **32** # 127

Dawe, Piers — Mellanox

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

The module output transition time min. spec is there to protect the module's input from too much crosstalk when connected to a host with more NEXT than the MCB. "Too much" doesn't depend on the module's output amplitude setting, so we should have an absolute spec here not a relative one.

SuggestedRemedy

This transition time spec should be replaced by a slew time spec, e.g. 3.5 ps between +/- 0.1 V. Definition of slew time similar to transition time but with fixed thresholds instead of the signal-dependent 20% and 80%.
There is less need to change the transition time spec for the host output because the connector is on the host board, so the NEXT is already in the measurement.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

No change to the document on this draft due to lack of consensus. Further presentations solicited.

Straw Poll
1)
Replace "Transition time (min, 20% to 80%)" with "Slew time (min) " in Table 120E-3, with units of ps and a value of 3.5
Add footnote "Measured between +/- 0.1V"
2)
Make no change

1): 4; 2): 4; No consensus

Cl **120E** *SC* **120E.3.2.1** *P* **366** *L* **44** # 524

Hidaka, Yasuo — Fujitsu Lab of America

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

The compliance boards for this clause are defined in 120E.2.

SuggestedRemedy

Change the reference to "83E.2" with a reference to "120E.2".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
120E.2 is compliance point definitions
this should be 120E.4.1 (HCB/MCB characteristics)
Change the reference to "83E.2" to a reference to "120E.4.1".

Cl **120E** *SC* **120E.3.2.1** *P* **366** *L* **52** # 85

Ghiasi, Ali — Ghiasi Quantum LLC

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

Target tranistion time does not say 20-80%

SuggestedRemedy

Add 20% to 80%

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

[Editor's note: Clause changed from 129 to 120E and Subclause changed from 129.3.2.1 to 120E.3.2.1]

Cl **120E** *SC* **120E.3.3.2.1** *P* **370** *L* **5** # 173

Dudek, Mike — Cavium

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

The VEC spec was required in other clauses because the module output signal was being tested at the Near end and this protected hosts from modules with large amplitude outputs that were highly distorted that would be difficult to receive after a long host trace. With this clause also specifying the Far end there is no need for this specification for the Module output or having to calibrate to a specific value for the host stressed input test.

SuggestedRemedy

Delete the VEC row in Table 120E-3.

Delete the sentence related to VECP on page 370 line 5.

Delete the heading for section 120E.4.2.1, the initial sentence and Equation 120E-3 and definition of VEC, however retain the definitions of the AVupp etc.

Delete TH14 in the PICS. page 379 line 35

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Delete the VEC row in Table 120E-3.

Delete the sentence related to VEC on page 370 line 5.

Delete the heading for section 120E.4.2.1, the initial sentence and Equation 120E-3 and definition of VEC, however retain the definitions of the AVupp etc.

Delete TH14 in the PICS. page 379 line 35
All with editorial license.

Straw Poll
1) Remove VEC spec
2) No change to draft
1): 9; 2): xx;

Cl **120E** *SC* **120E.4.1** *P* **372** *L* **35** # 86

Ghiasi, Ali — Ghiasi Quantum LLC

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

We have inconsistency between baseline simulations and what we are referencing for MCB/HCB. The simulations were based on hypotitical connector haivng ~1/3 the crosstalk http://www.ieee802.org/3/bs/public/adhoc/elect/24Aug_15/dallaire_01_082415_elect.pdf

SuggestedRemedy

Current eye width and eye height may not be met with connectoras defined and referenced in 92.11.1 having ~3x the crosstalk. Attach presentation provide background http://www.ieee802.org/3/cd/public/July16/ghiasi_3cd_02_0716.pdf
Plan to update the presentation as ghiasi_3bs_01_0916.

Response *Response Status* **C**

REJECT.
No remedy supplied
Presentations on this subject are solicited.

[Editor's note: Clause changed from 1203 to 120E and Subclause changed from 1203.4.1 to 120E.4.1]

Cl **120E** *SC* **120E.4.1** *P* **372** *L* **37** # 525

Hidaka, Yasuo — Fujitsu Lab of America

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

The electrical characteristics of test fixture was specified from 0.01GHz to 25GHz in Equation 92-34 in 92.11.1 and 92-35 in 92.11.2, whereas the informative channel insertion loss is specified from 0.01GHz to 28.05GHz in Equation 120E-1.
We need to expand the range of frequency of the characteristics of test fixture.

SuggestedRemedy

Insert the folllowing phrase after "TP2 or TP3 test fixture":
"with the exception of max frequency of the IL and RL specification is 28.05GHz".

Also, insert the same phrase after "the cable assembly test fixture".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
We only need a maximum frequency of baud rate in the informative channel loss equation, so change the maximum frequency in Equation 120E-1 from 28.05 GHz to 26.5625 GHz.

Also change:
"as the TP2 or TP3 test fixture." to:
"as the TP2 or TP3 test fixture with the exception that the upper frequency of 25GHz is replaced with 26.5625 GHz.

Also, change "cable assembly test fixture." to:
"cable assembly test fixture with the exception that the upper frequency of 25GHz is replaced with 26.5625 GHz.

See also response to comment #517

Cl **120E** *SC* **120E.4.2** *P* **372** *L* **46** # 165

Dudek, Mike — Cavium

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

It is ambiguous as to what the eye probabilities are related to. (symbols, bits or individual eyes).

SuggestedRemedy

At line 46 add the sentence. Unless specified otherwise the probabilities are relative to the 3 individual eyes not the total PAM4 symbol.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add
" Unless specified otherwise the probabilities are relative to the number of PAM4 symbols measured."
before
"The following procedure..."

Cl **120E** *SC* **120E.4.2** *P* **373** *L* **4** # 32

Healey, Adam — Broadcom Ltd.

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

In item 3), the phrase "as a distance of from the center of the eye" would be better stated as "as a function of the distance from the center of the eye". The CDF is related to this distance but is not the distance itself. See similar instances in items 4) and 7).

SuggestedRemedy

Replace the phrase "as a distance" with "as a function of the distance" in each instance cited in the comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace the phrase "as a distance" with "as a function of the distance" in items 3), 4), and 7).

Also change
"to construct the CDF of the jitter zero crossing for"
to
"to construct CDF of the signal threshold crossing for"

Cl **120E** *SC* **120E.5.3** *P* **378** *L* **6** # 166

Dudek, Mike — Cavium

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

There are not 8 lanes for 200GAUI-4

SuggestedRemedy

Add the 4 lane option for 200GAUI-4 and make the existing 8 lanes for 400GAUI only

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to: "Four independent data paths in each direction for 200GAUI-4 and eight independent data paths in each direction for 400GAUI-8"

Cl **120E** *SC* **120E.5.4.1** *P* **378** *L* **42** # 526

Hidaka, Yasuo — Fujitsu Lab of America

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

For item TH9, the differential termination mismatch is measured over AC cap using a method described in 86A.5.3.2. A reference to the equation may be helpful.

SuggestedRemedy

Change the subclause column for TH9 from "120E.3.1" to "120E.3.1.4, 86A.5.3.2".
Change the Value/Comment column for TH9 from "Less than 10%" to "Equation (86A-10) or (86A-11) is less than 10%".

Response *Response Status* **C**

REJECT.
PICS items normally reference the local clause even if that clause then references a different clause - this ensures the PICS is valid even if the local clause changes.

Cl **120E** *SC* **120E.5.4.1** *P* **378** *L* **54** # 167

Dudek, Mike — Cavium

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

There is no specification for Vertical eye closure for the host output in Table 120E-1 There shouldn't be a PICS item for it.

SuggestedRemedy

Delete TH14 on page 378 line 54.

Response *Response Status* **C**

ACCEPT.

Cl **120E** *SC* **120E.5.4.2** *P* **379** *L* **20** # 527

Hidaka, Yasuo — Fujitsu Lab of America

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

For item TM7, the differential termination mismatch is measured over AC cap using a method described in 86A.5.3.2. A reference to the equation may be helpful.

SuggestedRemedy

Change the subclause column for TM7 from "120E.3.1" to "120E.3.1.4, 86A.5.3.2".
Change the Value/Comment column for TM7 from "Less than 10%" to "Equation (86A-10) or (86A-11) is less than 10%".

Response *Response Status* **C**

REJECT.
See response to comment #526

Cl **121** *SC* **121.7.1** *P* **218** *L* **16** # 567

Dawe, Piers — Mellanox

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

The SMSR spec has been described variously as a diagnostic, a component level spec for buying lasers to make into PMDs, an early warning, a comfort blanket / included by default, or something that can be measured relatively easily in a component lab. Any SMSR problems will contribute to TDECQ - but we haven't quantified them. The effect of SMSR will depend strongly on the amount of dispersion which varies from one PMD to another and lane to lane, and on laser technology. We should not obstruct innovative implementations.

SuggestedRemedy

Make the SMSR limit a recommendation not a PICS requirement. All optical PMDs in this project.

Response *Response Status* **U**

REJECT.
In response to similar comments, #219 and #221, to draft 1.0, it was agreed not remove the SMSR limit with the following justification:
"Measuring SMSR is not required - it must pass if it is measured. The background of this spec is related to unstable laser performance, probably being very temperature sensitive. Even though measuring SMSR in a DWDM environment is less straightforward than in Clause 122, it is believed that this parameter should be specified.
30 dB value for SMSR is considered to be an appropriate value for this interface."

Cl **121** *SC* **121.7.1** *P* **218** *L* **31** # 566

Dawe, Piers — Mellanox

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

Does the extinction ratio matter much in PAM4?

SuggestedRemedy

Unless it's important, reduce the limit to 3 dB, or as appropriate, for each optical PMD.

Response *Response Status* **U**

REJECT.
Commenter is invited to demonstrate that there is a need to relax the ER for this PMD and that this will not impact the ability of receivers to meet the sensitivity requirements.

Cl **121** *SC* **121.7.1** *P* **218** *L* **33** # 130

Dawe, Piers — Mellanox

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

Now we have a TDECQ spec, we should look again at the RIN spec. The effect of RIN is included in TDECQ; the acceptable level of RIN depends strongly on other transmitter impairments. All we could *require* in a spec is the amount of RIN that would create substantially all of the TDECQ limit, which I don't think is this number. It would be hard to *recommend* any number without making assumptions on behalf of all future transmitter implementers that we can't justify.
As 52.9.6 says "This procedure describes a component test that may not be appropriate for a system level test depending on the implementation. If used..."
and "In order to measure the noise, the modulation to the DUT is turned off." A transmitter that's trying to deliver 4 well-spaced PAM4 levels can't be expected to do anything in particular if the modulation to the DUT is turned off!

SuggestedRemedy

As we no longer need a RIN spec and it would be difficult to choose a recommended value - delete the RIN22.8OMA row in Table 121-6, and in Table 121-10. Delete 121.8.7.
In 121.8.5.1 and 121.8.5.2, we could change "The state of polarization of the back reflection is adjusted to create the greatest RIN" to "The state of polarization of the back reflection is adjusted for the greatest TDECQ".
Similarly in clauses 122, 124.

Response *Response Status* **U**

REJECT.
Insufficient justification in the comment and incomplete Remedy proposal. The commenter is invited to bring in a presentation clarifying why a RINxOMA spec is no longer needed and why the current specification in draft 2.0 is broken. The transmitter RINxOMA spec is intended to screen out potentially bad transmitters even if the noise correction required by the TDECQ test is not very accurate.

Cl **121** *SC* **121.7.2** *P* **219** *L* **11** # 123

Lewis, David — Lumentum

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

Table 121-7. The value for damage threshold is unecessarily high at 3 dB above the maximum average receive power. Having such a high value makes it more difficult to find a source with sufficient power to do the test. Other SMF standards, such as 100GBASE-LR4/-ER4 (Table 88-8) have set the damage threshold at 1 dB above the maximum average receive power.

SuggestedRemedy

Change the threshold from 6.5 dBm to 4 dBm.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In line with discussions during the SMF Ad Hoc on 30 August 2016:

Change the damage threshold from 6.5 dBm to 4 dBm

Cl **121** *SC* **121.7.3** *P* **219** *L* **47** # 82

Ghiasi, Ali — Ghiasi Quantum LLC

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

Current -45 dB RL require APC connector and may not support installed based.

SuggestedRemedy

Standard should allow reducing the number of connectors from 4 as defiend for operation with -45 dB RL to -35 dB with 2 connectors.
Adhoc contribution
http://www.ieee802.org/3/bs/public/adhoc/smf/16_08_16/anslow_01_0816_smf.pdf
inducate to support 2 connector the RL for each connector must be -39 dB. This is close enough to either the MPI budget or trade connector loss as few are used with MPI.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Same comment as #84

Cl **121** *SC* **121.7.3** *P* **219** *L* **47** # 84

Ghiasi, Ali — Ghiasi Quantum LLC

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

Current -45 dB RL require APC connector and may not support installed based.

SuggestedRemedy

Standard should allow reducing the number of connectors from 4 as defiend for operation with -45 dB RL to -35 dB with 2 connectors.
Adhoc contribution
http://www.ieee802.org/3/bs/public/adhoc/smf/16_08_16/anslow_01_0816_smf.pdf
inducate to support 2 connector the RL for each connector must be -39 dB. This is close enough to either the MPI budget or trade connector loss as few are used with MPI.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment was discussed during the SMF Ad Hoc on 30 August 2016, where there was general support for the change described below.

Change 121.11.2.2, 122.11.2.2, and 124.11.2.2 to contain tables giving the maximum value for each discrete reflectance for a variety of numbers of discrete reflectances above -55dB, according to
http://www.ieee802.org/3/bs/public/adhoc/smf/16_08_30/anslow_03_0816_smf.pdf with editorial license.

Cl **121** *SC* **121.8.3** *P* **225** *L* **5** # 570

King, Jonathan — Finisar

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

Equation 121-5 needs two corrections

SuggestedRemedy

The divisor sq_rt(2 pi) should be sigma_g x sq_rt(2 pi), and the divisor sigma_g in the exponent should be 2 sigma_g

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: This comment was sent after the close of the comment period]
Make the changes proposed on page 4 of
http://www.ieee802.org/3/bs/public/16_09/king_3bs_03a_0916.pdf

Cl **121** *SC* **121.8.4** *P* **221** *L* **15** # 572

Zivny, Pavel — Tektronix

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

OMAouter is defined for PRBS13Q explicitly, yet it is needed for measurement based on other patterns (e.g. TDECQ).
This is impractical and unnecessary. Drop the reference to PRBS13Q.

SuggestedRemedy

Change "The OMAouter of each lane shall be within the limits given in Table 121-6 if measured using a PRBS13Q pattern as defined in 120.5.11.2.3."
to
"The OMAouter of each lane shall be within the limits given in Table 121-6."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: This comment was sent after the close of the comment period]
Change:
"The OMAouter of each lane shall be within the limits given in Table 121-6 if measured using a PRBS13Q pattern as defined in 120.5.11.2.3."
to:
"The OMAouter of each lane shall be within the limits given in Table 121-6."
Also change "the run of" to "a run of" in two places.
Change the title of Figure 121-3 to: "Example power levels P0 and P3 from PRBS13Q test pattern"

Cl **121** *SC* **121.8.5** *P* **221** *L* **37** # 129

Dawe, Piers — Mellanox

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

This SSPRQ pattern will give inconsistent results when testing a range of transmitters.

SuggestedRemedy

If we can find a less extreme pattern that better achieves the objective of allowing TDEC measurements that correlate to the TDP we don't want to measure at line rate, change to that pattern.
If we can't, use PRBS13Q, which is much more representative, for TDECQ testing. Tell the implementer to be careful about low frequency effects.
Similarly in clauses 122, 124.

Response *Response Status* **U**

REJECT.
Incomplete remedy.

The commenter is invited to bring in a proposal for an alternative pattern that allows TDECQ measurements that correlate to the TDP.
One of the patterns for measurement of TDEC in Clause 95 is PRBS31 and the SSPR pattern is made up of segments of PRBS31.

Cl **121** *SC* **121.8.5.1** *P* **222** *L* **1** # 151

Dudek, Mike — Cavium

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

The pattern being used on the other lanes is not specified. In order to properly account for crosstalk this should be an un-correlated pattern.

SuggestedRemedy

Add "transmitting and receiving patterns 3, 4, 5 or a valid 200GBASE-R signal."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add a requirement for at least 31 UI delay between the SSPRQ patterns on one lane and any other lane.

[Note: this affects comments #305 and #148.]

Cl **121** *SC* **121.8.5.3** *P* **225** *L* **22** # 56

Laubach, Mark — Broadcom Limited

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

Need a period at end of the sentence. Same for Line 45-45.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
The IEEE Style Manual 15.3 does not show any punctuation at the end of lines in the "where" section.
Remove the "." after "GHz" on line 34.

Cl **121** *SC* **121.8.5.4** *P* **225** *L* **49** # 74

Ghiasi, Ali — Ghiasi Quantum LLC

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

Baseline reference EQ requiring T/2 sample put unnessary burden for any digital implementation where T spaced can perform as well.

SuggestedRemedy

Replace 5 tap T/2 with 7 tap T-spaced

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Insufficient justification for the proposed modification.
In line with discussions at the SMF Ad Hoc on 30 August, the commenter is invited to provide a detailed presentation with adequate justification for the proposed modification, providing more information on whether there are impairments that a T/2 spaced equaliser can compensate that a T-spaced equaliser cannot.

Add: "Note-this reference equalizer is part of the TDECQ test and does not imply any particular receiver equalizer implementation." to the end of 21.8.5.4 and 22.8.5.4

Cl **121** *SC* **121.8.5.4** *P* **225** *L* **50** # 569

Hanan, Leizerovich — MultiPhy

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

Reference equalizer implementation is not specifically stated.
This may cause several problems, especially if the reference equalizers used for Rx and for Tx are implemented differently between two different vendors, causing their modules not to interop with one another.
Bad equalizer implementation may assist modules to pass SRS on the Rx side, as the eye is seems falsely closed, altough it can be opened more using a better equalizer, while the same Rx will not pass with actual TX signals.

SuggestedRemedy

Suggest a specific reference equalizer implementation.
Possible example implementation is minimum MSE between the signal and an ideal PAM-4 signal with the same OMA as the measured signal (inner levels at 0, OMA/3 and 2*OMA/3).

Response *Response Status* **C**

REJECT.
121.8.5.3 TDECQ measurement method already says that the equalizer is set to minimize TDECQ:
"The reference equalizer (specified in 121.8.5.4) is used to minimize the value of TDECQ derived from the captured waveform."
[Editor's note: Comment type set to T and
this comment was sent after the close of the comment period]

Cl **121** *SC* **121.8.7** *P* **226** *L* **11** # 152

Dudek, Mike Cavium

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

Table 121-9 specifies that the QPRBS13 pattern is used for measuring RIN. However 121.8.7 refers to a test methodology in clause 52.9.6 that is not appropriate for use with that pattern. 52.9.6 specifies an NRZ sqare wave pattern and uses an O/E convertor AC coupled into an electrical power metter.
If a slow PAM4 pattern where used the denominator for the RIN calculation would be a factor of 2/3 smaller than with the NRZ pattern Note that the square wave pattern was originally chosen because it spends little percentage time in transitions and therefore the average power measured is close to (OMA/2) squared. Using a pattern with a lot of transitions means that the risetimes will affect the measurement.

SuggestedRemedy

In Table 121-9 Change the RIN row to say NRZ square wave. Or better create a new section for measuring RIN using scope measurements with the QPRBS13 patten by measuring the noise on the 4 different static levels of the pattern and calculating the RIN from those numbers and the OMA and remove the reference to 52.9.6

Make similar changes to the other PAM4 optical clauses.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add a new pattern to Table 121-9 for a square wave of 8 0's, 8 3's
Change the RIN22.8OMA row in Table 121-10 to reference the new pattern
Add an exception to 121.8.7 to use the new pattern
With editorial licence to make appropriate changes to Clauses 120 and 45 to add the pattern.
Make equivalent changes to Clauses 122 and 124

Cl **121** *SC* **121.8.9.1** *P* **226** *L* **46** # 168

Dudek, Mike Cavium

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

It is going to be extremely difficult to generate two thirds of the dB value of SECQ using a four order Bessel filter when a 5 tap FIR filter is equalizing the effect of the filter.

SuggestedRemedy

Set the bandwidth of the filter to a fixed bandwidth somewhat narrower than the expected fiber bandwidth and Tx worst case expected risetime combination. 15GHz may be a reasonable value. Make equivalent changes on page 228 line 5.

Make similar changes to the other optical clauses using an equalizer.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the "fourth-order Bessel-Thomson low-pass filter" to be a "low-pass filter" and change "at least two thirds of the dB value" to "at least half of the dB value" in two places.

Make equivalent changes in Clause 122

Cl **121** *SC* **121.8.9.1** *P* **227** *L* **28** # 90

Trowbridge, Steve Nokia

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

The line beginning the arrow from the Bessel Thompson filter to the E/O converter crosses into the box instead of beginning at the edge of the box, and the line beginning the arrow from the summing function to the Bessel Thompson filter crosses into the circle around the plus sign

SuggestedRemedy

Tidy up the figure and have the arrows start at the edge of the element they originate from

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.8.9.2** *P* **227** *L* **49** # 158

Dudek, Mike — Cavium

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

The Sentence below does not belong in this section. It should be merged into 121.8.9.1 "An example stressed receiver conformance test setup is shown in Figure 121-6; however, alternative test setups that generate equivalent stress conditions may be used.

SuggestedRemedy

Delete the sentence here and add it to the beginning of the 2nd paragraph of 121.8.9.1

Response *Response Status* **C**

REJECT.
121.8.9.1 is "Stressed receiver conformance test block diagram" which just explains the diagram and already contains a pointer to Figure 121-6. However, 121.8.9.2 "Stressed receiver conformance test signal characteristics and calibration" defines how the stressed signal is created and is the right place to state that "alternative test setups that generate equivalent stress conditions may be used".

Cl **121** *SC* **121.8.9.2** *P* **228** *L* **12** # 169

Dudek, Mike — Cavium

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

What square wave pattern?

SuggestedRemedy

Add the NRZ square wave pattern to be used for jitter calibration to table 121-9 and 121-10 or locally define it here as a pattern with 8 3's followed by 8 1's.

Make similar changes to the other PAM4 optical clauses.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change this text to refer to the square wave pattern added by comment #152.

Cl **121** *SC* **121.8.9.2** *P* **228** *L* **17** # 57

Laubach, Mark — Broadcom Limited

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

Following Strunk and White: a semi-colon is used when there is not a conjunection. So either remove the ";" or the "and", but don't keep both.

SuggestedRemedy

As per comment.

Response *Response Status* **C**

REJECT.
The IEEE Editorial Style Manual contains an example:
"The carrier-phonon interaction matrices are given by: 1) polar optical phonons; 2) deformation potential optical phonons; and 3) piezoelectric acoustic phonons."

Cl **121** *SC* **121.10** *P* **231** *L* **39** # 75

Ghiasi, Ali — Ghiasi Quantum LLC

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

Optical return loss condition not defiend

SuggestedRemedy

Need to define if the far end cable terminted or not.
The 39 dB return loss indicate end point is not terminted into the TX or RX having 26 dB return loss

Response *Response Status* **C**

REJECT.
[Editor's note: Subclause changed from 121.1 to 121.10]
This subclause is about the channel, not the combination of the channel and the transmitter/receiver. Transmitter and receiver return loss values are specified in Tables 121-7 and 121-8

Cl **121** *SC* **121.10** *P* **231** *L* **41** # 58

Laubach, Mark — Broadcom Limited

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

Need a period at end of "b" table footnote after "nm".

SuggestedRemedy

As per comment.

Response *Response Status* **C**

ACCEPT.

Cl **121** *SC* **121.11.1** *P* **232** *L* **19** # 20

Flatman, Alan — LAN Technologies

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

Note a under Table 121-14 refers to TIA 568-C.3. It should also refer to the International equivalent, ISO/IEC 11801-1 (Edition 3), which is currently at DIS stage (copied below).

SuggestedRemedy

Add reference to Cabled OS2 singlemode fibre specified in ISO/IEC 11801-1 (currently at DIS stage).

Response *Response Status* **C**

REJECT.
[Editor's note: Attachment is flatman_3bs_01_0916.pdf in http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]
The IEC web site has the target date of 15 Feb 2017 for "DEC" stage (Draft at Editing Check). Also, flatman_3bs_01_0916.pdf shows an attenuation of 0.4 dB/km rather than the value of 0.5 dB/km as in Table 121-14.

Cl **121** *SC* **121.11.2.2** *P* **232** *L* **34** # 77

Ghiasi, Ali — Ghiasi Quantum LLC

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

Standard does not support existing defined Ethernet cable plant

SuggestedRemedy

Consider supporting 2 connecter having 35 dB return loss

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #84

Cl **122** *SC* **122.1** *P* **239** *L* **1** # 558

Booth, Brad — Microsoft

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

400GBASE-FR8 does not satisfy broad market potential or economic feasibility. It is well understood in the Ethernet industry that all solutions for 2 km optical PMDs are considered "client" or "grey" optics. These PMDs must be able to satisfy the faceplate density requirements (32 ports per 1 RU) to be considered economically feasible. The current power estimations for 400GBASE-FR8 does not permit the PMD to meet the power envelope or cost requirements needed to satisfy this requirement. Because the PMD will not be economically feasible, it is therefore unlikely to have broad market potential.

SuggestedRemedy

Two options:
1) Delete 400GBASE-FR8 from the draft and remove the objective from the project.
2) Consider other options that will result in a solution that satisfies the economic feasibility and broad market potential requirements.

As #2 is highly unlikely at this point in time, option #1 is the preferred suggested remedy.

Response *Response Status* **U**

REJECT.
Based on data presented that supported the development of the responses to the Broad Market Potential and Economic Feasibility Criteria, the Study Group and subsequently the 802.3 WG approved these responses. This data covered the solution that was eventually adopted by the Task Force and is specified in P802.3bs Draft 2.0.
The SMF objective for 2km was adopted based on data presenting its need across multiple applications. This need across multiple application areas is noted in the Broad Market Potential Response in the IEEE P802.3bs CSD (https://mentor.ieee.org/802-ec/dcn/16/ec-16-0057-00-ACSD-802-3bs.pdf). The commenter notes a specific implementation of faceplate density (32 ports per 1 RU) as a requirement that must be satisfied. However, the stated requirement is not supported by reference to an existing presentation or new data that demonstrates this requirement across the different application areas that have been noted in the Broad Market Potential Response.
Additionally, the commenter used the noted implementation for determining a power envelope and cost requirements for the optical solutions, and then continues with statements regarding "current power estimations." However, the commenter has not provided any reference to an existing presentation or new data regarding the power envelope, cost requirements, or "current power estimations" that can be considered.

Cl **122** *SC* **122.7.1** *P* **249** *L* **20** # 111

King, Jonathan Finisar

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

The current 'average power (max)' spec value for 400GBASE-FR8 and 400GBASE-LR8 would require the ER to be higher than the specified minimum for a high OMA Tx (e.g. at max Tx_OMA). Follow the precedent in Table 122-9 to allow the minimum ER to be used at the max Tx_OMA value. This will help yield and manufacturability.

SuggestedRemedy

In Table 122-10: In the 'Average power (max)' row unmerge the spec value cell and put the value 5.7 into the column for 400GBASE-FR8, and 5.9 into the column for 400GBASE-LR8

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Table 122-10: In the 'Average launch power, each lane (max)' row, change 4.2 to 5.3
In Table 122-12: In the 'Average receive power, each lane (max)' row, change 4.2 to 5.3
In Table 122-12: In the 'Damage threshold, each lane' row, change 5.2 to 6.3
Add a footnote to the parameter Average launch power, each lane (max):
As the total average launch power limit has to be met, not all of the lanes can operate at the maximum average launch power, each lane.

Cl **122** *SC* **122.7.3** *P* **252** *L* **8** # 17

Swanson, Steven Corning Incorporated

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

In Table 122-13, the channel insertion loss for 200GBASE-LR4 and 400GBASE-LR8 is specified at 6.3 dB. However 10km x 0.46 dB/km plusthe 2.0 dB allocation for connectors = 6.6 dB.

SuggestedRemedy

Change the channel insertion loss for 200GBASE-LR4 and 400GBASE-LR8 in Table 122-13 to 6.6 dB.

Response *Response Status* **U**

REJECT.
There was no consensus on increasing the loss budget of 200GBASE-LR4 and 400GBASE-LR8.

Cl **122** *SC* **122.7.3** *P* **252** *L* **23** # 78

Ghiasi, Ali Ghiasi Quantum LLC

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

It would be benificial to support legacy Ethernet cable plant haivng 26 dB RL

SuggestedRemedy

Suggest reducing the number to connector to 2 for cable plant haivng return loss of 26 dB

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: Clause changed from 12 to 122 and Subclause changed from 12.7.3 to 122.7.3]
See response to comment #84

Cl **122** *SC* **122.8.5.4** *P* **256** *L* **7** # 76

Ghiasi, Ali Ghiasi Quantum LLC

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

Baseline reference EQ requiring T/2 sample put unnessary burden for any digital implementation where T spaced can perform as well.

SuggestedRemedy

Replace 5 tap T/2 with 7 tap T-spaced

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #74

Cl **122** *SC* **122.8.9.3** *P* **258** *L* **14** # 91

Trowbridge, Steve Nokia

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

The line beginning the arrow from the Bessel Thompson filter to the E/O converter crosses into the box instead of beginning at the edge of the box, and the line beginning the arrow from the summing function to the Bessel Thompson filter crosses into the circle around the plus sign

SuggestedRemedy

Tidy up the figure and have the arrows start at the edge of the element they originate from

Response *Response Status* **C**

ACCEPT.

Cl **122** *SC* **122.10** *P* **260** *L* **43** # 73
Ghiasi, Ali — Ghiasi Quantum LLC

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

Optical return loss condition not defiend

SuggestedRemedy

Need to define if the far end cable terminted or not.
The 29 dB and 27 dB return loss indicate end point is not terminted into the TX or RX having 26 dB return loss

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

[Editor's note: Subclause changed from 122.1 to 122.10]

Cl **122** *SC* **122.11.1** *P* **261** *L* **20** # 125
Lewis, David — Lumentum

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

Cabled optical fiber attenuation (max) is 0.46 or 0.5 dB/km. The note says that 0.46 dB/km is at 1272.55 nm but the shortest wavelength for 200GBASE-FR4 is 1264.5 nm and the loss should be 0.47 dB/km (see Table 87-15).

SuggestedRemedy

Change the value in the table to 0.47 or 0.5. Change note a to say "The 0.47 dB/km at 1264.5 nm attenuation.....".

Response *Response Status* **C**

ACCEPT.

Cl **122** *SC* **122.11.1** *P* **261** *L* **27** # 21
Flatman, Alan — LAN Technologies

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

Note b under Table 122-18 refers to TIA 568-C.3. It should also refer to the International equivalent, ISO/IEC 11801-1 (Edition 3), which is currently at DIS stage (copied below).

SuggestedRemedy

Add reference to Cabled OS2 singlemode fibre specified in ISO/IEC 11801-1 (currently at DIS stage).

Response *Response Status* **C**

REJECT.
[Editor's note: Attachment is flatman_3bs_01_0916.pdf in http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]
See response to comment #20

Cl **122** *SC* **122.11.2.1** *P* **261** *L* **39** # 15
Swanson, Steven — Corning Incorporated

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

Incorrect reference

SuggestedRemedy

Replace "The maximum link distance for 200GBASE-LR4 and 400GBASE-FR8 is based on an allocation of 3 dB total connection and splice loss." with "The maximum link distance for 200GBASE-FR4 and 400GBASE-FR8 is based on an allocation of 3 dB total connection and splice loss.

Response *Response Status* **C**

ACCEPT.

Cl **122** *SC* **122.11.2.1** *P* **261** *L* **39** # 63
Anslow, Pete — Ciena

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

"The maximum link distance for 200GBASE-LR4 and 400GBASE-FR8 is based on an allocation of 3 dB ." should be:
"The maximum link distance for 200GBASE-FR4 and 400GBASE-FR8 is based on an allocation of 3 dB ."
i.e. the second occurrence of "200GBASE-LR4 " in this paragraph should be "200GBASE-FR4 "

SuggestedRemedy

Change the second occurrence of "200GBASE-LR4 " in 122.11.2.1 to "200GBASE-FR4 "

Response *Response Status* **C**

ACCEPT.

Cl **122** *SC* **122.11.2.2** *P* **261** *L* **45** # 79
Ghiasi, Ali — Ghiasi Quantum LLC

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

It would be benificial to support legacy Ethernet cable plant haivng 26 dB RL

SuggestedRemedy

Suggest reducing the number to connector to 2 for cable plant haivng return loss of 26 dB

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #84

Cl **122** *SC* **122.11.2.2** *P* **261** *L* **46** # 66

Anslow, Pete — Ciena

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

"and six for 200GBASE-FR4 and 400GBASE-LR8." should be:
"and six for 200GBASE-LR4 and 400GBASE-LR8."

SuggestedRemedy

Change:
"and six for 200GBASE-FR4 and 400GBASE-LR8." to:
"and six for 200GBASE-LR4 and 400GBASE-LR8."

Response *Response Status* **C**

ACCEPT.

Cl **122** *SC* **122.11.3** *P* **262** *L* **3** # 59

Laubach, Mark — Broadcom Limited

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

Should there be a ", or" at the end of a)?

SuggestedRemedy

Consider putting ", or" if needed as per comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: Page changed from 2262 to 262]
This list follows the format of the IEEE style manual and the in-force standard in 87.11.3, 88.11.3, 89.10.3.
Delete the ";" and "." from the list in 121.11.3
Delete the two "." from the list in 123.11.3
Delete the ";" and "." from the list in 124.11.3

Cl **123** *SC* **123.1** *P* **269** *L* **1** # 559

Booth, Brad — Microsoft

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

400GBASE-SR16 requires twice the number of fibers as two 200GBASE-SR4; therefore, it does not satisfy the balanced cost requirement of economic feasibility. Because the PMD does not meet the economically feasibility, it is unlikely to have broad market potential.

SuggestedRemedy

Two options:
1) Delete 400GBASE-SR16 from the draft and remove the objective from the project.
2) Modify the PMD to be 400GBASE-SR8 based on the same technology proposed for 200GBASE-SR4.

As #1 is highly unlikely at this point in time, option #2 is the preferred suggested remedy.

Response *Response Status* **U**

REJECT.

As noted in the Economic Feasibility response, "the project will examine alternatives that trade off between PMD complexity and the number of fibers in order to maintain a reasonable balance between these two costs." The selection examined these tradeoffs and concluded that the cost balance for this PMD is reasonable. The PMD specifications have been developed in the light of the state of technology for MMF optics. In addition the PMD specs potentially allow optical interface compatibility between individual lanes of 25GBASE-SR, 100GBASE-SR4 and 400GBASE-SR16.

Cl **123** *SC* **123.7** *P* **276** *L* **4** # 134

Moffitt, Bryan — CommScope

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

TIA-492AAAE wideband fiber satisfies OM4 and should be referenced

SuggestedRemedy

Add Wideband fiber of TIA-492AAAE as supported media and add a row to table 123-5: 0.5 m to 100 m for wideband TIA-492AAAE fiber.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.7** *P* **276** *L* **4** # 106

Shariff, Masood CommScope

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

TIA-492-AAAE for WBMMF has been published since June 2016. Parallel specifications are under development in IEC 86A. TIA-568-3-D has recognized WBMMF and is on the verge of publication. ISO 11801-1 has also added this Cabling Category to the DIS standard currently under ballot.

IEEE 802.3bs should recognize this advance in MM optical fiber cabling that can support 400GBASE-SR16 at 850 nm while also enabling future windows between 850 nm and 953 nm.

SuggestedRemedy

Add 50/125 WBMMF as an option since this type of fiber will support 400GBASE-SR16

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.7** *P* **276** *L* **4** # 68

Kolesar, Paul CommScope

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

TIA has published TIA-492AAAE, the detailed fiber specification for what is referred to in ANSI/TIA-568.3-D as wideband multimode fiber. This fiber is compliant and superior to type A1a.3 (OM4) and will support the 400GBASE-SR16 PMD at least as well as OM4. Therefore it should be included as a recognized media type.

SuggestedRemedy

Add the fiber by replacing the second sentence of the clause as follows: A 400GBASE-SR16 compliant PMD operates on 50/125 µm multimode fibers, type A1a.2 (OM3), type A1a.3 (OM4) or cabling made with wideband fiber compliant to TIA-492AAAE, according to the specifications defined in Table 123-6.

Note: IEC and ISO are in the midst of standardizing wideband fiber and cabling. It is anticipated that IEC type designation and ISO OMx designation will be known well before the P802.3bs amendment is published. Should that come to fruition, the terminology can be made common across all three types.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace the second sentence of 123.7 with:
"A 400GBASE-SR16 compliant PMD operates on 50/125 µm multimode fibers, type A1a.2 (OM3), type A1a.3 (OM4) or fiber compliant to TIA-492AAAE, according to the specifications defined in Table 123-6."

Make other changes as described in pages 5 to 8 in the presentation http://www.ieee802.org/3/bs/public/16_09/king_3bs_01_0916.pdf, with editorial license.

A Straw poll of the Task Force was taken:
I support the addition of support for fiber compliant to TIA-492AAAE to the draft.
Yes 21
No 4

Cl **123** *SC* **123.7** *P* **276** *L* **10** # 113

King, Jonathan Finisar

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

The TIA have published the spec for wideband MMF,we should include it in the listed media for 400GBASE-SR16.

SuggestedRemedy

Add a row for wideband MMF in Table 123-5. Add a column for wideband MMF in Tables 123-6 and Table 123-7. See presentation 'king_3bs_01_0916.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.7** *P* **276** *L* **15** # 69

Kolesar, Paul CommScope

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

TIA has published TIA-492AAAE, the detailed fiber specification for what is referred to in ANSI/TIA-568.3-D as wideband multimode fiber. This fiber is compliant and superior to type A1a.3 (OM4) and will support the 400GBASE-SR16 PMD at least as well as OM4. Therefore it should be included as a recognized media type in Table 123-5.

SuggestedRemedy

Add wideband multimode fiber to the table. Two alternatives are next proposed.
1) Add wideband to the current last row of the right column as follows: 0.5 m to 100 m for OM4 and cabling made with TIA-492AAAE fiber.
2) Add wideband in a new row at the bottom of the right column as follows: 0.5 m to 100 m for cabling made with TIA-492AAAE fiber.

Note: the second alternative affords easier modification should the reach be determined to differ from OM4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

[Editor's note: Clause changed from 123.7 to 123 and Subclause changed from "Table 123-5" to "123.7"]

Cl **123** *SC* **123.7** *P* **276** *L* **15** # 107

Shariff, Masood CommScope

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

Recognize WBMMF that will support 400GBASE-SR16 at 850 nm while also enabling SWDM applications between between 850 nm and 953 nm.

SuggestedRemedy

Add WBMMF as new row to table 123.5 as shown below:

0.5 m to 100 m for cabling made with TIA-492AAAE fiber.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.10** *P* **279** *L* # 108

Shariff, Masood CommScope

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

Add WBMMF fiber as an option

SuggestedRemedy

Append " and wideband fiber optic cabling." to the end of the sentence on line 30

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.10** *P* **279** *L* **29** # 70

Kolesar, Paul CommScope

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

TIA has published TIA-492AAAE, the detailed fiber specification for what is referred to in ANSI/TIA-568.3-D as wideband multimode fiber. This fiber is compliant and superior to type A1a.3 (OM4) and will support the 400GBASE-SR16 PMD at least as well as OM4. Therefore it should be included within the discussion of the fiber optic cabling model.

SuggestedRemedy

Modify the third sentence of the paragraph to include wideband multimode fiber as follows: As wideband and OM4 fiber optic cabling meet the requirements for OM3, a channel compliant to the "OM3" column may use wideband or OM4 optical fiber cabling, or a combination of OM3 and OM4 and wideband fiber optic cabling.

Note: This comment presumes that another comment is accepted which proposes to change the heading on the OM4 column to "OM4 or wideband".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

[Editor's note: Clause changed from 123.1 to 123]

Cl **123** *SC* **123.10** *P* **279** *L* **37** # 71

Kolesar, Paul CommScope

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

TIA has published TIA-492AAAE, the detailed fiber specification for what is referred to in ANSI/TIA-568.3-D as wideband multimode fiber. This fiber is compliant and superior to type A1a.3 (OM4) and will support the 400GBASE-SR16 PMD at least as well as OM4. Therefore it should be included within the discussion of the fiber optic cabling model including Table 123-6-Fiber optic cabling (channel) characteristics.

SuggestedRemedy

Modify the heading on the "OM4" column to include wideband fiber as follows. Change the heading from "OM4" to "OM4 and wideband".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

[Editor's note: Clause changed from 123.1 to 123 and Subclause changed from "Table 123-6" to "123.10"]

Cl **123** *SC* **123.10** *P* **279** *L* **39** # 109

Shariff, Masood CommScope

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

Recognize and add WBMMF

SuggestedRemedy

Change the OM4 column heading to "OM4 and WBMMF"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.10.** *P* **279** *L* **37** # 135

Moffitt, Bryan CommScope

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

TIA-492AAAE wideband fiber satisfies OM4 and should be referenced

SuggestedRemedy

change OM4 column heading to "OM4 and wideband"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.11.1** *P* **280** *L* **10** # 72

Kolesar, Paul CommScope

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

TIA has published TIA-492AAAE, the detailed fiber specification for what is referred to in ANSI/TIA-568.3-D as wideband multimode fiber. This fiber is compliant and superior to type A1a.3 (OM4) and will support the 400GBASE-SR16 PMD at least as well as OM4. Therefore it should be included within the discussion of the optical fiber cable including within Table 123-7-Optical fiber and cable characteristics.

SuggestedRemedy

Wideband fiber shares core diameter, nominal wavelength, and effective modal bandwidth characteristics with OM4. It delivers no more than 3.5 dB/km attenuation (and in fact is set to 3.0 dB/km in TIA-568.3-D). However the zero dispersion wavelength and chromatic dispersion slope are both superior to the specifications for OM3 and OM4. To handle these similarities and differences, a new column is proposed to be added to the right of the "OM4" column with the heading "wideband". Superscript the heading for footnote "c", the footnote to read: TIA-492AAAE. Increment the current "c" footnote to "d". Share the cells in this column for the first four rows with those of the "OM4" column. In the ZDW cell insert the following: 1297 <= lambda0 <= 1328. In the dispersion slope cell insert the following: <= 4(-103)/(840(1-(lambda0/840)^4)).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

[Editor's note: Clause changed from 123.1 to 123 and Subclause changed from "Table 123-7" to "123.11.1"]

Cl **123** *SC* **123.11.1** *P* **280** *L* **10** # 110

Shariff, Masood CommScope

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

Recognize WBMMF

SuggestedRemedy

Add a new column for WBMMF and refer to TIA 492-AAAE for the specifications.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.11.1** *P* **280** *L* **25** # 136

Moffitt, Bryan CommScope

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

TIA-492AAAE wideband fiber satisfies OM4 and should be referenced

SuggestedRemedy

add to footnote b "and TIA-492AAAE wideband fiber"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment 68

Cl **123** *SC* **123.11.3** *P* **281** *L* **6** # 16

Swanson, Steven Corning Incorporated

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

While it understood here are no lane assignments (within a group of transmit or receive lanes) as the PCS sublayer is capable of receiving the lanes in any arrangement.

However, when used in a breakout configuration, matching the correct Tx and Rx matters. The various lanes are landing in different transceivers, thus they cannot be reordered (they are physically in different optics).

SuggestedRemedy

Replace Figure 123-4 with a Figure that numbers the Tx positions 1-16 left to right and Rx positions 1-16 left to right.

Response *Response Status* **C**

REJECT.

Lane numbering at the MDI isn't required for 400GBASE-SR16 operation.

If a 16x25G PMD were to be used for breakout applications, the optical lane numbering would be an implementation choice. For example, preferred lane numbering for a 16:1 breakout may differ from a 16:4 breakout application.

A Straw poll of the Task Force was taken:
I support the addition of lane numbering to Figure 123-4.
Yes 4
No 19

Cl **124** *SC* **124.5.4** *P* **292** *L* **6** # 554

traverso, matt cisco

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

Transmitters which use a single light source split among multiple lanes are challenged to meet -30 dBm.

The signal detect function must act on a signal between the average receive power, each lane (min) which is -5.4 dBm in this draft. Relaxing the FAIL value for signal_detect is technically feasible.

SuggestedRemedy

Suggest to change value to <= -20 dBm

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In Table 124-4, change:
"For any lane; Average optical power at TP3 <= -30 dBm" to:
"For any lane; Average optical power at TP3 <= -20 dBm"

In Table 124-6, change the Average launch power of OFF transmitter, each lane (max) from -30 dBm to -20 dBm

Cl **124** *SC* **124.7.1** *P* **294** *L* **9** # 112

King, Jonathan Finisar

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

The receiver sensitivity specs for 400GBASE-DR4 are marginal to what is technically feasible for a high volume product, and an additional 0.3 link loss capability is required.

SuggestedRemedy

Move Tx_OMA specs (and dependents) up 0.8 dB, and Rx sensitivity specs (and dependents) up 0.5 dB, to reduce burden on Rx and increase channel insertion loss budget by 0.3 dB. With editorial licence, the details are: In Table 124-6:Increase Tx_OMA-TDECQ from -1.3dBm to -0.5 dBm also Increase OMAouter (max) from 4.2dBm to 5.0dBm. Increase OMAouter (min) from -0.3dBm to 0.5dBm. Increase Average launch power (max) from 4dBm to 4.8dBm. Increase Average launch power (min) from -5.4dBm to -4.6dBm. In Table 124-7:Increase 'Receive sensitivity (OMAinner), each lane (max)' from -9.2dBm to -8.7dBm; also Increase 'Stressed receiver sensitivity (OMAouter), each lane (max)' from -1.9dBm to -1.4dB; Increase 'Receive power, each lane, OMAouter (max)' from 4.2dBm to 5dBm; Increase 'Average receive power, each lane (max)' from 4dBm to 4.8dBm; Increase 'Average receive power, each lane (min)' from -2.4dBm to -1.6dB; Increase 'OMAouter of each aggressor lane' from 4.2dBm to 5.0 dBm. See presentation king_3bs_02_0916.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
While there was some sympathy with the issues raised in:
http://www.ieee802.org/3/bs/public/16_09/king_3bs_02_0916.pdf
there was no consensus on making a change to the 400GBASE-DR4 budget at this point.

Cl **124** *SC* **124.7.1** *P* **294** *L* **30** # 553

traverso, matt cisco

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

Transmitters which use a single light source split among multiple lanes are challenged to meet -30 dBm for the parameter Average launch power of OFF transmitter, each lane (max).

The signal detect function must act on a signal between the average receive power, each lane (min) which is -5.4 dBm in this draft. Relaxing the TX OFF value for signal_detect is technically feasible.

SuggestedRemedy

Change Average launch power of OFF transmitter, each lane (max) to be -20 dBm

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
[Editor's note: Comment Type set to T]
See response to comment #554

Cl **124** *SC* **124.7.3** *P* **295** *L* **11** # 124

Lewis, David Lumentum

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

Table 124-7. The value for damage threshold is unecessarily high at 2.5 dB above the maximum average receive power. Having such a high value makes it more difficult to find a source with sufficient power to do the test. Other SMF standards, such as 100GBASE-LR4/-ER4 (Table 88-8) have set the damage threshold at 1 dB above the maximum average receive power.

SuggestedRemedy

Change the threshold from 6.5 dBm to 5 dBm.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
In line with discussions during the SMF Ad Hoc on 30 August 2016:

Change the damage threshold from 6.5 dBm to 5 dBm

Cl **124** *SC* **124.8.1** *P* **296** *L* **32** # 555

traverso, matt cisco

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

The optical transmitter wavelength will not vary appreciably (relative to the currently specified 1304.5 - 1317.5nm) when any of the test patterns specified in Table 124-9 are used.

SuggestedRemedy

Change "3, 5 or valid 400GBASE-R signal" to "3, 4, 5, 6 or valid 400GBASE-R signal"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Make this change to Clauses 121, 122, and 124. Also include the square wave pattern added by comment #152

Cl **124** *SC* **124.8.1** *P* **296** *L* **34** # 556

traverso, matt cisco

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

The optical transmitter side mode suppression ratio will not vary appreciably (relative to the currently specified 1304.5 - 1317.5nm) when any of the test patterns specified in Table 124-9 are used.

SuggestedRemedy

Change "3, 5 or valid 400GBASE-R signal" to "3, 4, 5, 6 or valid 400GBASE-R signal"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "3, 5 or valid 400GBASE-R signal" to "3, 5, 6 or valid 400GBASE-R signal" here and in Clauses 121 and 122.

Cl **124** *SC* **124.8.1** *P* **296** *L* **36** # 557

traverso, matt cisco

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

The optical average optical power will not vary appreciably (relative to the currently specified 1304.5 - 1317.5nm) when any of the test patterns specified in Table 124-9 are used

SuggestedRemedy

Change "3, 5 or valid 400GBASE-R signal" to "3, 4, 5, 6 or valid 400GBASE-R signal"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change "3, 5 or valid 400GBASE-R signal" to "3, 5, 6 or valid 400GBASE-R signal" here and in Clauses 121 and 122.

Cl **124** *SC* **124.9** *P* **298** *L* **32** # 120

Lewis, David Lumentum

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

This subclause is a duplicate of 121.9 except for the name of the PMD. It may be better to reference that subclause.

SuggestedRemedy

Safety, installation, environment, and labeling for 400GBASE-DR4 are the same as specified in 121.9.

Response *Response Status* **C**

REJECT.
It is common practice that all PMD clauses have the same text on safety.

Cl **124** *SC* **124.10** *P* **299** *L* **39** # 121

Lewis, David — Lumentum

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

This subclause is a duplicate of 121.10 except for the name of the PMD. It may be better to reference that subclause.

SuggestedRemedy

The fiber optic cabling model for 400GBASE-DR4 is the same as the model for 200GBASE-DR4 specified in 121.10.

Response *Response Status* **C**

REJECT.
It is common practice that each PMD clause has this subclause, even when the contents are the same as 121.10

Cl **124** *SC* **124.10** *P* **300** *L* **25** # 80

Ghiasi, Ali — Ghiasi Quantum LLC

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

Optical return loss condition not defiend

SuggestedRemedy

Need to define if the far end cable terminted or not.
The 39 dB return loss indicate end point is not terminted into the TX or RX having 26 dB return loss

Proposed Response *Response Status* **Z**

REJECT.

This comment was WITHDRAWN by the commenter.

[Editor's note: Subclause changed from 124.1 to 124.10]

Cl **124** *SC* **124.11** *P* **300** *L* **33** # 122

Lewis, David — Lumentum

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

This subclause is the same as 121.11 except for the name of the PMD. It might be better to just reference that subclause.

SuggestedRemedy

The fiber optic cabling (channel) characteristics for 400GBASE-DR4 are the same as those specified for 200GBASE-DR4 in 121.11.

Response *Response Status* **C**

REJECT.
It is common practice that each PMD clause has this subclause, even when the contents are the same as 121.11

Cl **124** *SC* **124.11.2.1** *P* **301** *L* **12** # 22

Flatman, Alan — LAN Technologies

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

Note a under Table 124-12 refers to TIA 568-C.3. It should also refer to the International equivalent, ISO/IEC 11801-1 (Edition 3), which is currently at DIS stage (copied below).

SuggestedRemedy

Add reference to Cabled OS2 singlemode fibre specified in ISO/IEC 11801-1 (currently at DIS stage).

Response *Response Status* **C**

REJECT.
[Editor's note: Attachment is flatman_3bs_01_0916.pdf in http://www.ieee802.org/3/bs/comments/P802d3bs_D2p0_attachments.zip]
See response to comment #20

Cl **124** *SC* **124.11.2.2** *P* **301** *L* **17** # 81

Ghiasi, Ali
Ghiasi Quantum LLC

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

Current -45 dB RL require APC connector and may not support installed based.

SuggestedRemedy

Standard should allow reducing the number of connectors from 4 as defiend for operation with -45 dB RL to -35 dB with 2 connectors.
Adhoc contribution
http://www.ieee802.org/3/bs/public/adhoc/smf/16_08_16/anslow_01_0816_smf.pdf
inducate to support 2 connector the RL for each connector must be -39 dB. This is close enough to either the MPI budget or trade connector loss as few are used with MPI.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment #84