Cl **FM** *SC* **FM** *P* **12** *L* **20** # I-1

Lewis, Jon Dell EMC

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

IEEE Std 802.3ch has been published.

SuggestedRemedy

Change "IEEE Std 802.3ch™-20xx" to "IEEE Std 802.3ch™-2020"

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **38** # I-2

Lewis, Jon Dell EMC

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

IEEE Std 802.3cr is currently ahead of P802.3cu in the publication order but is missing from the list of ammendments.

SuggestedRemedy

Add "IEEE Std 802.3cr™-20xx
This amendment includes changes to IEEE Std 802.3-2018 and adds Annex J. This amendment
replaces references to the IEC 60950 series of standards (including IEC 60950-1 "Information technology
equipment—Safety—Part 1: General requirements") with appropriate references to the IEC 62368
"Audio/video, information and communication technology equipment" series and makes appropriate
changes to the standard corresponding to the new references."

IEEE Std 802.3crTM-20xx Amendment 10 -- This amendment includes changes to IEEE Std 802.3-2018 and adds Annex J. This amendment replaces references to the IEC 60950 series of standards (including IEC 60950-1 "Information technology equipment—Safety—Part 1: General requirements") with appropriate references to the IEC 62368 "Audio/video, information and communication technology equipment" series and makes appropriate changes to the standard corresponding to the new references This amendment includes changes to IEEE Std 802.3-2018 and adds Annex J. This amendment replaces references to the IEC 60950 series of standards (including IEC 60950-1 "Information technology equipment—Safety—Part 1: General requirements") with appropriate references to the IEC 62368 "Audio/video, information and communication technology equipment" series and makes appropriate changes to the standard corresponding to the new references.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment i-16

Cl **FM** *SC* **FM** *P* **12** *L* **22** # I-3

Lewis, Jon Dell EMC

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

Amendment number is missing

SuggestedRemedy

Add "Amendment 8 --" where "--" is an em-dash

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

IEEE Std 802.3ch™-2020 has been assigned Amendment 8.

Changing the beginning of the description of IEEE Std 802.3ch™-2020
from:
"This amendment includes changes to …"
to:
"Amendment 8—This amendment includes changes to .."

Cl **FM** *SC* **FM** *P* **12** *L* **28** # I-4

Lewis, Jon Dell EMC

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

Amendment number is missing

SuggestedRemedy

Add "Amendment 9 --" where "--" is an em-dash

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

IEEE Std 802.3ca™-2020 has been assigned Amendment 9.

Changing the beginning of the description of IEEE Std 802.3ca™-2020
from:
"This amendment includes changes to …"
to:
"Amendment 9—This amendment includes changes to .."

Cl **00** *SC* **0** *P* **12** *L* **20** # I-5

Maguire, Valerie — The Siemon Company

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

802.3ch has published.

SuggestedRemedy

Replace, "802.3ch-20xx" with, "802.3cg-2020" and insert "Amendment 8—" before "This amendment…" on line 22

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment i-3

Cl **00** *SC* **0** *P* **12** *L* **28** # I-6

Maguire, Valerie — The Siemon Company

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

Missing some template text.

SuggestedRemedy

Insert "Amendment 9—" before "This amendment…".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **10** # I-7

Grow, Robert — RMG Consulting

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

I think Mr. Law has assigned this project an amendment number.

SuggestedRemedy

Amendment 11

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This project has been assigned Amendment 11.

Change:
"Draft Standard for Ethernet
Amendment:"
to:
"Draft Standard for Ethernet
Amendment 11:"

Cl **FM** *SC* **FM** *P* **1** *L* **30** # I-8

Grow, Robert — RMG Consulting

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

IEEE Std 802.3ch-2020 is now published. P802.3cr has been assigned amendment number 10.

SuggestedRemedy

Change "IEEE Std 802.3ch-20xx" to "IEEE Std 802.3ch-2020". Add "IEEE Std 802.3cr-20xx" to the end of the list and appropriately move the "and".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **3** *L* **5** # I-9

Grow, Robert — RMG Consulting

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

Per the 802.3 list of terms, "Energy-Efficient Ethernet" should be hyphenated.

SuggestedRemedy

"Energy-Efficient Ethernet". Also fix on p. 63, lines 38 and 47.

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **1** *L* **31** # I-10

Grow, Robert — RMG Consulting

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

PHY is not the acronym for Physical Layer, it is the acronym for Physical Layer Device.

SuggestedRemedy

Delete "(PHY)".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **3** *L* **1** # I-11

Grow, Robert RMG Consulting

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

PHY is not the acronym for Physical Layer, it is the acronym for Physical Layer Device.

SuggestedRemedy

Delete "(PHY)".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **20** # I-12

Grow, Robert RMG Consulting

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

This amendment is no published.

SuggestedRemedy

Change "IEEE Std 802.3ch-20xx" to "IEEE Std 802.3ch-2020".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **22** # I-13

Grow, Robert RMG Consulting

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

This amendment has a number.

SuggestedRemedy

Insert "Amendment 8 --".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **26** # I-14

Grow, Robert RMG Consulting

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

Until published, the reference year should be incomplete.

SuggestedRemedy

Change "2020" to "20xx".

Response *Response Status* **C**

REJECT.

Based on the email below from David Law, "IEEE Std 802.3ca" has been published, and therefore the correct reference is "IEEE Std 802.3ca-2020".

-----Original Message-----
From: Law, David <dlaw@HPE.COM>
Sent: Thursday, June 25, 2020 8:14 AM
To: STDS-802-3-EDITORS@LISTSERV.IEEE.ORG
Subject: [802.3_EDITORS] IEEE 802.3 amendment order

Dear all,

I wanted to let you all know that I've update the amendment order in the document <https://docs.google.com/spreadsheets/d/1mcLQWGYuqZJB4W6H7jGEH-fbgpc-ifl4ja3DhOPyJsY/edit#gid=0> based on current project status as shown below. This is based on conditional approval for IEEE P802.3cu to proceed to Standards Association ballot, IEEE P802.3cp, IEEE P802.3ct and IEEE P802.3cv entering initial Working Group ballot, and my estimate of where these and other projects are.

Best regards,
David

Amendment 8: IEEE Std 802.3ch-2020 Approved Amendment 9: IEEE Std 802.3ca-2020 Approved Amendment 10: IEEE Std 802.3cr-20xx Draft D3.0 Amendment 11: IEEE Std 802.3cu-20xx Draft D2.2 Amendment 12: IEEE Std 802.3cp-20xx Draft D2.0 Amendment 13: IEEE Std 802.3ct-20xx Draft D2.0 Amendment 14: IEEE Std 802.3cv-20xx Draft D2.0 Amendment 15: IEEE Std 802.3cs-20xx Draft D1.0 Amendment 16: IEEE Std 802.3ck-20xx Draft D1.2
Amendment 17: IEEE Std 802.3cw-20xx

Cl **FM** *SC* **FM** *P* **12** *L* **28** # I-15

Grow, Robert RMG Consulting

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

This amendment has a number.

SuggestedRemedy

Insert "Amendment 9 --".

Response *Response Status* **C**

ACCEPT.

Cl **FM** *SC* **FM** *P* **12** *L* **37** # I-16

Grow, Robert RMG Consulting

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

Because this draft references Annex J2 (151.9.1), IEEE Std 802.3cr needs to precede this project in amendment number because it adds the Annex. And, P802.3cr has been assigned Amendment 10.

SuggestedRemedy

IEEE Std 802.3crTM-20xx Amendment 10 -- This amendment includes changes to IEEE Std 802.3-2018 and adds Annex J. This amendment replaces references to the IEC 60950 series of standards (including IEC 60950-1 "Information technology equipment—Safety—Part 1: General requirements") with appropriate references to the IEC 62368 "Audio/video, information and communication technology equipment" series and makes appropriate changes to the standard corresponding to the new references This amendment includes changes to IEEE Std 802.3-2018 and adds Annex J. This amendment replaces references to the IEC 60950 series of standards (including IEC 60950-1 "Information technology equipment—Safety—Part 1: General requirements") with appropriate references to the IEC 62368 "Audio/video, information and communication technology equipment" series and makes appropriate changes to the standard corresponding to the new references.

Response *Response Status* **C**

ACCEPT.

Cl **140** *SC* **140.8.1** *P* **52** *L* **38** # I-17

Grow, Robert RMG Consulting

Comment Type **T** *Comment Status* **A** *bucket (updated 0922)*

This subclause has no text.?

SuggestedRemedy

Delete the heading.?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the heading.

Cl **140** *SC* **140.6** *P* **40** *L* **16** # I-22

Dudek, Michael Marvell

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

In 140.10a.1 there are requirements for interoperation for the output power as well as the channel loss. This should be stated here.

SuggestedRemedy

Change "channel requirements" to "Channel and 100GBASE-FR1 transmitter average power requirements.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change from:
"The 100GBASE-FR1 PMD interoperates with the 100GBASE-DR PMD provided that the channel requirements defined in 140.10a.1 are met.

The 100GBASE-LR1 PMD interoperates with the 100GBASE-DR PMD provided that the channel requirements defined in 140.10a.2 are met.

The 100GBASE-LR1 PMD interoperates with the 100GBASE-FR1 PMD provided that the channel requirements defined in 140.10a.3 are met."

to:

"The 100GBASE-FR1 PMD interoperates with the 100GBASE-DR PMD provided that the channel and power guidelines in 140.10a.1 are met.

The 100GBASE-LR1 PMD interoperates with the 100GBASE-DR PMD provided that the channel guidelines in 140.10a.2 are met.

The 100GBASE-LR1 PMD interoperates with the 100GBASE-FR1 PMD provided that the channel guidelines in 140.10a.3 are met."

Cl **140** *SC* **140.6.1** *P* **42** *L* **32** # I-23

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

It does not say at what point the figure and text should be inserted.

SuggestedRemedy

Add "at the end of section 140.6.1"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **140** *SC* **140.6.2** *P* **43** *L* **32** # I-24

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

It does not say at what point the figure and text should be inserted.

SuggestedRemedy

Add "at the end of section 140.6.2"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **140** *SC* **140.6.2** *P* **44** *L* **18** # I-25

Dudek, Michael Marvell

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

There is an erroneous footnote reference "e" on the receiver sensitivity row. (These aren't test conditions).

SuggestedRemedy

Delete the footnote reference

Response *Response Status* **C**

REJECT.

It's not an "e" but a "c" with a strikethrough.

Cl **140** *SC* **140.6.3** *P* **46** *L* **32** # I-26

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

It does not say at what point the figure and text should be inserted.

SuggestedRemedy

Add "at the end of section 140.6.3"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **140** *SC* **140.7.5a** *P* **50** *L* **7** # I-27

Dudek, Michael Marvell

Comment Type **T** *Comment Status* **A** *bucket (updated 0922)*

There is only one lane for these Phys

SuggestedRemedy

Delete "of each lane"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In addition to 140.7.5a, the comment and suggested remedy also apply to 140.7.5b and 140.7.5c.

In 140.7.5a:
- Change the start of the second sentence from “The TECQ of each lane shall be within the limits …” to “TECQ shall be within the limits …”
- Change the start of the third sentence from “The TECQ of each lane shall be measured …” to “TECQ is measured …”

In 140.7.5b:
Change the first paragraph from:
“The transmitter over/under-shoot percentage of each lane shall be within the limits given in Table 140–6 if measured using a test pattern specified for transmitter over/under-shoot in Table 140–10”
to:
“The transmitter over/under-shoot percentage shall be within the limits given in Table 140–6 if measured using a test pattern specified for transmitter over/under-shoot in Table 140–10”

In 140.7.5c:
Change the first paragraph from:
“The transmitter peak-to-peak power of each lane shall be within the limits given in Table 140–6 if measured using a test pattern specified for transmitter peak-to-peak power in Table 140–10”
to:
“The transmitter peak-to-peak power shall be within the limits given in Table 140–6 if measured using a test pattern specified for transmitter peak-to-peak power in Table

Cl **140** *SC* **140.7.10** *P* **52** *L* **23** # I-28

Dudek, Michael Marvell

Comment Type **T** *Comment Status* **D** *measurement method*

The RINx does not have to meet the requirements for all of the Phys just the one being tested.

SuggestedRemedy

Change "for 100GBASE-DR,
100GBASE-FR1, and 100GBASE-LR1." to "for the PHY under test"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the following text from the 2nd item in the list:
"for 100GBASE-DR,100GBASE-FR1, and 100GBASE-LR1."

Cl **140** *SC* **140.7.10** *P* **52** *L* **35** # I-29

Dudek, Michael Marvell

Comment Type **TR** *Comment Status* **A** *measurement method*

The overshoot/undershoot for the FR1/LR1 transmitters is limited. Testing a receiver with more than this would over-stress it.

SuggestedRemedy

Add an additional bullet. "For 100GBASE-FR1 and 100GBASE-LR1 the transmitter over/undershoot does not exceed the value specified in table 140-6 for the PHY under test".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to I-81.

[Editor's note added after the comment was closed:

For reference, the response to comment i-81 is copied here:

ACCEPT IN PRINCIPLE.

Implement the changes captured in slide 9 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, swapping the order of the last two exceptions, with editorial license.

See comment I-90 for equivalent changes to 151.8.13.
]

Cl **151** *SC* **151.7.3** *P* **75** *L* **21** # I-30

Dudek, Michael Marvell

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

Footnotes "a" and "b" only differ by the name of the Phy. It would be better to combine them.

SuggestedRemedy

Make a single footnote referenced from the parameter column. Footnote to say "The channel insertion loss is calculated using the maximum distance specified in Table 151-6 and fiber attenuation of 0.5 dB/km plus an allocation for connection and splice loss given in 151.11.2.1"

Response *Response Status* **C**

ACCEPT.

Cl **151** *SC* **151.8.5** *P* **79** *L* **40** # I-31

Dudek, Michael Marvell

Comment Type **T** *Comment Status* **D** *measurement method*

The bandwidth is not equivalen to any reference receiver. It is the specific reference receiver for that PHY.

SuggestedRemedy

Change "equivalent to a reference receiver" to "equivalent to that of the reference receiver"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The text is consistent with other PMD subclauses, e.g., 122.8.5.

The concept of "reference receiver" is not clear from this text. A future maintenance project could improve the wording across multiple PMD clauses.

Cl **151** *SC* **151.11.2.1** *P* **88** *L* **29** # I-32

Dudek, Michael Marvell

Comment Type **T** *Comment Status* **A** *channel characteristics*

There is 1.3dB additional insertion loss allowed in the LR4-6 budget (table 151-9). It would be good to point out that this can be used for additional connection loss.

SuggestedRemedy

Insert an extra sentence after the example sentence. Sentence to say. "The additional insertion can also be allocated to connection loss resulting in a total connection loss of 3.3dB."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add a new footnote to Table 151-9 to indicate that the additional insertion loss can be allocated to fiber, connectors or splices, as captured in https://www.ieee802.org/3/cu/public/Sept20/nicholl_3cu_02_092920.pdf, with the exception of replacing the reference to "Table 151-13" with "151.11", and with editorial license.

Cl **151** *SC* **151.13.4.2** *P* **93** *L* **15** # I-33

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **A** *PICs (updated 0922)*

The value/comment is wrong.

SuggestedRemedy

Change "local fault" to "transmit fault"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the value/comment for PICS item M6 from:
"Sets PMD_transmit_fault to one if a local fault is detected"
to:
"Sets PMD_transmit_fault to one if a local fault is detected on any transmit lane"

Cl **151** *SC* **151.13.4.2** *P* **93** *L* **18** # I-34

Dudek, Michael Marvell

Comment Type **E** *Comment Status* **A** *PICs (updated 0922)*

The value/comment is wrong.

SuggestedRemedy

Change "local fault" to "receive fault"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the value/comment for PICS item M7 from:
"Sets PMD_receive_fault to one if a local fault is detected"
to:
"Sets PMD_receive_fault to one if a local fault is detected on any receive lane"

Cl **140** *SC* **140.10a** *P* **56** *L* **45** # I-35

Lewis, David Lumentum Inc.

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

Interoperation between PMDs is not a requirement. This information should be informative to advise those who might want to interoperate between different PMDs.

SuggestedRemedy

In the headings for 140.10a, 140.10a.1, 140.10a.2 and 140.10a.3 change "Requirements for interoperation." to "Informative guidance for interoperation.". Change the captions for Tables 140-15 and 140-16 from "Channel insertion loss requirements." to "Channel insertion loss ranges...".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the title of 140.10a from:
"Requirements for interoperation between 100GBASE-DR, 100GBASE-FR1 and 100GBASE-LR1"
to:
"Guidelines for interoperation between 100GBASE-DR, 100GBASE-FR1 and 100GBASE-LR1"

Remove the word "requirements" from the titles of Table 140-15 and Table 140-16.

Cl **151** *SC* **151.12** *P* **89** *L* **34** # I-36

Lewis, David Lumentum Inc.

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

Interoperation between PMDs is not a requirement. This information should be informative to advise those who might want to interoperate between different PMDs.

SuggestedRemedy

In the heading for 151.12 change "Requirements for interoperation." to "Guidelines for interoperation (informative).".

Remove the word "requirements" from Table 151-16 title.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the title of 151.12 from:
"Requirements for interoperation between 400GBASE-LR4-6 and 400GBASE-FR4"
to:
"Guidelines for interoperation between 400GBASE-LR4-6 and 400GBASE-FR4"

Remove the word "requirements" from the title of Table 151-16.

Cl **140** *SC* **140.7.5** *P* **49** *L* **42** # I-37

Lewis, David Lumentum Inc.

Comment Type **T** *Comment Status* **A** *measurement method*

There are no reference channels for TDECQ testing of 100GBASE-FR1 or 100GBASE-LR1 at the linked locations (121.8.5.2).

SuggestedRemedy

Change text from ".measured using the methods specified in 121.8.5.1, 121.8.5.2, and 121.8.5.3.." to ".measured using the methods specified in 121.8.5.1, 121.8.5.2 for 100GBASE-DR only, and 121.8.5.3..". Insert a new paragraph before 140.7.5.1: " 100GBASE-FR1 and 100GBASE-LR1 transmitters are tested using optical channels that meet the requirements in Table 140-10a. Insert the new Table 140-10a in the same format as Table 151-12 but with PMD types 400GBASE-FR4 replaced by 100GBASE-FR1 and 400GBASE-LR4-6 replaced by 100GBASE-LR1. Change the coefficient values for minimum and maximum dispersion of 100GBASE-LR1 from 0.138 to 0.23. Change footnotes with editorial license.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the changes captured in slides 3 and 4 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, with editorial license.

Cl **151** *SC* **151.3.2** *P* **65** *L* **36** # I-38

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

change "must be kept within limits" to "shall be kept within limits".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "must be kept within limits" to "are kept within limits"

Cl **151** *SC* **151.10** *P* **87** *L* **42** # I-39

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0928)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

In footnote c, change must to shall.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In footnote c, change "must" to "is required to".

Cl **151** *SC* **151.5.4** *P* **68** *L* **30** # I-40

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **R** *bucket (updated 0924)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

change "implementations must " to "implementations should"

Response *Response Status* **C**

REJECT.

The sentence uses "must" properly to describe an unavoidable consequence which is actually design guidance (it actually begins, "as an unavoidable consequence... implementations must...")

Cl **140** *SC* **140.9** *P* **54** *L* **23** # I-41

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

In footnote c, change "system must tolerate" to "system shall tolerate"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In footnote c, change "system must tolerate" to "system is required to tolerate"

Cl **151** *SC* **151.1** *P* **63** *L* **40** # I-42

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

In footnote a, change must to shall.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In footnote a, change "must behave" to "behaves".

Cl **140** *SC* **140.1** *P* **37** *L* **34** # I-43

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

In footnote a, change must to shall.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In footnote a, change "must behave" to "behaves".

Cl **140** *SC* **140.6.1** *P* **42** *L* **28** # I-44

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of the word must is deprecated and cannot be used when stating mandatory requirements, must is used only to describe unavoidable situations.

SuggestedRemedy

In footnote b, change must to shall.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change footnote b to:

"For 100GBASE-DR1, the requirement on the OMAouter (min) applies even in the cases where TDECQ < 1.4 dB for an extinction ratio of >= 5 dB or where TDECQ < 1.1 dB for an extinction ratio of < 5 dB. "

Implement with editorial license (recognizing the fact that this change is modifying existing text).

Cl **151** *SC* **151.9.4** *P* **86** *L* **22** # I-45

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of will is deprecated and cannot be used when stating mandatory requirements, will is only used in statements of fact

SuggestedRemedy

Change "will be met" to "are met"

Response *Response Status* **C**

ACCEPT.

Cl **151** *SC* **151.4** *P* **66** *L* **51** # I-46

Lewis, David — Lumentum Inc.

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

The use of will is deprecated and cannot be used when stating mandatory requirements, will is only used in statements of fact

SuggestedRemedy

change "these test points will not typically be accessible" to "these test points are not typically accessible"

Response *Response Status* **C**

ACCEPT.

Cl **140** *SC* **140.7.5** *P* **49** *L* **37** # I-47

Maki, Jeffery — Juniper Networks, Inc.

Comment Type **TR** *Comment Status* **A** *measurement method*

No subclause appears or external-subclause addition appears for "Channel requirements" including a table providing "Transmitter compliance channel specifications" for 100GBASE-FR1 and 100GBASE-LR1.

SuggestedRemedy

Add subclause or insert external-subclause addition for "Channel requirements" including a table providing "Transmitter compliance channel specifications" for 100GBASE-FR1 and 100GBASE-LR1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to I-37

[Editor's note added after the comment was closed:

For reference, the response to comment i-37 is copied here:

ACCEPT IN PRINCIPLE.

Implement the changes captured in slides 3 and 4 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, with editorial license.
]

Cl **140** *SC* **140.6.2** *P* **45** *L* **15** # I-48

Zhang, Bo — Inphi Corporation

Comment Type **E** *Comment Status* **A** *Rx specifications*

Y axis is listed as OMA_outer (dBm) whereas the Figure and the sub-section is on Rx sensitivity

SuggestedRemedy

Suggest change the Y axis to Receiver Sensitivity.

This proposed change also applies to page 51 (Fig 140-5), and page 74 (Fig 151-4).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The actual parameter on the y-axis is listed in Table 140-7 as "Receiver sensitivity (OMAouter) (max)". So it is sensitivity measured in OMA dBm, not in average power dBm.

Change axis title to: Receiver sensitivity(OMAouter) (max) (dBm) in Figure 140-2b, Fig 140-5 and Fig 151-4, with editorial license.

Cl **140** *SC* **140.7.5** *P* **49** *L* **44** # I-49

Zhang, Bo — Inphi Corporation

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

This paragraph ended with and incomplete phrase, 'with the following exceptions:'

SuggestedRemedy

Suggest complete the exception if any or remove this phrase at the end of this paragraph in section 140.7.5 Transmitter and dispersion eye closure for PAM4 (TDECQ).

Response *Response Status* **C**

REJECT.

This draft is amending Clause 140.

The editing instruction on p49, line 39 is changing the first paragraph of 140.7.5.

When using the "change" editing instruction, deleted text is identifed with strikethrough, inserted text is identifed by underlining and unchanged text is left as is. Text that is not being changed is not typically imported from the Clause being ammended.

The list of exceptions following the first paragraph of 140.7.5 are not being changed, and therefore there is no need to import them from Clause 140.

Cl **30** *SC* **30.5.1.1.2** *P* **19** *L* **12** # I-50

Ran, Adee — Intel

Comment Type **E** *Comment Status* **R** *editing instruction*

According to the style manual (18.2.2):

"Change shall be used when text or tables are being modified; therefore, strikethrough (for deletions) and underscore (for insertions) should be indicated"
and
"Insert shall be used to add new text, equations, tables, or figures in the standard".

Here an existing subclause is being modified, not a new one inserted.

SuggestedRemedy

Change the instructions to "change" (3 times) and underline the new text.

Response *Response Status* **C**

REJECT.

The use of the "Insert" editing instruction in this section is consistent with previously published amendments, e.g. 802.3cd, 802.3cm and 802.3cn.

After reviewing the IEEE style manual (18.2.2), "Insert" still appears to be the most appropriate editing instruction in this circumstance, as new text is being added rather than existing text being modified.

Cl **78** *SC* **78.7.4** *P* **24** *L* **7** # I-51

Ran, Adee — Intel

Comment Type **E** *Comment Status* **R** *ng instruction (updated 0922)*

According to the style manual (18.2.2):

"Change shall be used when text or tables are being modified; therefore, strikethrough (for deletions) and underscore (for insertions) should be indicated"
and
"Insert shall be used to add new text, equations, tables, or figures in the standard".

Here an existing table is being modified, not a new one inserted.

Also in the following places, page/subclause/Line:
25 80.1.4 14
26 80.4 42
32 116.1.3 18
33 116.4 38

SuggestedRemedy

Change the instruction to "change" and underline the new text. Apply in all listed places.

Response *Response Status* **C**

REJECT.

For tables, bringing in the entire table and using a "Change" editing instruction is definitely more consistent with the letter of the style manual, but is not the best practice for many (especially large) tables.

The style used in Table 78-1, Table 80-1, Table 80-5, Table 116-2, and Table 116-6 of using an "Insert" editing instruction and stating where the new rows should be inserted has been used by many previously published amendments.

Cl **140** *SC* **140.1** *P* **38** *L* **1** # I-52

Ran, Adee Intel

Comment Type **E** *Comment Status* **D** *Editing instruction*

According to the style manual (18.2.2):

"Change shall be used when text or tables are being modified; therefore, strikethrough (for deletions) and underscore (for insertions) should be indicated"
and
"Insert shall be used to add new text, equations, tables, or figures in the standard".

Here a figure is being repalced and its title is changed (the "change" instruction can't be applied to a figure).

SuggestedRemedy

Change the instruction to "replace" the figure and "change" the title. Remove the underlines in the figure.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

In this subclause the editing instruction is making minor changes to the text within an existing figure, and not replacing the figure with a completely new figure.

An editing instruction of "change" rather than "replace" would appear to be more appropriate in this case, and helps the reader identify what has changed in the figure (and what has not).

This approach is also consistent with previous practice.

Cl **140** *SC* **140.6.1** *P* **42** *L* **32** # I-53

Ran, Adee Intel

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

Where are the new table and text inserted?

SuggestedRemedy

Add to the instruction "after Table 140-6" or wherever it is intended.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add to the instruction "after Table 140-6", with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **140** *SC* **140.6.2** *P* **43** *L* **38** # I-54

Ran, Adee Intel

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

Where are the new figure and text inserted?

In the next page, Table 140-7 is changed but there is no coresponding editorial instruction.

SuggestedRemedy

Change the instruction to "change" and include context to identify the location of the new text. Add "insert" instruction for the figure.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **140** *SC* **140.6.3** *P* **46** *L* **43** # I-55

Ran, Adee Intel

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

Where are the new figures and text inserted?

SuggestedRemedy

Add to the instruction "after Table 140-8" or wherever it is intended.

Add the numbers of the new figures, 140-2c and 140-2d.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **140** *SC* **140.7.9** *P* **51** *L* **26** # I-56

Ran, Adee Intel

Comment Type **E** *Comment Status* **A** *bucket (updated 0924)*

Is Figure 140-5 a new figure, a replacement, or no change to existing figure 140-5?

SuggestedRemedy

If no change, separate the editorial instruction to two changes, before and after the figure.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license.

There are several instances in Clause 140 where the editing instructions could be improved. Review all editing instructions in Clause 140 and update if necessary with editorial license.

Cl **151** *SC* **151.5.4** *P* **68** *L* **10** # I-57

Huber, Thomas Nokia

Comment Type **E** *Comment Status* **D** *Signal Detect (updated 0922)*

The paragraph above Table 151-4 and the final paragraph of clause 151.5.4 (two paragraphs below the table) are both providing additional information on how to interpret the information in the table. It would be better to combine these into a single paragraph, above the table.

SuggestedRemedy

Change the paragraph above Table 151-4 to read as shown below (inserting the contents of the last paragraph as the third sentence), and delete the last paragraph in clause 151.5.4.

SIGNAL_DETECT shall be a global indicator of the presence of optical signals on all four lanes. The value
of the SIGNAL_DETECT parameter shall be generated according to the conditions defined in Table 151-4.
Various implementations of the Signal Detect function are permitted by this standard, including
implementations that generate the SIGNAL_DETECT parameter values in response to the amplitude of the
modulation of the optical signal and implementations that respond to the average optical power of the
modulated optical signal. The PMD receiver is not required to verify whether a compliant 400GBASE-R signal is being received. This
standard imposes no response time requirements on the generation of the

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This is consistent with what has been done in previous PMD clauses.

It is not clear that the suggested remedy represents a improvement to the clarity of the draft, and making it in isolation to similar text in other clauses may cause confusion.

Cl **FM** *SC* **FM** *P* **12** *L* **20** # I-58

Trowbridge, Stephen Nokia

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

P802.3ch has been published

SuggestedRemedy

Change IEEE Std 802.3chTM-20xx to IEEE Std 802.3chTM-2020

Response *Response Status* **C**

ACCEPT.

Cl **140** *SC* **140.6.3** *P* **46** *L* **46** # I-59

Stassar, Peter Huawei Technologies Co. Ltd

Comment Type **E** *Comment Status* **D** *power budget [updated 0924)*

The clarification of Figures 140-2c and 140-2d are insufficient to make the reader understand the relationship between these figures and the illustrative power budget in Table 140-8. Also applies to new Clause 151, subclause 151.7.3.

SuggestedRemedy

The clarification needs to be expanded. A presentation with specific text proposals will be submitted to the relevant comment resolution meeting(s).

Proposed Response *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **140** *SC* **140.6.1** *P* **41** *L* **32** # I-60

Sommers, Scott Molex Incorporated

Comment Type **T** *Comment Status* **R** *Tx specifications*

In Table 140-6; change the contents for "Wavelength (range)" from "1304.5 to 1317.5" to "1300 to 1320". Reason: To enable uncooled DFB laser application for industrial temperature operation.

SuggestedRemedy

1300 to 1320

Response *Response Status* **C**

REJECT.

The Task Force reviewed
https://www.ieee802.org/3/cu/public/Sept20/chuang_3cu_01_092220.pdf and
https://www.ieee802.org/3/cu/public/Sept20/welch_3cu_01b_092220.pdf.

A straw poll was taken:
Do you support changing the "Wavelength (range)" for 100GBASE-FR1 and 100GBASE-LR1 from "1304.5 to 1317.5" to "1300 to 1320" ?
Yes: 6
No: 27
Abstain: 11

There is no consensus to make the proposed change.

Cl **140** *SC* **140.6.2** *P* **44** *L* **9** # I-61

Sommers, Scott Molex Incorporated

Comment Type **T** *Comment Status* **R** *Rx specifications*

In Table 140-7; change the contents for "Wavelength (range)" from "1304.5 to 1317.5" to "1300 to 1320". Reason: To enable uncooled DFB laser application for industrial temperature operation.

SuggestedRemedy

1300 to 1320

Response *Response Status* **C**

REJECT.

Resolve using the response to comment i-60.

[Editor's note: For reference, the response to comment i-60 is copied here:

REJECT.

The Task Force reviewed
https://www.ieee802.org/3/cu/public/Sept20/chuang_3cu_01_092220.pdf and
https://www.ieee802.org/3/cu/public/Sept20/welch_3cu_01b_092220.pdf.

A straw poll was taken:
Do you support changing the "Wavelength (range)" for 100GBASE-FR1 and 100GBASE-LR1 from "1304.5 to 1317.5" to "1300 to 1320" ?
Yes: 6
No: 27
Abstain: 11

There is no consensus to make the proposed change.
]

Cl **140** *SC* **140.9** *P* **54** *L* **21** # I-62

Sommers, Scott — Molex Incorporated

Comment Type **T** *Comment Status* **R** *channel characteristics*

In the note b for Table 140-11, change note b," b Over the wavelength range 1304.5 to 1317.5 to 1300-1320. Reason: To enable uncooled DFB laser application for industrial temperature operation.

SuggestedRemedy

1300 to 1320

Response *Response Status* **C**

REJECT.

Resolve using the response to comment i-60.

[Editor's note: For reference, the response to comment i-60 is copied here:

REJECT.

The Task Force reviewed
https://www.ieee802.org/3/cu/public/Sept20/chuang_3cu_01_092220.pdf and
https://www.ieee802.org/3/cu/public/Sept20/welch_3cu_01b_092220.pdf.

A straw poll was taken:
Do you support changing the "Wavelength (range)" for 100GBASE-FR1 and 100GBASE-LR1 from "1304.5 to 1317.5" to "1300 to 1320" ?
Yes: 6
No: 27
Abstain: 11

There is no consensus to make the proposed change.
]

Cl **140** *SC* **140.6.1** *P* **41** *L* **37** # I-63

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **D** *specifications (updated 0929)*

100GBASE-DR and 100GBASE-FR1 are expected to be interoperable (whether this standard says so or not). So the 100GBASE-FR1 transmitter must not be weaker than the 100GBASE-DR one. It's not worth making a special case for 0.2 dB that most transmitters can't use anyway, without super-high extinction ratio.

SuggestedRemedy

Change 100GBASE-FR1 average launch power (min) from -3.1 to -2.9, same as for 100GBASE-DR. As a consequence, change average receive power (min) from -7.1 to -6.9 dBm.
In 140.10a.1, delete "and the 100GBASE-FR1 transmitter average power is greater than or equal to the value for average launch power (min) for 100GBASE-DR in Table 140-6."

Proposed Response *Response Status* **W**

PROPOSED REJECT.

A straw poll was taken,

Straw poll #1:
Do you support changing the average launch power (min) from -3.1 dBm to -2.9 dBm for 100GBASE-FR1.
Y:9, N:9, Abstain: 11

Currently there is no consensus to make the proposed change.

Cl **140** *SC* **140.6.1** *P* **41** *L* **51** # I-64

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **D** *specifications (updated 0929)*

The receiver must be protected from over-emphasised very bad signals as in all other optical PAM4 clauses, 400ZR and 100GBASE-ZR. Over/under-shoot and peak-to-peak power don't exclude all of these (but if you believe they do, the K limit won't hurt you).

SuggestedRemedy

Limit TDECQ - 10log10(Ceq) and TECQ - 10log10(Ceq) for 100GBASE-FR1 and 100GBASE-LR1 to 3.4 dB.
As there's now no need to generate such bad signals for Rx stress test or test the receiver against them, in Table 140-7 Conditions of stressed receiver sensitivity test, add limits for SECQ - 10log10(Ceq) (max) of 3.4 dB.
Remove the inserted wording in 140.7.5 and 5th item in list in 140.7.10.
Similarly for 400GBASE-FR4 400GBASE-LR4-6.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is proposing values for parameters for that are not currently in Draft D3.0, for 100GBASE-FR1, 100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6.

The IEEE P802.3cu Task Force reviewed these parameters previously during both task force review and working group ballot, and reached consensus to not include them.

While the comment does not request the addition of these parameters into the draft, that may have been the intention of the commenter.

There is no consensus to make the proposed change.

Cl **140** *SC* **140.6.1** *P* **42** *L* **7** # I-65

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **D** *specifications (updated 0929)*

100GBASE-DR and 100GBASE-FR1 are interoperable. So the 100GBASE-FR1 transmitter must not transmit a worse signal than the 100GBASE-DR one.

SuggestedRemedy

Limit TECQ - 10log10(Ceq) for 100GBASE-FR1 to 3.4 dB.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is proposing a value for a parameter that is not currently in Draft D3.0, for 100GBASE-FR1.

The IEEE P802.3cu Task Force reviewed this parameter previously during both task force review and working group ballot, and reached consensus to not include it.

While the comment does not request the addition of this parameter into the draft, that may have been the intention of the commenter.

There is no consensus to make the proposed change.

Cl **140** *SC* **140.6.1** *P* **42** *L* **8** # I-66

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **D** *specifications (updated 0929)*

I can see that | TDECQ - TECQ | (max) limits sort-of dispersion penalty, but as we can't expect that the minimum penalty is at zero dispersion, it doesn't tell us the sensitivity to dispersion after a long link. Also, I would prefer a transmitter with low back-to-back penalty than one with high penalty at each dispersion - at least it's good somewhere. This spec rejects mediocre but acceptable transmitters simply because they are good when used back-to-back, which is silly.

SuggestedRemedy

Delete the "| TDECQ - TECQ | (max)" row.
Similarly for 400GBASE-FR4 400GBASE-LR4-6.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is proposing to remove a parameter that was added based on consensus of the task force.

The consensus of the task forece was captured in Straw poll #4 taken at the IEEE P802.3cu Task Force Interim Meeting, Jan 20th, 2020, Geneva, Switzerland (https://www.ieee802.org/3/cu/public/Jan20/minutes_3cu_0120_approved.pdf). The results for Straw poll #4 are included below:

Straw poll #4:
I would support adding a TDECQ-TECQ specification for 100GBASE-FR1,100GBASE-LR1 and 400GBASE-FR4 and with the values proposed in slides 24 and 27 of cole_01b_0120, along with the additional changes proposed in slide 20 of cole_01b_0120.
Yes: 20
No: 2

There is no consensus to make the proposed change.

This parameter was added during task force review in response to comment #2 against D1.1. The response to that comment is copied below:

"ACCEPT IN PRINCIPAL.

The proposed remedy includes three changes to Table 140-6:
-removing TDECQ-10log10(Ceq) for 100GBASE-FR1 and -LR1;
-adding TECQ to the table with values for 100GBASE-FR1 and -LR1;
-adding TDECQ-TECQ with values for 100GBASE-FR1 and -LR1.
Following review of cole_01b_0120 the following three straw polls were taken:
Straw poll #2:
I would support removing TDECQ-10Log(Ceq) for 100GBASE-FR1,100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6 as proposed in cole_01b_0120.
Yes 13:
No: 11
Straw poll #3:
I would support adding TECQ (max) for 100GBASE-FR1,100GBASE-LR1, 400GBASEFR4 and 400GBASE-LR4-6 and with the values proposed in slides 24 and 27 of cole_01b_0120.
Yes: 24
No: 2
Straw poll #4:
I would support adding a TDECQ-TECQ specification for 100GBASE-FR1,100GBASELR1 and 400GBASE-FR4 and with the values proposed in slides 24 and 27 of cole_01b_0120, along with the additional changes proposed in slide 20 of cole_01b_0120.
Yes: 20
No: 2
Implement these three changes to 100GBASE-FR1 and 100GBASE-LR1 as proposed in cole_01b_0120, with editorial license."

No new data has been provided to support reversing this decision.

Cl **140** *SC* **140.6.1** *P* **42** *L* **14** # I-67

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **D** *specifications (updated 0929)*

The transmitter transition time (max) is probably ineffective: only the most exceptional signals could pass this and fail TDECQ. But an effective spec usefully protects the receiver against ultra-slow signals that are hard to receive.

SuggestedRemedy

Change 17 ps to 16 ps for for 100GBASE-FR1 and 100GBASE-LR1.
Similarly for 400GBASE-FR4 400GBASE-LR4-6.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment states that a transmitter transition time (max) value of 17ps is “probably ineffective”.

The comment is proposing to change the transmitter transition time (max) value to 16s, but there is insufficient evidence that this value is any more effective than the current value.

There is no consensus to make the proposed change.

Cl **140** *SC* **140.6.1** *P* **42** *L* **17** # I-68

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **D** *specifications (updated 0929)*

The transmitter peak-to-peak power (max) limits are 0.8 and 0.5 dB above the max OMA limits. As these PMDs may be used back-to-back with zero loss, this impacts receiver design.

SuggestedRemedy

Consider reducing these, particularly for 100GBASE-LR1, by a couple of tenths of a dB.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The suggested remedy in the comment does not contain sufficient detail so that the IEEE P802.3cu Task Force can understand the specific changes that satisfy the comment.

Cl **140** *SC* **140.6.1** *P* **42** *L* **25** # I-69

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **D** *Tx specifications*

This note "Average launch power (min) is informative and not the principal indicator of signal strength" dates back to when OMA was new and unfamiliar. Part of it is contrary to the style manual: not allowed to mix informative and normative in a table, although it's grandfathered in. Depending on the exact values, it may be technically wrong, and there was no need to say it anyway.

SuggestedRemedy

Change to just "Average launch power (min) is not the principal indicator of signal strength".
Same in Table 151-7 (Tx).

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

There is no consensus to change “Average launch power, each lane (min)” from informative to normative.

Making a change to 100GBASE-DR is out of scope.

Delete the second sentence of the footnote for 100GBASE-FR1, 100GBASE-LR1, 400GBASE-FR4 and 400GBASE-LR4-6, with editorial license.

Cl **140** *SC* **140.6.1** *P* **43** *L* **21** # I-70

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **D** *specifications (updated 0929)*

I wonder if putting the knee at 1.4 dB is a bit high, these days? This applies more to 100GBASE-FR1 where the dispersion penalty might be small.

SuggestedRemedy

Consider moving the knee to 1.2 dB by reducing the minimum OMA. If wished, the Average launch power (min) for 100GBASE-LR1 could be reduced in step.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is proposing a change to the OMA outer (min) and the range of TDECQ over which this applies.

The comment does not provide sufficient evidence to support the change.

There is no consensus to make the proposed change.

Cl **140** *SC* **140.6.3** *P* **46** *L* **34** # I-71

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *power budget*

Wordsmithing for clarity and accuracy: change:
a The channel insertion loss is calculated using the maximum distance specified in Table 140-5 for 100GBASE-DR and 100GBASE-FR1 and cabled optical fiber attenuation of 0.5 dB/km plus an allocation for connection and splice loss given in 140.10.2.1.
b The channel insertion loss is calculated using the maximum distance specified in Table 140-5 for 100GBASE-LR1 and fiber attenuation of 0.43 dB/km at 1304.5 nm plus an allocation for connection and splice loss given in 140.10.2.1.

SuggestedRemedy

To:
a The channel insertion losses for 100GBASE-DR and 100GBASE-FR1 are calculated using the maximum distances specified in Table 140-5 and cabled optical fiber attenuation of 0.5 dB/km plus an allocation for connection and splice loss given in 140.10.2.1.
b The channel insertion loss for 100GBASE-LR1 is calculated using the maximum distance specified in Table 140-5 and fiber attenuation of 0.43 dB/km at 1304.5 nm plus an allocation for connection and splice loss given in 140.10.2.1.

Response *Response Status* **C**

ACCEPT.

Cl **140** *SC* **140.7.5a** *P* **50** *L* **8** # I-72

Dawe, Piers J G — Mellanox Technologies

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

Never write "shall be measured" in 802.3; it's not a test spec. Use the standard form of words.

SuggestedRemedy

The TECQ of each lane shall be within the limits given in Table 140-6 for 100GBASE-FR1 and
100GBASE-LR1 if measured measured using the methods specified for TDECQ in 140.7.5, except that the test fiber is not used. The test pattern specified for TECQ is given in Table 140-10.
Similarly in 151.8.6.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

In 140.7.5a:
- In the last sentence change "shall be measured" to "if measured"

In 151.8.6:
- In the last sentence change "shall be measured" to "if measured"

Cl **140** *SC* **140.7.5b** *P* **50** *L* **10** # I-73

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *parameter definitions*

Misleading name: "Transmitter over/under-shoot"

SuggestedRemedy

Change to "Signal over/under-shoot" or "Relative over/under-shoot" or "Over/under-shoot". Also in 151.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "Transmitter over/under-shoot" to "Over/under-shoot" throughout the draft, with editorial license.

Cl **140** *SC* **140.7.5b** *P* **50** *L* **13** # I-74

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

percentage

SuggestedRemedy

Delete: we don't say TDECQ decibellage. The % is in the table. Calling it "relative overshoot" makes the point another way.
Similarly in 151.8.9 if it remains.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete the word "percentage" from the first sentence of 140.7.5b and 151.8.9.

Cl **140** *SC* **140.7.5b** *P* **50** *L* **20** # I-75

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *ter definitions (updated 0922)*

Wordsmithing: change:
Transmitter overshoot is defined as the maximum power from the transmitter (Pmax) relative to the level 3
power and the transmitter OMAouter according to:

SuggestedRemedy

to:
Signal overshoot is defined as the maximum power (Pmax) of a signal above the level 3 power and relative to the signal's OMAouter according to:
Similarly for undershoot. Same in 151.8.9 if it remains.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Comment i-73 changes "Transmitter over/under-shoot" to "Over/under-shoot" throughout the draft.

Comment i-87 removes the equivalent text in 151.8.9 and instead references the text in 140.7.5b, so no change is required to 151.8.9.

In 140.7.5b:

Change from:
"Transmitter overshoot is defined as the maximum power from the transmitter (Pmax) relative to the level 3 power and the transmitter OMAouter according to:"
to:
"Overshoot is defined as the maximum power (Pmax) above the level 3 power and relative to the OMAouter according to:"

And change from:
"Transmitter undershoot is defined as the minimum power from the transmitter (Pmin) relative to the level 0 power and the transmitter OMAouter according to:"
to:
"Undershoot is defined as the minimum power (Pmin) below the level 0 power and relative to the OMAouter according to:"

Cl **140** *SC* **140.7.5b** *P* **50** *L* **31** # I-76

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **R** *ment method (updated 0922)*

A 1% hit ratio is very lax, much different to the spec SER. This isn't the same situation as a traditional mask hit ratio.

SuggestedRemedy

Determine what correlates to receiver performance. If appropriate, change to 1e-3, with corresponding change to the limit (see rodes_3cu_01a_052620 for measurements on one particular build standard). Use explicit scope noise loading to get consistent results with strong and weak signals.
Same in 151.8.9 if it remains.

Response *Response Status* **C**

REJECT.

The comment does not provide sufficient data to indicate that the current specification is broken or technically incomplete.

Cl **140** *SC* **140.7.5c** *P* **50** *L* **45** # I-77

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *ter definitions (updated 0922)*

Misleading name: "Transmitter peak-to-peak power"

SuggestedRemedy

Change to "Signal peak-to-peak power" or "Peak-to-peak power" (or see another comment). Also in 151.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment i-93.

[Editor's note: For reference, the response to comment i-93 is copied here:

In 151.8.10:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 151.8.5) and the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied."

In 140.7.5c:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 140.7.5) and the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."

]

Cl **140** *SC* **140.7.5c** *P* **50** *L* **50** # I-78

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

For 100GBASE-LR1, the combination of the loss in a long channel and the over/under-shoot limit means that limiting peak-to-peak power at TP3 may be unnecessary. For 100GBASE-FR1, the loss might be only 0.6 dB.

SuggestedRemedy

Consider not requiring compliance to peak-to-peak power for 100GBASE-LR1 at TP3. For 100GBASE-FR1, adjust the measured result by the adding the loss of the test channel and subtracting 0.5 dB. It may be easier to create separate entries and limits for peak-to-peak power for 100GBASE-LR1 at TP2 and at TP3.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment i-93.

[Editor's note: For reference, the response to comment i-93 is copied here:

In 151.8.10:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 151.8.5) and the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied."

In 140.7.5c:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 140.7.5) and the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."

]

Cl **140** *SC* **140.7.5c** *P* **50** *L* **52** # I-79

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **D** *ter definitions (updated 0929)*

The positive and negative peaks of an optical signal can be very different. An obvious example is a directly modulated laser, but other transmitters are not symmetric also, and chromatic dispersion can make this worse. An optical receiver copes with positive and negative excursions from the mean and needs protection from both extremes; the positive and negative peaks must be limited separately.

SuggestedRemedy

Change "Transmitter peak-to-peak power" which is Pmax - Pmin to "Transmitter power excursion", defined as max(Pmax-Paverage, Paverage-Pmin). Take 3 dB off the limits in Table 140-6.
Or, define "effective peak-to-peak power" as 2*max(Pmax-Paverage, Paverage-Pmin).
Make similar changes in Clause 151.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment does not provide sufficient data to indicate that the current specification is either broken or technically incomplete.

There is no consensus to make the proposed change.

Cl **140** *SC* **140.7.9** *P* **51** *L* **15** # I-80

Dawe, Piers J G — Mellanox Technologies

Comment Type **TR** *Comment Status* **A** *measurement method*

Here, the penalty in the signal for RS testing is called SECQ, while in 140.6.3 and p52 line 7 it's TECQ. Rule says use the same name for the same thing, every time.

SuggestedRemedy

Options are:
Change to SECQ to align with base document. Consider repurposing SECQ to "signal eye closure (quaternary)"; or
Define ECQ "eye closure (quaternary)" for general use including when it's not necessarily of transmitted signal at TP2 (TECQ), dispersed signal at TP3 (TDECQ), or stressed signal at TP3 (SECQ).
Adjust 151 for consistency.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

100GBASE-DR receiver sensitivity is defined based on SECQ and changing it to TECQ for consistency with the recent change made to 100GBASE-FR1 and 100GBASE-LR1 is out of scope.

The three new paragraphs added at the end of 140.7.9 only apply to 100GBASE-FR1 and 100GBASE-LR1.

To improve the clarity of the draft implement the changes captured in slides 6 and 7 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, with editorial license.

Cl **140** *SC* **140.7.10** *P* **52** *L* **35** # I-81

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

Do we need to say that the stressed receiver conformance test signal obeys the rules for over/under-shoot and peak-to-peak power (if applicable)?

SuggestedRemedy

Add another item to the list saying so.
Also in 151.8.13.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the changes captured in slide 9 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, swapping the order of the last two exceptions, with editorial license.

See comment I-90 for equivalent changes to 151.8.13.

Cl **140** *SC* **140.10.1** *P* **55** *L* **20** # I-82

Dawe, Piers J G — Mellanox Technologies

Comment Type **E** *Comment Status* **D** *misc (updated 0922)*

Tidy up

SuggestedRemedy

Make the table full width. Also Table 151-14.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

There are no requirements for tables to be full width, and there are mutiple examples throughout the draft of tables that are not full width, e.g. Table 78-1.

It is not clear that the making "Table 140-13" and "Table 151-14" full width, would be an improvement to the the draft.

Cl **151** *SC* **151.5.4** *P* **68** *L* **22** # I-83

Dawe, Piers J G — Mellanox Technologies

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

There is no average receive power, each lane (min) in Table 151-8 for 400GBASE-FR4 and 400GBASE-LR4-6. There's one for each.

SuggestedRemedy

Either delete "for 400GBASE-FR4 and 400GBASE-LR4-6" (as Table 140-4) or change "and" to "or" and modify Table 140-4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Table 151-4 delete the text "for 400GBASE-FR4 and 400GBASE-LR4-6"

This change makes the draft consistent with what was done previously in Table 140-4 and Table 139-4.

Cl **151** *SC* **151.7.1** *P* **71** *L* **23** # I-84

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *Tx specifications*

The difference in launch power between any two lanes is limited to 4 dB here, while the rows above limit it to 3.9 or 4.1 dB.

SuggestedRemedy

Delete the row or tighten the limit e.g to 3 dB. Adjust the receive table in step.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

For 400GBASE-FR4 the "Difference in launch power between any two lanes (OMAouter) (max)" in Table 151-7 exceeds what maximum allowable range of "(OMAouter), each lane".

The task force reviewed and discussed the presentation https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf.

Make the following changes:

- Table 151-7. Change the "Difference in launch power between any two lanes (OMAouter) (max)" for 400GBASE-FR4 from 4dB to 3.9dB
- Table 151-8. Change the "OMAouter of each aggressor lane" for 400GBASE-FR4 from 1.5dBm to 1.4dBm.

Cl **151** *SC* **151.8.4** *P* **79** *L* **11** # I-85

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

Apart from the first two sentences, this is identical to 122.8.4.

SuggestedRemedy

Remove all but the first two sentences; refer to 122.8.4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the changes captured in slide 13 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, with editorial license.

Cl **151** *SC* **151.8.5** *P* **79** *L* **36** # I-86

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

Too much duplication of established TDECQ method. Also, contradictory: says specified in 121.8.5.1, 121.8.5.2, and 121.8.5.3 then repeats it all below.

SuggestedRemedy

Remove the duplicate material.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the changes captured in slide 14 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01a_091520.pdf, with editorial license.

Cl **151** *SC* **151.8.9** *P* **82** *L* **36** # I-87

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

Too much duplication of over/under-shoot method.

SuggestedRemedy

Delete from line 31 and say it is analogous to 140.7.5b.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the changes captured in slide 3 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01_092220.pdf, with editorial license.

Cl **151** *SC* **151.8.9** *P* **82** *L* **26** # I-88

Dawe, Piers J G — Mellanox Technologies

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

Put the subclauses in 151.8 the same order as in 140.7 (following D2.1 comment 65) and the same order as in the Tx and Rx tables. But, because we now have several specs derived from the same measured waveform, more than in previous projects, it's time to group them all together.

SuggestedRemedy

In the Tx tables (140-6 and 151-7):
TDECQ
TDECQ - 10log10(Ceq)
TECQ
| TDECQ - TECQ | if it remains
Transmitter over/under-shoot
Transmitter peak-to-peak power
Transmitter transition time
Average launch power of OFF transmitter *OR* Extinction ratio
In the Definition of optical parameters and measurement methods, e.g.:
151.8.5 Transmitter and dispersion eye closure for PAM4 (TDECQ)
151.8.6 Transmitter eye closure for PAM4 (TECQ)
151.8.7 Transmitter over/under-shoot
151.8.8 Transmitter peak-to-peak power
151.8.9 Transmitter transition time
151.8.10 Extinction ratio

Proposed Response *Response Status* **W**

PROPOSED REJECT.

It is not clear that the suggested remedy represents an improvement to the clarity of the draft.

Cl **151** *SC* **151.8.10** *P* **83** *L* **11** # I-89

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

The combination of the loss in a long channel and the over/under-shoot limit means that the peak-to-peak power at TP3 has to be at least ~0.6 dB or ~1.8 dB less than at TP2.

SuggestedRemedy

For 400GBASE-FR4, adjust the measured result by the adding the loss of the test channel and subtracting 0.5 dB.
For 400GBASE-LR4, adjust the measured result by the adding the loss of the test channel and subtracting 1.5 dB.
It may be easier to create separate entries and limits for peak-to-peak power at TP2 and at TP3.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment i-93.

[Editor's note: For reference, the response to comment i-93 is copied here:

In 151.8.10:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 151.8.5) and the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied."

In 140.7.5c:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 140.7.5) and the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."

]

Cl **151** *SC* **151.8.13** *P* **83** *L* **43** # I-90

Dawe, Piers J G — Mellanox Technologies

Comment Type **T** *Comment Status* **A** *measurement method*

Too much duplication of stressed receiver sensitivity method. Figure wastes the reader's time - is it identical to Figure 122-8, if not what ddiffers?

SuggestedRemedy

Define 151's SRS by reference to 121 and 122, in the style of 140.7.10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Implement the changes captured in slide 16 of https://www.ieee802.org/3/cu/public/Sept20/lewis_3cu_01_091520.pdf swapping the order of the last two exceptions, with editorial license.

Cl **140** *SC* **140.6.3** *P* **46** *L* **21** # I-91

Cole, Christopher R — II-VI

Comment Type **E** *Comment Status* **A** *power budget*

The inclusion of a section reference in Table 140-8 for "Maximum discrete reflectance" for 100GBASE-FR1 and 100GBASE-LR1 is cumbersome to use and inconsistent with changes that the 802.3cu working group made in 802.3cu D2.2 to remove similar references in other tables. Also in Table 140-14 in section 140.10.2.2 (page 56), having the units along side the values within the table, rather than as a separate "units column", is inconsistent with practice throughout the rest of the document.

Similar comments against Table 151-9 (page 75) and Table 151-15 (page 89) in Clause 151.

This topic was discussed during the 802.3cu ad-hoc conference call on 14 August 2020, in conjuction with presentation https://www.ieee802.org/3/cu/public/cu_adhoc/cu_archive/cole_3cu_adhoc_081420_v2.pdf.

SuggestedRemedy

Implement the proposed changes to Table 140-8, Table 140-14, Table 151-9 and Table 151-15, and associated footnotes, as captured in https://www.ieee802.org/3/cu/public/cu_adhoc/cu_archive/cole_3cu_adhoc_081420_v2.pdf.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The presentation http://www.ieee802.org/3/cu/public/cu_adhoc/cu_archive/cole_3cu_adhoc_081420_v2.pdf was reviewed during the August 14th ad hoc call.

Implement the suggested remedy with editorial license.

Cl **00** *SC* **0** *P* **0** *L* # I-92

Nicholl, Gary — Cisco Systems, Inc.

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

Implement new FM template (Version 4.3)

SuggestedRemedy

Implement new FM template (Version 4.3), based the email from Pete Anslow to the 802.3_EDITORS reflector on 7/6/2020

Response *Response Status* **C**

ACCEPT.

Cl **151** *SC* **151.8.10** *P* **83** *L* **10** # I-93

Rodes, Roberto — II-VI

Comment Type **T** *Comment Status* **A** *ment method (updated 0922)*

There is no reason to spec Transmitter peak-to-peak over fiber. Peak-to-peak power over fiber will always be lower than back to back. It creates confusion for people using the specs.

SuggestedRemedy

Replace text:
Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 151.8.5) and the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied in each case.

With:
Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer
being applied in each case.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In 151.8.10:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 151.8.5) and the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied."

In 140.7.5c:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 140.7.5) and the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."

Cl **140** *SC* **140.7.5c** *P* **50** *L* **49** # I-94

Rodes, Roberto II-VI

Comment Type **T** *Comment Status* **A** *ment method (updated 0922)*

There is no reason to spec Transmitter peak-to-peak over fiber. Peak-to-peak power over fiber will always be lower than back to back. It creates confusion for people using the specs.

SuggestedRemedy

Replace text:
Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case.

With:
Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 140.7.5) and the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolve using the response to comment i-93.

[Editor's note: For reference, the response to comment i-93 is copied here:

In 151.8.10:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 151.8.5) and the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveform captured for the TECQ test (see 151.8.6), but without the reference equalizer being applied."

In 140.7.5c:
Change the 1st sentence of the 2nd paragraph from:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TDECQ test (see 140.7.5) and the waveform captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."
to:
"Transmitter peak-to-peak power is measured using the waveforms captured for the TECQ test (see 140.7.5a), but without the reference equalizer being applied in each case."

]

Cl **151** *SC* **151.7.1** *P* **71** *L* **15** # I-95

Rodes, Roberto II-VI

Comment Type **T** *Comment Status* **A** *Tx specifications*

FR4 and LR4-6 spec on 'Average launch power, each lane (max)' constrains effective Tx OMA range.
This is an unnecessary constrain since receivers overload is mainly affected by max OMA, not AOP.
Even FR1 and LR1 spec, with the same Rx technology and no Rx demux loss, have higher maximum AOP spec.
This flexibility in AOP will be especially important to achieve uncooled operation.
We recommend increasing spec 'Average launch power, each lane (max)' to 0.7 dB higher than spec 'Outer Optical Modulation Amplitude (OMAouter), each lane (max)'
With this change, the effective maximum OMA per lane is maintained for extinction ratios of 4dB and higher.

SuggestedRemedy

Change spec on 'Average launch power, each lane (max)' to 4.4dB for FR4 and 5.1dB for LR4-6

Same changes to Average receive power, each lane (max).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In Table 151-7:
- Change “Average launch power, each lane (max)” to 4.4dBm for 400GBASE-FR4 and to 5.1dBm for 400GBASE-LR4-6.
- Change “Total average launch power (max)” to 10.4dBm for 400GBASE-FR4 and to 11.1dBm for 400GBASE-LR4-6.

In Table 151-8:
- Change “Average receive power, each lane (max)” to 4.4dBm for 400GBASE-FR4 and to 5.1dBm for 400GBASE-LR4-6.
- Change “Damage threshold, each lane” to 5.4dBm for 400GBASE-FR4 and to 6.1dBm for 400GBASE-LR4-6.