Cl **FM** *SC* **FM** *P***1** *L***29** # I-145

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

This PHY does not operate over DWDM systems as Pete Anslow defined them. It is used to build such systems. It operates over DWDM a medium.

SuggestedRemedy

Change "operation over DWDM systems" to "DWDM operation", here, in the abstract, and in the Introduction, page 13. I believe this is easier than changing the title of the draft and the name of the Task Force.

Proposed Response *Response Status* **O**

Cl **FM** *SC* **FM** *P***5** *L***40** # I-147

Dawe, Piers J G NVIDIA

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

As pointed out before, "IEEE Xplore, "contact IEEE" and footnotes 3 and 4 are muddled up.

SuggestedRemedy

Get the IEEE staff to fix it

Proposed Response *Response Status* **O**

Cl **FM** *SC* **0** *P***00** *L* # I-146

Dawe, Piers J G NVIDIA

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

This project has served one purpose (teaching us how to write an extender-based spec) and fails another (not providing a proper definition of a 400ZR clone, persistent refusal to define terms). It is years late and has no commercial purpose now.

SuggestedRemedy

Cancel the project

Proposed Response *Response Status* **O**

Cl **FM** *SC* **0** *P***2** *L***4** # I-3

Maguire, Valerie Copperopolis

Comment Type **G** *Comment Status* **X**

It may be useful to include "concatenated forward error correction (FEC)" as a Keyword

SuggestedRemedy

Insert "concatenated forward error correction (CFEC)" after "400GBASE-ZR"

Proposed Response *Response Status* **O**

Cl **FM** *SC* **90.7.2** *P***64** *L* # I-47

D'Ambrosia, John Futurewei Technologies, U.S. Subsidiary of Huawei

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

ieee p802.3cw does not address Clause 90 time syncronization.

SuggestedRemedy

Modifications to Clause 90 will be necessary. A presentation will be provided addressing proposed changes to Clause 90.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P***21** *L***7** # I-148

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

IEC 61280-1-3:2010 is at least twice out of date. This spec refers to it but may need content that was added after 2010

SuggestedRemedy

Change the date to 2021 or remove the date from IEC 61280-1-3:2010

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P***21** *L***8** # I-46

D'Ambrosia, John — Futurewei Technologies, U.S. Subsidiary of Huawei

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

A normative reference to G.709.1 is listed but there are no other instances of G.709.1 in the document

SuggestedRemedy

Delete the reference to G.709.1.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P***21** *L***8** # I-80

Issenhuth, Tom — Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

All references to G.709.1 have been removed from the draft

SuggestedRemedy

Delete the normative reference to G.709.1

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P***21** *L***8** # I-1

Turner, Michelle — Editorial Coordination

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

Please reconcile if ITU-T G709.1 or ITU-T G709 is the correct reference and cite in text as appropriate.

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P***21** *L***12** # I-149

Dawe, Piers J G — NVIDIA

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

Note that OIF 400ZR-03 is in preparation.

SuggestedRemedy

Incorporate relevant bug fixes that OIF have identified, update the reference when 400ZR is issued. TR to keep this on the issue list.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.3** *P***21** *L***12** # I-105

Rolfe, Benjamin — Blind Creek Associates

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

OIF-400ZR-02.0, Implementation Agreement 400ZR6 does not appear to be properly cited in normative text. I found 11 instances, all in informative statements. Either there is some missing normative language (e.g. something like "xxx shall be computed as specified in .Implementation Agreement 400ZR6") or this is informative and thus should be moved to the bibliography.

SuggestedRemedy

Remove OIF-400ZR-02.0, Implementation Agreement 400ZR6 from normative references (1.3)

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4** *P***21** *L***20** # I-106

Rolfe, Benjamin — Blind Creek Associates

Comment Type **GR** *Comment Status* **X**

Definition includes the term being defined in its definition. This is not allowed in definitions of terms (see IEEE Standards Style Manual). This also includes a lot of technical information not appropriate in the definition of a term.

SuggestedRemedy

Delete definition.

Proposed Response *Response Status* **O**

Cl **1** *SC* **1.4** *P***21** *L***21** # I-91

Wienckowski, Natalie None - Self-funded

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

redundant modulation

SuggestedRemedy

Delete "modulation" after (DP-16QAM). The term is written out before the abbreviation in () so "modulation" is not needed again after the ().

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1** *P***23** *L***9** # I-93

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.6** *P***23** *L***29** # I-94

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.22** *P***25** *L***4** # I-95

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.150.1** *P***25** *L***39** # I-4

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"The supported channel indices of the PMA/PMD are advertised in the PMA/PMD index ability registers. A PMA/PMD may ignore writes to the PMA/PMD channel index bits that select a channel it has not advertised in the PMA/PMD channel ability registers"

Similarly in 45.2.1.154.2 for Rx.

Is it index ability registers or channel ability registers? and what are these channel index bits?

In the base standard we have:
45.2.1.150 "Tx optical channel control" (register)
45.2.1.150.1 "Tx optical channel index" (bits)
45.2.1.151 "Tx optical channel ability 1" (register)
45.2.1.151.1 "Tx index ability" (bits)
45.2.1.152 "Tx optical channel ability 2" (register)
45.2.1.152.1 "Tx index ability" (bits)
45.2.1.153 "Tx optical channel ability 3" (register)
45.2.1.153.1 "Tx index ability" (bits)
and similarly for Rx. This draft adds:
45.2.1.153a "Tx optical frequency ability 4"
45.2.1.157a "Rx optical frequency ability 4"

This is quite confusing, and the titles are not referred to correctly.

I suspect that the new register names in 45.2.1.153a and 45.2.1.157a should have "channel ability" instead of "frequency ability".

The text should include "channel ability" when it refers to the registers, and "index ability" when it refers to bits. (It would be nice to make these consistent with each other, but that's in the base standard)

SuggestedRemedy

In 45.2.1.150.1, change from
"The supported channel indices of the PMA/PMD are advertised in the PMA/PMD index ability registers. A PMA/PMD may ignore writes to the PMA/PMD channel index bits that select a channel it has not advertised in the PMA/PMD channel ability registers"
to
"The supported channel indices of the PMA/PMD are advertised in the Tx optical channel ability registers (see 45.2.1.151, 45.2.1.152, 45.2.1.153, and 45.2.1.153a). A PMA/PMD may ignore writes to the Tx optical channel index (see 45.2.1.150.1) that select a channel it has not advertised in the Tx optical channel ability registers".

In 45.2.1.153a, change the title from "Tx optical frequency ability 4" to "Tx optical channel ability 4". Change the text and table accordingly.

In 45.2.1.154.2, change from
"The supported channel indices of the PMA/PMD are advertised in the PMA/PMD index ability registers. A PMA/PMD may ignore writes to the PMA/PMD channel index bits that select a channel it has not advertised in the PMA/PMD channel ability registers"
to
"The supported channel indices of the PMA/PMD are advertised in the Rx optical channel ability registers (see 45.2.1.155, 45.2.1.156, 45.2.1.157, and 45.2.1.157a). A PMA/PMD may ignore writes to the Rx optical channel index (see 45.2.1.154.2) that select a channel it has not advertised in the Rx optical channel ability registers".

In 45.2.1.157a, change the title from "Rx optical frequency ability 4" to "Rx optical channel ability 4". Change the text and table accordingly.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.151.1** *P***25** *L***48** # I-5

Ran, Adee Cisco Systems, Inc.

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

"For 100GBASE-ZR see Table 154–5 and for 400GBASE-ZR see Table 156–5"

It will be more future proof it these are made separate sentences, such that another PHY type can be added. It can also be made more readable.

Similarly in 45.2.1.152.1, 45.2.1.153.1, 45.2.1.155.1, 45.2.1.156.1, and 45.2.1.157.1.

Also, in the new subclauses, 45.2.1.153a and 45.2.1.157a, the last sentence does not match the text above. It would be good to align with existing text, in case an additional PHY will be use these registers.

SuggestedRemedy

In 45.2.1.151.1, Change the text to
"For 100GBASE-ZR, see Table 154–5. For 400GBASE-ZR, see Table 156–5"
Change similarly in 45.2.1.152.1, 45.2.1.153.1, 45.2.1.155.1, 45.2.1.156.1, and 45.2.1.157.1.

Align the text in 45.2.1.153a and 45.2.1.157a with the text above with editorial license.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.154.2** *P***27** *L***48** # I-6

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"For 100GBASE-ZR the specific optical frequency corresponding to each channel index number is listed in Table 154–6 and for 400GBASE-ZR the specific optical frequency corresponding to each channel index number is listed in Table 156–5"

This is awkward, and doesn't match the similar text in 45.2.1.150.1, which is better.

Also, the first table number is incorrect.

SuggestedRemedy

Change the quoted sentence to
"The specific optical frequency corresponding to each channel index number is listed in Table 154-5 for 100GBASE-ZR and in
Table 156–5 for 400GBASE-ZR".

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3** *P***30** *L***15** # I-96

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.3.61.4** *P***32** *L***15** # I-107

Rolfe, Benjamin Blind Creek Associates

Comment Type **ER** *Comment Status* **X**

" may have the option" is redundant. "may" defines an action that is optional.

SuggestedRemedy

Delete "have the option"

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.2** *P***33** *L***40** # I-97

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.3** *P***34** *L***4** # I-98

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P***34** *L***29** # I-99

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P***35** *L***6** # I-7

Ran, Adee Cisco Systems, Inc.

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

"400GBASE-ZR optical" - the "optical" part is redundant, as 400GBASE-ZR is only optical. The word was used to split the original 400GBASE-R tables to optical and electrical PHY types.

SuggestedRemedy

Delete "optical".

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.1.4** *P***35** *L***9** # I-8

Ran, Adee Cisco Systems, Inc.

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

In a physical layer that includes a 400GMII Extender (which is included in the table), there must also be two 400GBASE-R PMAs and some flavor of 400GAUI-n between the Extender sublayers. Therefore, the corresponding clause and annexes should also be included in the table.

The astute reader can find these clauses and annexes in the new Table 118-b. I assume the latter table is intended to avoid adding all these columns here, but it is not obvious that readers have to go to that table.

SuggestedRemedy

Add a footnote reference to the column 118 box, with the text "See Table 118-b for additional clauses associated with the 400GMII Extender".

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.2.4** *P***35** *L***41** # I-150

Dawe, Piers J G NVIDIA

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

"The PMA provides a medium-independent means for the PCS to support the use of a range of physical media" - not this PMA, it is for DP-16QAM only.

SuggestedRemedy

Change:
The PMA provides a medium-independent means for the PCS to support the use of a range of physical media. For 200GBASE-R and 400GBASE-R, the PMAs...
to
For 200GBASE-R and 400GBASE-R, the PMA provides a medium-independent means for the PCS to support the use of a range of physical media. These PMAs...

Proposed Response *Response Status* **O**

Cl **116** *SC* **116.4** *P***36** *L***31** # I-100

Huber, Thomas Nokia

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

It is now known that 802.3df will be approved in 2024

SuggestedRemedy

Change IEEE Std 802.3df-202x to IEEE Std 802.3df-2024

Proposed Response *Response Status* **O**

Cl **117** *SC* **117.1** *P***37** *L***36** # I-9

Ran, Adee Cisco Systems, Inc.

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

The figure title includes the acronyms "RS" and "MII" but these do not appear in the figure. 200GMII and 400GMII are not the same as MII, which is defined specifically in Clause 22 (see 1.4.393).

The shaded boxes are "RECONCILIATION", "200GMII", and "400GMII".

SuggestedRemedy

Change the title to
"Relationship of the Reconciliation Sublayer and 200GMII/400GMII to the ISO/IEC Open Systems Interconnection (OSI) reference model and IEEE 802.3 Ethernet model".

Proposed Response *Response Status* **O**

Cl **118** *SC* **118.1** *P***38** *L***18** # I-152

Dawe, Piers J G NVIDIA

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

The sublayers and conditions for the 200GMII Extender and the 400GMII Extender are identical. Let the reader see that clearly.

SuggestedRemedy

Combine tables 118-a and 118-b into a single table with three columns and the same number of rows as each of these.

Proposed Response *Response Status* **O**

Cl **118** *SC* **118.1** *P***38** *L***18** # I-153

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

I don't see why the top rows of these tables are different to the equivalent in so many PMD clauses.

SuggestedRemedy

Show the RS, required, and the xMII optional with the usual footnote "... behaves functionally as though ...".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155** *P***41** *L***4** # I-154

Dawe, Piers J G NVIDIA

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

The PCS and PMA are horribly over-complicated. Way too complicated to be defined in by prescription alone. Some of the specification is by reference to other documents with different conventions and editorial standards. It badly needs the sort of digital "test vectors" that OIF has, 3bs has, 3df has.

SuggestedRemedy

Upload the test vectors to the IEEE page for these things, add references in this document. See 802.3df for examples.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155** *P***41** *L***9** # I-155

Dawe, Piers J G NVIDIA

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

This needs a sentence or two to tell the reader what is in the clause. For example, if the MDIO tables aren't near the beginning as they are in PMD clauses, a reader may assume that they are absent.

SuggestedRemedy

Add a sentence to point out what is in the clause: overview, PCS, PMA, state diagrams, MDIO function mapping...

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.1.1** *P***41** *L***14** # I-10

Ran, Adee Cisco Systems, Inc.

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

"The 400GBASE-ZR PHY (see 156.1)"
156.1 is an overview subclause, and "400GBASE-ZR PHY" is not mentioned in it, nor anywhere else in clause 156 (except for the PICS).
An more appropriate reference for the PHY that can be used here is Figure 156-1, which shows the PHY.

SuggestedRemedy

Change the reference to Figure 156-1.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.1.2** *P***41** *L***20** # I-108

Rolfe, Benjamin Blind Creek Associates

Comment Type **ER** *Comment Status* **X**

"may optionally" is redundant. "may" defines an optional action or behavior.

SuggestedRemedy

Remove "optionally"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2** *P***44** *L***45** # I-151

Dawe, Piers J G NVIDIA

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

Clearly this isn't the BASE-R PCS. So this is not a BASE-R PHY and it cannot be called 400GBASE-ZR.

SuggestedRemedy

Change "400GBASE-ZR" to "400GBASE-Z" throughout.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.1** *P***43** *L***49** # I-12

Ran, Adee Cisco Systems, Inc.

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

The 400GBASE-ZR PCS client is almost always a PHY 400GXS rather than the RS.

In 802.3df, the service interface of the 800GBASE-R PCS was expanded to include additional signals that are used when the PCS client is an Extender sublayer. These signals support the FEC degrade signaling and the Signal Detect function for optional squelching of the AUIs. See 171.3.2, 172.1.5.1, and 173.5.8 in 802.3df.

Without these signals, the PCS cannot cause the AUI to be squelched when there is no input signal. In discussions in 802.3df it was claimed that squelching is the preferred behavior (compared to the alternative, transmitting fault order sets), and it is the common behavior in optical modules other than ZR.

These signals should be added here too. Note that an option to disable the 400GAUI-4 C2M output is already specified in Annex 120G.

SuggestedRemedy

Rewrite this subclause to include the additional signals defined in 172.1.5.1.

Add these signals to the interfaces of the PHY XS in 118.1.2, as done in 171.3.2.

Add the PMA signal status indication via the AUIs to 120.5.8, as done in 173.5.8.

Implement with editorial license.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.2** *P***44** *L***48** # I-156

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

PMA_IS_UNITDATA.request

SuggestedRemedy

If these are the usual 400G style primitives, change to PMA:IS_UNITDATA.request
But if these primitives are not like the ones described in 80.3.1, add the usual text introducing primitives and change their names to PMA_UNITDATA.request and so on
Scrub the whole document.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.2** *P***45** *L***10** # I-14

Ran, Adee Cisco Systems, Inc.

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

"155.3.2.1" is not an active cross reference.
Also, "155.3.2.2.1" on line 13.

SuggestedRemedy

Make them active.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.2** *P***45** *L***12** # I-13

Ran, Adee Cisco Systems, Inc.

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

"128 x m bit" is a compound adjective.

SuggestedRemedy

Change to "128xm-bit" (x being a multiplication sign)

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.2** *P***45** *L***17** # I-15

Ran, Adee Cisco Systems, Inc.

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

"operates in normal mode or test-pattern mode" - missing "either".

SuggestedRemedy

change to "operates in either normal mode or test-pattern mode"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.2** *P***45** *L***27** # I-120

Maniloff, Eric Ciena Corporation

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

The sentence refers to an outer FEC, it should clarify that the SD FEC is an inner FEC

SuggestedRemedy

Change "and a SD-FEC" to "and an inner SD-FEC"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.3** *P***45** *L***50** # I-157

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

This title "Use of blocks" is copied from 802.3ae when 64B/66B was new and there were no 257-bit blocks, SC-FEC input blocks or multi-blocks. It is past its sell-by date.

SuggestedRemedy

As in 802.3df, change it to "Use of 66-bit blocks"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.3** *P***47** *L***2** # I-137

Rolfe, Benjamin — Blind Creek Associates

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

"A 20-bit pad of all zeros is added after the OH field. This ensures that the payload is aligned on 257-
bit boundaries." In the frontmatter it clearly states, multiple times, that IEEE standards can not (are not allowed to) ensure.

SuggestedRemedy

change to "A 20-bit pad of all zeros is added after the OH field so that the payload is aligned on 257-
bit boundaries."

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.3** *P***47** *L***17** # I-16

Ran, Adee — Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"This results in between approximately 10 214.7 and 10 217.1 GMP words"

The combination of spaces and decimal fractions is confusing and it takes some time to interpret.

Thousands separators should be used to improve readability, but here they don't.

Note that in this paragraph there are several other numbers with more than 4 digits that do not use space separators.

At an alternative to the proposed change, the fraction can be removed, making the sentence "This results in between 10 214 and 10 218 GMP words" which would be correct and readable.

SuggestedRemedy

Change to "This results in between approximately 10214.7 and 10217.1 GMP words"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.4.1** *P***48** *L***1** # I-48

Bruckman, Leon — Huawei

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

Avoid breaking "post-FEC" to the next line

SuggestedRemedy

Make "post-FEC" unbreakable

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.4.1** *P***48** *L***3** # I-17

Ran, Adee — Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"(SC-FEC being already 10 970-bit row aligned)"

The combination of space separator and compound adjective is confusing and it takes some time to interpret.

Thousands separators should be used to improve readability, but here they don't.

SuggestedRemedy

Change to "(SC-FEC being already 10970-bit row aligned)".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.5** *P***48** *L***14** # I-18

Ran, Adee — Cisco Systems, Inc.

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

"subclause 8.8 of OIF-400ZR-02.0"

OIF document subdivisions are usually referred to as section, rather than clauses/subclauses.

Also in 155.2.5.5.3 and perhaps other places.

SuggestedRemedy

Change to "section 8.8 of OIF-400ZR-02.0".
Change similarly in other places as necessary.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.5** *P***48** *L***14** # I-49

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

Update OIF reference.

SuggestedRemedy

Change: "to be consistent with the description in subclause 8.8 of OIF-400ZR-02.0." to: "to be consistent with the description in subclauses 8.6.3, 8.7, 8.8.2 and 8.9.2 of OIF-400ZR-02.0."

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.5.1** *P***48** *L***39** # I-101

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **X**

While the description of the MFAS here is correct, it might be helpful to explicitly state that only the two LSBs are actually used in this application to form a four-frame multiframe.

SuggestedRemedy

Add a sentence at the end of the clause: "While MFAS supports multiframe lengths up to 256, 400GBASE-ZR uses only the four-frame multiframe as provided by the two LSBs of the MFAS counter".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.5.2** *P***49** *L***5** # I-19

Ran, Adee Cisco Systems, Inc.

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

"STAT<6> = FEC_degraded_SER + rx_local_degraded"
The "+" seems to denote a logical-or operation, but it is not stated anywhere.

This has been clarified in 802.3df, e.g. 171.6.1

SuggestedRemedy

Add a paragraph after this definition of STAT<7> (line 7):

"Where + denotes logical OR".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.5.3** *P***49** *L***32** # I-50

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

Update OIF reference.

SuggestedRemedy

Change: "Refer to subclause 8.9 of OIF-400ZR-02.0" to: "Refer to subclause 8.8 of OIF-400ZR-02.0"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.6** *P***50** *L***28** # I-20

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"Each SC-FEC input block has 119 × 10 280 / 5 bits = 244 664 information bits"

Use of space separators inside a mathematical expression is confusing and it takes some time to interpret.

Thousands separators should be used to improve readability, but here they don't.

Also, "bits" is repeated twice, which is again confusing.

Also, having so many spaces in the expression isn't helpful.

SuggestedRemedy

Change to "Each SC-FEC input block has 119×10280/5 = 244664 information bits"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***50** *L***51** # I-21

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"shall be organized as 8 x (11 x 2560 + 1 x 2432) bits, i.e. 8 x 30 592 bits = 244 736 bits"

Use of space separators inside a mathematical expression is confusing and it takes some time to interpret.

Thousands separators should be used to improve readability, but here they don't.

Also, "i.e., " here is used to say that things are equal, but there is a more common way to write that in a mathematical expression.

Also, having so many spaces in the expression isn't helpful.

Similarly, in 155.2.5.7,

SuggestedRemedy

Change to
"shall be organized as 8x(11x2560 + 1x2432) = 8x30592 = 244736 bits"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***50** *L***54** # I-25

Ran, Adee Cisco Systems, Inc.

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

"Figure 155–7 illustrates a input block to the SC-FEC encoder formed by information bits from 119 / 5 rows of the 400GBASE-ZR PCS frame. plus (...)"

119/5 is not an integer, and it is unclear how a non-integer number of rows is shown.

This should be clarified; If my suggestion isn't correct, something else should be done.

SuggestedRemedy

Change to
"Figure 155–7 illustrates a input block to the SC-FEC encoder formed by 244664 information bits from the 400GBASE-ZR PCS frame, plus (...)"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***50** *L***54** # I-92

Wienckowski, Natalie None - Self-funded

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

Incorrect article

SuggestedRemedy

Change: a input

To: an input

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***51** *L***2** # I-26

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"The 34-bit of additional pad is not transmitted" doesn't make sense.

SuggestedRemedy

"The 34-bit additional pad is not transmitted"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***51** *L***2** # I-51

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

Text says: "The CRC32 and MBAS fields are transmitted at the end of each parity block." while correct it could be made clearer by specifically indicating that these fields are removed from the SC-FEC frames information bits columns and are transmitted at the end of each parity block

SuggestedRemedy

Change: "The CRC32 and MBAS fields are transmitted at the end of each parity block" to: "After parity generation, the CRC32 and MBAS fields are not included in the transmitted SC-FEC frames information bits columns; instead, they are transmitted at the end of each parity block."

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***51** *L***9** # I-52

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

Text says: "while parity bits are mapped into columns 10 280 to 10 969 (see Figure 155–8)", but Figure 155-8 shows that the MBAS and CRC32 fields are also mapped into columns 10 280 to 10 969.

SuggestedRemedy

Change: "while parity bits are mapped into columns 10 280 to 10 969" to: “while parity bits, CRC32 and MBAS are mapped into columns 10 280 to 10 969”

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***52** *L***3** # I-27

Ran, Adee Cisco Systems, Inc.

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

Figure 155–8 is inconsistent in usage of space separator in numbers. In the first row, the numbers 10279 and 10969 do not use space separators, but later numbers (244 664, 16 384) have them.

Thousands separators should be used to improve readability, but here they don't.

SuggestedRemedy

Remove space separators from all numbers in this figure.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.7** *P***58** *L***48** # I-2

Turner, Michelle Editorial Coordination

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

ITU-T G.709.2 is cited however it does not appear in the normative reference clause. Is this in the base or in other amendments already? Should it be added to the normative reference clause?

SuggestedRemedy

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.8** *P***53** *L***3** # I-28

Ran, Adee Cisco Systems, Inc.

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

"6 x 119 pad bits of zeros shall be added to the end of the block of 119 rows x 10 970 bits"

Having a space inside a mathematical expression is confusing and it takes some time to interpret.

Thousands separators should be used to improve readability, but here they don't.

This sentence can be made easier to understand.

SuggestedRemedy

Change to "6x119=714 pad bits of zeros shall be added after 119 rows of 10970 bits"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.11** *P***53** *L***30** # I-158

Dawe, Piers J G NVIDIA

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

This is supposed to be a spec, not handwaving. "generic" is not good enough. 400ZR writes this out, and it is less than a page long.

SuggestedRemedy

Delete "The generic operation of the Hamming encoder is specified in ITU-T G.709.3 Annex D." and write out the definition of this Hamming SD-FEC encoder here.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.11** *P***53** *L***30** # I-29

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"The generic operation of the Hamming encoder is specified in ITU-T G.709.3 Annex D"

The code specified in the reference is quite specific.

SuggestedRemedy

Delete "generic".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.5.12** *P***54** *L***11** # I-30

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

Several numbers used as indexes in Figure 155–9 contain spaces. This is confusing and takes some time to interpret.

Thousands separators should be used to improve readability, but here they don't.

SuggestedRemedy

Remove all spaces within numbers in this figure.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.1** *P***55** *L***5** # I-31

Ran, Adee Cisco Systems, Inc.

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

"The Hamming decoder shall extract 119-bit blocks from an incoming 128-bit SD-FEC codeword"
I assume one block per codeword?

SuggestedRemedy

Change to
"The Hamming decoder shall extract a 119-bit block from each incoming 128-bit SD-FEC codeword"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.2** *P***55** *L***19** # I-53

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

The interleaver is a convolutional interleaver, also provide cross reference to the interleaver section

SuggestedRemedy

Change: "shall perform the reverse function of the interleaver" to: "shall perform the reverse function of the convolutional interleaver (see 155.2.5.10)"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.5** *P***55** *L***37** # I-118

Rolfe, Benjamin Blind Creek Associates

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

"may optionally" is redudnat. "may" means optional.

SuggestedRemedy

Delete "optionally"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.6** *P***56** *L***4** # I-32

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"block of 30 592 x 8 bits"
Space separators in numbers within mathematical expressions are distracting.
This occurs here and in many other places in this draft.

SuggestedRemedy

Remove spaces in numbers within mathematical expressions in the multiple instances in 155.2.6.6 and 155.2.6.7, and in other places in the draft as necessary

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.7.2** *P***56** *L***36** # I-135

Rolfe, Benjamin Blind Creek Associates

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

How exactly is "shall be monitored" verified? Is there some action that would result from what is observed while monitoring? e.g. actions associated with detection of specific content observed in the monitored STAT field? Or making of the observed content available to the higher layer? As input to some MAC function?
As written this is not a valid statement of a requirement (incomplete).

SuggestedRemedy

Change "shall" to "is".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.7.2** *P***56** *L***40** # I-109

Rolfe, Benjamin Blind Creek Associates

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

"may optionally" is redudnat (and sloppy useof normative language). "may" defines a requirement that is optional.

SuggestedRemedy

Delete "optionally"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.7.2** *P***56** *L***48** # I-54

Bruckman, Leon Huawei

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

Wrong capitalization of the word "FALSE"

SuggestedRemedy

Change capitlized "FALSE" to small caps "false"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.2.6.8** *P***57** *L***8** # I-102

Huber, Thomas Nokia

Comment Type **T** *Comment Status* **X**

The descrption of the error mitigation techniques could be improved by separating it into two sentences and avoiding the use of the word 'combine' (which could suggest that the listed fields somehow need to be combined with each other, which is not what is intended).

SuggestedRemedy

Change "The JC1-JC2 field information is also protected by limits on how the JC1-JC2 fields might change in successive multi-frames (see Table 155–1) and the coding technique for indicating these changes, which combine with the CRC8 in JC3 and the CRC4 in JC6 to provide error correction capability for bit and burst errors impacting JC1-JC6."
to
"The JC1-JC2 field information is also protected by limits on how the JC1-JC2 fields might change in successive multi-frames (see Table 155–1). The coding technique for indicating these changes, along with the CRC8 in JC3 and the CRC4 in JC6, provide error correction capability for bit and burst errors impacting JC1-JC6."

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.1.3** *P***58** *L***16** # I-55

Bruckman, Leon Huawei

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

The punctuation of this sentece (ennumerated as "g" in the list) is odd

SuggestedRemedy

Change: "Synchronization to the FAW followed by: I-Q offset evaluation and compensation; and polarization offset evaluation and compensation" to: "Synchronization to the FAW, followed by I-Q offset evaluation and compensation, and polarization offset evaluation and compensation"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.1.3** *P***58** *L***17** # I-103

Huber, Thomas Nokia

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

The punctuation in item g) seems a bit odd. There is a colon after the first phrase, which seems to be setting up a list of processes that occur after synhronziation to the FAW, but then there are only two elements in the list that are then separated by a semicolon (which normally would only be used as a list separator if the individual items in the list used commas).

SuggestedRemedy

Change "Synchronization to the FAW followed by: I-Q offset evaluation and compensation; and polarization offset evaluation and compensation."
to
"Synchronization to the FAW, I-Q offset evaluation and compensation, and polarization offset evaluation and compensation."

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.2** *P***59** *L***50** # I-159

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

The notation for the PMA primitives needs cleaning up.
PMA_IS_UNITDATA.request for example looks like the normal 400G primitive PMA:IS_UNITDATA.request as defined in 116.3.1, but the subsections below show that these primitives are specific to this clause, but the names are a mixture of PMA_IS_UNITDATA.request and PMA_UNITDATA.request. They are not "IS" primitives as we know them from 40, 100, 200 and 400G Ethernet.
Similarly, PMD primitives are defined for Clause 156, in 156.2.1.

SuggestedRemedy

Delete all the "IS_" (where present) from the primitive names throughout the document, so that PMA_IS_UNITDATA.request becomes PMA_IS_UNITDATA.request, and so on for PMA, consistently.
Similarly for the PMD primitives.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.2.1.1** *P***60** *L***10** # I-160

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

Inconsistent primitive names: both PMA_IS_UNITDATA.request and PMA_UNITDATA.request

SuggestedRemedy

Make consistent. Change PMA_IS_UNITDATA.request to PMA_UNITDATA.request and so on. See another comment for reasoning.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.2.3.1** *P***61** *L***17** # I-161

Dawe, Piers J G NVIDIA

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

155.3.2.3.1 says that PMA_IS_SIGNAL.indication(SIGNAL_OK) depends solely on whether the 400GBASE-ZR PMA receive function is detecting a fault.
155.3.3.2.5 says that it depends on two other conditions but not that one: PMD_IS_SIGNAL.indication primitive is OK, and data is being successfully processed by all 400GBASE-ZR PMA receive signal processing functions.
So according to 155.3.3.2.5, if there is no input signal, the primitive is at FAIL, although the receive PMA probably isn't faulty.

SuggestedRemedy

Reconcile, e.g. by avoiding the word "fault" here.
If feasible, clarify whether "a local fault" in 156.5.7, 156.5.8 and 156.5.9 means a fault in the local PMD, or a bad or absent signal in a probably not faulty PMD.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.2.3.1** *P***61** *L***17** # I-34

Ran, Adee Cisco Systems, Inc.

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

"The SIGNAL_OK parameter takes one of two values of the form:
OK The 400GBASE-ZR PMA receive function is not detecting a fault as defined in 155.3.3.2.5
FAIL The 400GBASE-ZR PMA receive function is detecting a fault as defined in 155.3.3.2.5"

155.3.3.2.5 does not define or mentions a fault; it just defines (quite loosely) when SIGNAL_OK is set to OK or to FAIL.

Similar statements appear also in 156.2.1.3.1.

SuggestedRemedy

Change to
"The SIGNAL_OK parameter takes one of the two values OK and FAIL, as specified in 155.3.3.2.5"

Change 156.2.1.3.1 similarly.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.3.1.3** *P***63** *L***44** # I-33

Ran, Adee Cisco Systems, Inc.

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

"frame alignment word" is used here and in many other places in the draft, although the abbreviation FAW has been defined.
(out of 25 instances in the document, the initial 3 are required (table of contents, abbreviations, and initial definition), so there are 22 places where this abbreviation could be used.

Similarly, "training sequence" and "pilot sequence" appear both as abbreviations and as the expanded expressions.

This is confusing because it isn't always clear that two different things are one and the same.

SuggestedRemedy

For each of the abbreviations, either use it consistently (after the first introduction) or don't use it.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.3.1.3** *P***64** *L***25** # I-35

Ran, Adee Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

In Figure 115-12 some numbers include spaces and others don't. The numbers are used within ranges and the colons can be confused for spaces. This is not helpful.

As a counter example, Figure 155–14 does not use spaces even in large numbers. The result is better.

SuggestedRemedy

Remove all spaces within numbers in this figure and in other figures unless they obviously improve readability.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.3.1.5** *P***65** *L***52** # I-56

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

In the state diagram Figure 155-15 the whole synchronization process is based on the FAW only, and the pma_alignment_valid variable does not mention that TS is used for polarization identification. We shall not disallow the use of TS and for identification, but we shall also not require it.

SuggestedRemedy

Delete: "in order to aid in identification by receivers"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.3.2.2** *P***70** *L***26** # I-57

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

In the state diagram Figure 155-15 the whole synchronization process is based on the FAW only, and the pma_alignment_valid variable does not mention that TS is used for polarization identification. We shall not disallow the use of TS and for identification, but we shall also not require it. Also we should mention polarization deskew here.

SuggestedRemedy

Change: "Identification of the X and Y polarizations using the frame alignment word, training, and pilot sequences." to: "Identification of the X and Y polarizations and polarization deskew.".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.3.3.2.5** *P***71** *L***9** # I-36

Ran, Adee Cisco Systems, Inc.

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

The signal indication logic conditions are too vague. There are certain functions in addition to the signal processing (listed in 155.3.3.2.2) that should be mentioned.

SuggestedRemedy

After "data is being successfully processed by all 400GBASE-ZR PMA receive signal processing functions" add "listed in 155.3.3.2.2".

Add the following items to the list:
- Symbol streams are identified and ilgned and message symbols are being extracted as defined in 155.3.3.2.3.
- SD-FEC codewords are formed and transferred to the 400GBASE-ZR PCS as described in 155.3.3.2.4.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***71** *L***24** # I-58

Bruckman, Leon Huawei

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

It will be easier for the reader to find the specific variables if they will be in alphabetical order

SuggestedRemedy

Order the state diagram variables in alphabetical order

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***71** *L***42** # I-59

Bruckman, Leon Huawei

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

Wrong capitalization of the word "FALSE"

SuggestedRemedy

Change capitlized "FALSE" to small caps "false"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***72** *L***7** # I-60

Bruckman, Leon Huawei

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

Wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***72** *L***12** # I-61

Bruckman, Leon Huawei

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

Wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***72** *L***15** # I-23

Ran, Adee Cisco Systems, Inc.

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

"A Boolean variable that is set to true when the receiver has detected the location of the FAW field for a given polarization symbol stream on the 400GBASE-ZR PMD service interface, where x = 0:1"

Does x indicate the index of the symbol stream?

Also, this variable apparently has two bits, so it is not one Boolean.

SuggestedRemedy

Change to "Boolean variables that are set to true when the receiver has detected the location of the FAW field for polarization symbol stream x on the 400GBASE-ZR PMD service interface, where x = 0:1".

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***72** *L***25** # I-24

Ran, Adee — Cisco Systems, Inc.

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

"the candidate 22 16QAM symbol block" is a complicated phrase. Compound adjectives should use hyphens, but It can be made easier to read by rephrasing.

This phrase appears 3 times in this paragraph, and "22-symbol block" also appears in the definition of faw_slip_done.

SuggestedRemedy

Change the first instance to "the candidate block of 22 16QAM symbols", and the remaining 2 to "the candidate block".

Change in other places if necessary.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***73** *L***3** # I-62

Bruckman, Leon — Huawei

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

Wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.2** *P***73** *L***3** # I-22

Ran, Adee — Cisco Systems, Inc.

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

"when faws_lock<x> = TRUE"
It is not clear what x stands for here. The definition of faws_lock apparently has two values of x, 0 and 1, but Which one is it here?

For some other variables such as pma_alignment_valid, the definition states "when faws_lock<x> is true for both x". Is it the same here?

SuggestedRemedy

Rephrase to clarify.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.3** *P***74** *L***5** # I-136

Rolfe, Benjamin — Blind Creek Associates

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

" However, an implementation shall ensure that all possible FAW field positions are evaluated"
IEEE standards do not "ensure" (see IMPORTANT NOTICE in the boilerplate).
So "shall ensure" is wrong.

SuggestedRemedy

change to: "shall evaluate all possible FAW field positions.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.4** *P***74** *L***13** # I-37

Ran, Adee — Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

"Counts the interval of 10 240 257-bit blocks"
what is/are the numbers here?

SuggestedRemedy

Change to "Counts the interval of 10240 257-bit blocks"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***75** *L***4** # I-38

Ran, Adee — Cisco Systems, Inc.

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

In Figure 155–15, the label is badly split across lines:
pma_reset + !pma_signal_ok + pma_
restart_lock

Similarly on page 77, Figure 155–17

SuggestedRemedy

Insert line break:
pma_reset + !pma_signal_ok
+ pma_restart_lock

Similarly in Figure 155–17.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***75** *L***8** # I-64

Bruckman, Leon Huawei

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

In Figure 155-15, blocks "LOCK_INIT", "GET_BLOCK", "FIND_1ST" and "15_BAD" wrong capitalization of the word "FALSE"

SuggestedRemedy

Change capitlized "FALSE" to small caps "false" in blocks "LOCK_INIT", "GET_BLOCK", "FIND_1ST" and "15_BAD"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***75** *L***25** # I-63

Bruckman, Leon Huawei

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

In Figure 155-15, blocks "15_BAD" and "2_GOOD", wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true" in blocks "15_BAD" and "2_GOOD"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***76** *L***7** # I-66

Bruckman, Leon Huawei

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

In Figure 155-16, blocks "LOSS_OF_ALIGNMENT" and "ALIGN_ACQUIRED", wrong capitalization of the word "FALSE"

SuggestedRemedy

Change capitlized "FALSE" to small caps "false" in blocks "LOSS_OF_ALIGNMENT" and "ALIGN_ACQUIRED"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***76** *L***7** # I-65

Bruckman, Leon Huawei

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

In Figure 155-16, blocks "LOSS_OF_ALIGNMENT" and "ALIGN_ACQUIRED", wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true" in blocks "LOSS_OF_ALIGNMENT" and "ALIGN_ACQUIRED"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***77** *L***8** # I-68

Bruckman, Leon Huawei

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

In Figure 155-17, blocks "LOCK_INIT", "GET_BLOCK" and "FIND_1ST" wrong capitalization of the word "FALSE"

SuggestedRemedy

Change capitlized "FALSE" to small caps "false" in blocks "LOCK_INIT", "GET_BLOCK" and "FIND_1ST"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.5** *P***77** *L***25** # I-67

Bruckman, Leon Huawei

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

In Figure 155-17, blocks "5_BAD" and "2_GOOD", wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true" in blocks "5_BAD" and "2_GOOD"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.4.3 F** *P***73** *L***50** # I-138

Rolfe, Benjamin Blind Creek Associates

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

" However, an implementation shall ensure that all possible AM field positions are evaluated"
Not well stated using ensure (which is a no-no word). Can be stated more clearly and avoid "ensure"

SuggestedRemedy

An implementation shall evaluate all possible AM field positions.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.5.1** *P***78** *L***6** # I-69

Bruckman, Leon Huawei

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

Wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.5.2** *P***78** *L***15** # I-70

Bruckman, Leon Huawei

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

Wrong capitalization of the word "TRUE"

SuggestedRemedy

Change capitlized "TRUE" to small caps "true"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.5.2** *P***79** *L***11** # I-110

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of normative langauge: "An uncorrected FEC codeword is a codeword that contains errors that were not corrected, including FEC codewords that may have been mis-corrected or not completely corrected"
This is not stating an optional requirment. This is (possibly useful) information. It is also technically wrong: "may" is equivalent to "may or may not", and so this sentence asserts that FEC codewords that hve NOT been mis-corrected or that have been completely corrected are uncorrected FEC codewords. gramatically the sentece is wrong, too: miscorrected and incompletely corrected codewords are a particular subset of uncorrected codewords.

SuggestedRemedy

An uncorrected FEC codeword is a codeword that contains errors that were not corrected; this would include FEC codewords that were mis-corrected or not completely corrected.

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.5.3** *P***79** *L***21** # I-111

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of normative langauge: "may". "may" defines an optional requirement. This is an informative statement of a possibility. The right word is "can".

SuggestedRemedy

Change to " This may be used together" to "This can be used together"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.5.4** *P***79** *L***28** # I-112

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of normative langauge: "may". "may" defines an optional requirement. This is an informative statement of a possibility. The right word is "can".

SuggestedRemedy

Change to " This may be used together" to "This can be used together"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.6** *P***79** *L***35** # I-39

Ran, Adee
Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

BT appears only once in this clause and is unclear. The next sentence has "bit times".

SuggestedRemedy

Change to "bit times"

Proposed Response *Response Status* **O**

Cl **155** *SC* **155.7.2.1** *P***80** *L***27** # I-113

Rolfe, Benjamin
Blind Creek Associates

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

Incorrect use of normative langauge: "may". "may" defines an optional requirement. This is an informative statement of a possibility. The right word is "can". May defines an optional requirement WITHIN Scope of this standard. This is stating a possibility.

SuggestedRemedy

change "may" to "can".

Proposed Response *Response Status* **O**

Cl **155A** *SC* **155A.1** *P***119** *L***35** # I-11

Ran, Adee
Cisco Systems, Inc.

Comment Type **ER** *Comment Status* **X**

The shading in the figure is confusing. It seems to highlight the PMAs, but the figure is not about PMAs.

If the figure is about the 400GMII Extender, then the "400GBASE-ZE PMA" box should not be shaded, since it is not part of the Extender. The DTE 400GXS and PHY 400GXS should be shaded instead. Some text needs to be added to note what the shading is about.

Alternatively, the shading can be removed altogether - there is little benefit from having it.

SuggestedRemedy

Make the two 400GXS boxes shaded, and remove the shading from the 400GBASE-ZE PMA box.

Add to the text above the figure: "The components of the 400GMII Extender are shown shaded".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156** *P***84** *L***7** # I-127

D'Ambrosia, John
Futurewei Technologies, U.S. Subsidiary of Huawei

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

Given the complexity of this PMD, the lack of appropriate test vectors and relevant descriptive next is a glaring limiation to this draff

SuggestedRemedy

A subsequent contribution will provide proposed test vectors and descriptive ttext

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.1** *P***84** *L***8** # I-114

Rolfe, Benjamin
Blind Creek Associates

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

Incorrect use of normative langauge: "may". "may" defines an optional requirement. This is an informative statement of a possibility. 'may" is equivalent to "may or may not". Which would mean that DWDM that contained zero (or a negative numnber) optical amplifies is included (the "not" of one or more). Probably not what you mean.

SuggestedRemedy

change "may" to "can".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.1** *P***84** *L***13** # I-115

Rolfe, Benjamin
Blind Creek Associates

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

Yet again using "may" to mean "can" (stating a posibility not defining a requirment).

SuggestedRemedy

change "may" to "can".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.1** *P***93** *L***10** # I-116

Rolfe, Benjamin — Blind Creek Associates

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

Incorrect use of "may": "channel in a way that takes into account the effects of other DWDM channels that may be simultaneously present on the multi-channel part of the link." Should be "can" or "might"

SuggestedRemedy

change "may" to "might"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.2** *P***86** *L***3** # I-162

Dawe, Piers J G — NVIDIA

Comment Type **ER** *Comment Status* **X**

Figures 156-2 and 3 are orphans

SuggestedRemedy

Add the text to introduce them.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.2** *P***86** *L***10** # I-163

Dawe, Piers J G — NVIDIA

Comment Type **ER** *Comment Status* **X**

Putting ...SIGNAL.indication in the middle is pretty, but misleading. It is part of the receive direction.

SuggestedRemedy

Move the arrows marked PMA_IS_SIGNAL.indication and PMD_IS_SIGNAL.indication to the right, near PMA_IS_UNITDATA.indication and PMD_IS_UNITDATA.indication.
Similarly in the next figure, move PHY_XS:IS_SIGNAL.request left and ...SIGNAL.indication right.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.2.1** *P***88** *L***1** # I-164

Dawe, Piers J G — NVIDIA

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

This subclause "400GBASE-ZR PMD service interface" is the only subclause of 156.2 "Physical Medium Dependent (PMD) service interface" which means the same thing.

SuggestedRemedy

Remove this subclause heading. 156.2.1.1 PMD_IS_UNITDATA.request and so on will become 156.2.1 PMD_IS_UNITDATA.request
Also in 156.2.1.2.2

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.2.1.1.2** *P***88** *L***26** # I-165

Dawe, Piers J G — NVIDIA

Comment Type **ER** *Comment Status* **X**

The 400GBASE-ZR PMA generates PMA_UNITDATA.request continuously.
...
The effect of receipt of the PMA_UNITDATA.request ...

SuggestedRemedy

The 400GBASE-ZR PMD generates PMD_UNITDATA.request continuously.
...
The effect of receipt of the PMD_UNITDATA.request ...

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.2.1.3.1** *P***89** *L***13** # I-166

Dawe, Piers J G — NVIDIA

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

This says that PMD_IS_SIGNAL.indication(SIGNAL_OK) is OK when the 400GBASE-ZR PMD receive function is not detecting a fault, and FAIL when the 400GBASE-ZR PMD receive function is detecting a fault and is unable to
present reliable symbols to the PMA. It is not clear whether this means a fault in the PMD, a bad input signal, or both.
But 156.5.4 says that it depends on nothing but the average optical power at TP3.

SuggestedRemedy

Reconcile

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.4** *P***90** *L***29** # I-167

Dawe, Piers J G NVIDIA

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

Tx optical channel ability 4, Rx optical channel ability 4

SuggestedRemedy

Tx optical channel ability 4 register, Rx optical channel ability 4 register

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.5.9** *P***94** *L***10** # I-121

Maniloff, Eric Ciena Corporation

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

Fig 156-5 shows port i frequency f_i on the Tx, but not Rx

SuggestedRemedy

Update Optical Rx on TP3_i to "Optical Rx f_i"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.6** *P***94** *L***24** # I-119

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of normative language "may": "The 400GBASE-ZR PMD is specified on the basis that it may be connected to a DWDM black link that
contains a portion where multiple DWDM optical channels are present, each connected to a separate 400GBASE-ZR transmitter."
is a statement of fact, not defining a requirement ("may" defines optional reuirements) as there is no specific, observable, verifiable requirrement defined in this paragraph.

SuggestedRemedy

Change "may" to "can".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.6** *P***94** *L***25** # I-40

D'Ambrosia, John Futurewei Technologies, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

IEEE P802.3cw states the following -
"These multiple DWDM channels have optical channel center frequencies that are part of a DWDM frequency grid defined in Recommendation ITU-T G.694.1."
However, ITU-T G.694.1 does not specify a fixed grid for channel spacings of 75 GHz. The 75 GHz fixed grid in P802.3cw was developed based on the 25 GHz grid.
This may cause readers some confusion.

SuggestedRemedy

Change the following sentence -
"These multiple DWDM channels have optical channel center frequencies that are part of a DWDM frequency grid defined in Recommendation ITU-T G.694.1."
to
These multiple DWDM channels have optical channel center frequencies that are part of a 25 GHz DWDM frequency grid defined in Recommendation ITU-T G.694.1.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.6** *P***94** *L***26** # I-168

Dawe, Piers J G NVIDIA

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

This says "Recommendation ITU-T G.694.1", 1.3 references says "ITU-T Recommendation G.694.1" and many other places have just "ITU-T G.xxx"

SuggestedRemedy

Delete "Recommendation, several times

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.6** *P***94** *L***33** # I-169

Dawe, Piers J G NVIDIA

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

This says that the near end transmitter, the DWDM channel, and the far end receiver are all selected to have the same channel center frequency. But elsewhere there is an option to advertise the ability to set Tx and Rx frequencies separately.

SuggestedRemedy

Reconcile

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.6** *P***95** *L***22** # I-71

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

MDIO is optional. See also similar text in Clause 154.6

SuggestedRemedy

Change: "to the relevant MDIO variables" to: "to the relevant optional MDIO variables"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7** *P***97** *L* # I-139

Stassar, Peter Huawei Technologies Co., Ltd

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

The transmitter characteristics in Table 156-7 contain so much detailed specs it would convey the impression that there is so much sophistication that it guarantees multivendor interop in the field when meeting the requirements and not meeting it will lead to not working in the field. Knowing about the work on this in the TF since 2019 or earlier, I am of the view that we have seen insufficient amount of verification test results from multiple vendors (more than one) confirming that this is an appropriate Tx spec. There should be plenty vendors supplying OIF 400ZR compliant modules, so it should be possible to make a lot of data available, as promised after my presentation during the January 2022 interim meeting https://www.ieee802.org/3/cw/public/22_01/stassar_3cw_01a_220117.pdf. During this meeting 8 individuals indicated they would submit data, but so far we have seen only one or two. We should not just pretend there is optical interop, when there isn't.

SuggestedRemedy

Add a comment/note that even meeting the specifications in Table 156-7 does not warrant optical interop (or using other wording). Alternatively we could ask the OIF for the necessary information they may have to further improve the confidence level of the quality of the transmitter specification. A further option could be to make the whole transmitter specification "informative" and not normative or those parts related to the transmitter quality metrics.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7** *P***97** *L***15** # I-140

Stassar, Peter Huawei Technologies Co., Ltd

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

Average channel output power (max) is specified to be -6 dBm, whereas Adjustable range of transmit output power is -9 to -13 dBm, which in combination with accuracy shouldn't go above -8 dBm

SuggestedRemedy

Change Average channel output power (max) from -6 to -8 dBm

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7** *P***97** *L***38** # I-141

Stassar, Peter Huawei Technologies Co., Ltd

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

The I-Q amplitude imbalance is specified as a mean, which is inconsistent with its definition in 156.9.12 where it is stated to be within certain limits. A mean value is "meaningless" and should be informative or limits should be specified instead of a mean

SuggestedRemedy

Either make the mean value informative or redefine to provide limits

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7** *P***97** *L***50** # I-142

Stassar, Peter Huawei Technologies Co., Ltd

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

The specification of a minimum Transmit output power stability is confusing. It would have been better to specify Transmit output power stability in terms of +/-, but that was changed earlier in the process. Another parameter name would reduce potential confusion

SuggestedRemedy

Rename parameter Transmit output power stability max and min to a single parameter Transmit output power variation and additionally clarify that it can be minus or plus in 156.9.18

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7** *P***97** *L***53** # I-143

Stassar, Peter — Huawei Technologies Co., Ltd

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

The specification of a minimum Transmit output power absolute accuracy (min) is confusing. It would have been better to specify Transmit output power absolute accuracy (min) in terms of +/-, but that was changed earlier in the process. Another parameter name would reduce potential confusion

SuggestedRemedy

Rename parameter Transmit output power absolute accuracy max and min to a single parameter Transmit output power variation and additionally clarify that it can be minus or plus in 156.9.19

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P***97** *L***23** # I-170

Dawe, Piers J G — NVIDIA

Comment Type **T** *Comment Status* **X**

"Transmit spectrum (max):
For frequencies >-3 dB point See 156.9.4
Transmit spectrum (min):
For frequencies >-9 dB point See 156.9.4"
There are limits both before and after the -3 and -9 dB points, and it is not clear whether they are points of the signal's spectrum or of the mask.

SuggestedRemedy

Transmit spectrum (range) See 156.9.4

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P***97** *L***27** # I-171

Dawe, Piers J G — NVIDIA

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

"Laser frequency noise *mask*" - we limit the parameter by the mask (as in transmit spectrum above) - the description entry here should not say "mask".

SuggestedRemedy

Here, change "Laser frequency noise mask" to "Laser frequency noise (max)".
In Table 156-12 and the title of 156.9.5, change "Laser frequency noise mask" to "Laser frequency noise".
In 156.9.5, add a new first sentence: The laser frequency noise shall be below the laser frequency noise mask defined in this subclause.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P***97** *L***38** # I-172

Dawe, Piers J G — NVIDIA

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

"I-Q amplitude imbalance (mean) 1 dB" tells us that the mean of the I-Q amplitude imbalance must be exactly 1 dB, which is not desirable and as there is no tolerance given, not possible.

SuggestedRemedy

In in 156.9.12, change both "I-Q amplitude imbalance (mean)" to "Mean I-Q amplitude imbalance", which is the name in 400ZR.
Here, change "I-Q amplitude imbalance (mean)" to "Mean I-Q amplitude imbalance (max)" because this is an upper limit, not a required target.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P***97** *L***54** # I-122

Maniloff, Eric — Ciena Corporation

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

The Tx clock phase noise is not currently defined. Tx clock noise is an important parameter, and is needed for Rx implementations.

SuggestedRemedy

Add specifications for Tx Clock Phase Noise, the specifications in 13.3.123a, b, & c from the OIF 400ZR IA 2.0 provide specifications covering 3 frequency ranges. These values are used in the industry and should be included in 802.3cw

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P***98** *L***7** # I-173

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

It seems strange that there is a spec for minimum average channel power at maximum adjustable power setting, but not for maximum average channel power at minimum adjustable power setting.

SuggestedRemedy

Add the second spec as appropriate

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.7.1** *P***98** *L***13** # I-174

Dawe, Piers J G NVIDIA

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

Table footnote b "Power stability is measured in time intervals of greater than 100 ms" should be in the definition subclause 156.9.18, not here, and "intervals" (the gaps between measurements) is not the right word.

SuggestedRemedy

Move the sentence to 156.9.18, change "time intervals" to "measurement window for averaging".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***100** *L***18** # I-175

Dawe, Piers J G NVIDIA

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

2.0

SuggestedRemedy

2

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***100** *L***24** # I-176

Dawe, Piers J G NVIDIA

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

Footnote a, for black link ripple, says "Only used to define the loss or gain variations within the DWDM channel passband."
1. Not clear what non-use is being excluded
2. Not clear what other definitions might be being excluded.
3. The table gives three values for channel passband, but only one could apply.
4. 156.9.25 says something different.

SuggestedRemedy

Delete footnote a

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***100** *L***35** # I-72

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

Floor is a parameter in the equation, but in contrast to all other parameters it is not itelized. Also the name is confusing since there is a "floor" function in the standard

SuggestedRemedy

Considering changing the name from "Floor" to something else (maybe "Fl") and italize it

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***100** *L***35** # I-177

Dawe, Piers J G NVIDIA

Comment Type **ER** *Comment Status* **X**

Still one square bracket too many: see D2.5 comment 1 and 18, D2.6 comment 6, and maniloff_3cw_01_230925

SuggestedRemedy

Change double square brackets to single

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***100** *L***35** # I-81

Issenhuth, Tom — Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

There are unneeded brackets in Equation 156-1

SuggestedRemedy

Delete the first "[" bracket and the last "]" bracket in the equation

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***101** *L* # I-144

Stassar, Peter — Huawei Technologies Co., Ltd

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

Table 156-10 provides values for Adjacent channel spectral isolation without indicating whether those are limits (min or max). The text on page 100 is clear that it is an upper limit but it needs to be added to the table as well.

SuggestedRemedy

Add indication of upper limit in Table 156-10

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***101** *L***4** # I-82

Issenhuth, Tom — Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

The formatting of Table 156-10 can be improved

SuggestedRemedy

In the first column of Table 156-10 change the header to "Frequency offset (GHz)" and delete "GHz" from the values. In the second column change the header to "Isolation (dB)". Delete the third column.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***101** *L***6** # I-178

Dawe, Piers J G — NVIDIA

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

Inconsistent and unusual way of presenting units

SuggestedRemedy

Change header row to:
Frequency offset (GHz) Isolation (dB)
Delete "GHz" from body, delete third column

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***101** *L***34** # I-179

Dawe, Piers J G — NVIDIA

Comment Type **ER** *Comment Status* **X**

Figure is a bitmap - compare Fig 156-7

SuggestedRemedy

Re-insert the figure the proper way, document the method in https://ieee802.org/3/WG_tools/editorial/

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***101** *L***53** # I-83

Issenhuth, Tom — Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

Figure 156-6 does not appear to follow the IEEE SA Standards Style Manual, 17.1 Requirements for creating figures.

SuggestedRemedy

Ensure Figure 156-6 follows the guidelines by using programs that create vector outputs

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.8** *P***102** *L***40** # I-180

Dawe, Piers J G NVIDIA

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

There's a standard way to indicate which side of a line one should be, set up years ago.

SuggestedRemedy

In Figure 156-6, add "Meets equation constraints". In Figure 156-7, change "Compliant region" to "Meets equation constraints"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9** *P***105** *L***53** # I-85

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

The parameter definition states "shall be within the limits given in Table 156–7" but the referenced value in the table is stated as a (max) and therefore is single limit and not a range of limits. There are additional similar instances of this in 156.9.

SuggestedRemedy

Change "shall be within the limits given in Table 156–7" to "shall be within the limit given in Table 156–7". Review all the parameter defintions in 156.9 and correct any other instances of using "limits' to refer to a single value.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.1** *P***102** *L***11** # I-117

Rolfe, Benjamin Blind Creek Associates

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

"Any of the test patterns given for a particular test in Table 156–12 may be used to perform that test. " Not at all clear what this is intended to convey, but it is an incorrect use of normative "may" as it is clearly not defining a requirement. It appears to me that this is attempting to state that the table provides test patters that can be used to verify an implementation is conformant to a requirement defined in this standard in some manner, though "that test" makes it rather hard to know what exactly is meant (any pattern is usable for any test?). The only thing which is clear is that the correct word is not "may": As written the sentence gives no information usable to the user of the standard.

SuggestedRemedy

Delete the sentence.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.1** *P***102** *L***27** # I-181

Dawe, Piers J G NVIDIA

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

There is no side-mode suppression ratio (SMSR) spec in this draft (or in 400ZR). The transmit spectrum covers it.

SuggestedRemedy

Delete this row and the other mentions of side-mode suppression ratio or SMSR. If appropriate, add a NOTE to 156.9.4 Transmit spectrum explaining that this item will catch bad SMSR so there is no need for a separate spec.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.1** *P***103** *L***24** # I-182

Dawe, Piers J G NVIDIA

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

The information that this fragment in table footnote a for ripple "Relative to TP2 transmit channel spectral power." hints at without enough clarity should be in 156.9.25, not here under an index table.

SuggestedRemedy

Delete this footnote. Using complete sentences, ensure the information is given in 156.9.25.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.4** *P***103** *L***40** # I-183

Dawe, Piers J G NVIDIA

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

This says "The normalized transmit spectrum shall be within the limits of this subclause if measured per IEC 61280-1-3. As far as I know, IEC 61280-1-3 does not use the word "normalized".

SuggestedRemedy

Rewrite the definition to align with the terminology in IEC 61280-1-3 or define what is meant by "normalized".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.4** *P***103** *L***47** # I-184

Dawe, Piers J G NVIDIA

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

It is too confusing to call an upper limit a "floor". The word is not needed here.

SuggestedRemedy

Change "the spectral floor has a value of –20 dB at frequencies greater than 40.4 GHz." to "at offset frequencies greater than 40.4 GHz, the upper limit is -20 dB .

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.4** *P***104** *L***21** # I-185

Dawe, Piers J G NVIDIA

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

Upper Mask, Lower Mask, Compliant Region

SuggestedRemedy

Upper mask, Lower mask, Meets equation constraints

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.4** *P***104** *L***22** # I-84

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

Per the IEEE SA Standards Style Manual only the initial letter of the first word and proper nouns should be capitalized

SuggestedRemedy

In Figure 156-7 change "Upper Mask" to "Upper mask" and change "Lower Mask" to Lower mask"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***104** *L***48** # I-206

Dawe, Piers J G NVIDIA

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

The mask must have a specific start frequency, not "less than 100 Hz"

SuggestedRemedy

Delete "less than"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***104** *L***48** # I-205

Dawe, Piers J G NVIDIA

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

"by interpolation" is ambiguous

SuggestedRemedy

Say whether this is lin-lin, lin-log, log-log or what kind of interpolation.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***104** *L***48** # I-186

Dawe, Piers J G NVIDIA

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

"frequency noise" is still undefined - this has been a known issue for a long time. According to its units, it cannot be a power spectral density.

SuggestedRemedy

Either replace it with the IEEE-defined term "phase noise" and adjust the numbers and units accordingly, or provide a proper definition of "frequency noise".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***105** *L***1** # I-207

Dawe, Piers J G NVIDIA

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

This paragraph is not actionable. It does not point out that, unexpectedly, "laser linewidth" is not like "spectral width". The definition of maximum laser linewidth in ITU-T G.698.2 is too terse and arcane, and calls the something a "white noise component " that isn't whte noise.

SuggestedRemedy

Make this paragraph an informative NOTE. Add:
Laser linewidth as used in G.698.2 is not spectral width.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***105** *L***12** # I-208

Dawe, Piers J G NVIDIA

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

"One-sided" is a familiar term but ambiguous.

SuggestedRemedy

Spell out what is meant

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***105** *L***12** # I-209

Dawe, Piers J G NVIDIA

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

The units of "frequency noise", Hz^2/Hz, which are assumed to be correct, show clearly that this cannot be power.

SuggestedRemedy

Change "frequency noise power spectral density" to "frequency noise". Also in Figure 156-8.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***105** *L***24** # I-210

Dawe, Piers J G NVIDIA

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

Range of frequencies in table does not agree with text. Figure 156-8 differs again.

SuggestedRemedy

Add another row to the table, 2.9921875 x 10^10 1.6 x 10^5
Add this point to the figure and finish the horizontal limit line at it

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***105** *L***32** # I-211

Dawe, Piers J G NVIDIA

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

X: Y: add clutter, and the axes are f and noise power not X and Y

SuggestedRemedy

Delete X: and Y: .
As the graph is clear enough wiithout giving the coordinates in it, and they are given in the table immediately above, delete them and the dots.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.5** *P***105** *L***32** # I-212

Dawe, Piers J G NVIDIA

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

Wrong kind of brackets

SuggestedRemedy

Change the square brackets to the usual round brackets

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.6** *P***105** *L***54** # I-187

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of an unsigned quantity

SuggestedRemedy

As in 156.9.24 25 26 27 and 28, change to (preferably) below the limit, or within the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.7** *P***106** *L***4** # I-188

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of an unsigned quantity

SuggestedRemedy

below the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.8** *P***106** *L***9** # I-189

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of an unsigned quantity

SuggestedRemedy

below the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.9** *P***106** *L***19** # I-190

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of a positive quantity

SuggestedRemedy

below the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.10** *P***106** *L***26** # I-191

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of an unsigned quantity

SuggestedRemedy

below the limit
Same in 156.9.11.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.10** *P***106** *L***28** # I-192

Dawe, Piers J G NVIDIA

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

Imean and Qmean are not defined. Same issue in 156.9.11. But see 156.10.2.5 I-Q offset compensation, so these could be obtained from the EVM method, as 400ZR says.

SuggestedRemedy

Define Imean and Qmean and Psignal, e.g. in the EVM section, and cross-reference from here.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.10** *P***106** *L***28** # I-123

Maniloff, Eric Ciena Corporation

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

log10 is written without the 10 in a subscript.

SuggestedRemedy

Update term to indicate the 10 in a subscript

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.10** *P***106** *L***28** # I-194

Dawe, Piers J G NVIDIA

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

Measurement interval would be the distance in time between measurements. 400ZR says "averaging period"

SuggestedRemedy

Change "measurement interval" to "measurement window for averaging".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.10** *P***106** *L***28** # I-86

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

Base of log should be a subscript. Same in 156.9.11.

SuggestedRemedy

In 156.9.10 and 156.9.11 change the base of the log in the calculations to subscript

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.10** *P***106** *L***28** # I-193

Dawe, Piers J G NVIDIA

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

Base of log should be a subscript. Same in 156.9.11.

SuggestedRemedy

Make the 10 a subscript in both subclauses

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.11** *P***106** *L***34** # I-124

Maniloff, Eric Ciena Corporation

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

log10 is written without the 10 in a subscript.

SuggestedRemedy

Update term to indicate the 10 in a subscript

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.12** *P***106** *L***39** # I-195

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of a positive quantity

SuggestedRemedy

below the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P***106** *L***41** # I-197

Dawe, Piers J G NVIDIA

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

Inconsistent use of "magnitude". Here, it indicates that -6 degrees exceeds the limit of (unsigned) 5 degrees. But a similar point applies to several other specs.

SuggestedRemedy

Use "magnitude" in quantity names consistently. Alternatives are +/- in the spec limit, or abs() in a definition.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P***106** *L***41** # I-196

Dawe, Piers J G NVIDIA

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

You can't put "(max)" in the name of a quantity which has a specified maximum. The transmitter table would have to say "... (max) (max)"!

SuggestedRemedy

Change "I-Q phase error magnitude (max)" to "Maximum I-Q phase error magnitude" and define maximum; what population, what probability.
Or as it is the only I-Q phase error spec inm this draft, change its name to " I-Q phase error magnitude".

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P***106** *L***43** # I-198

Dawe, Piers J G NVIDIA

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

"The I-Q phase error magnitude (max) is the *largest* phase difference of the in-phase component I and quadrature component Q of the signal" [not -90 degrees!]

SuggestedRemedy

Define "largest phase difference". Say what population the maximum is taken from, what probability is is taken for the maximum. Take the expected 90 degree difference between I and Q into account.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P***106** *L***43** # I-199

Dawe, Piers J G NVIDIA

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

"phase difference ... measured relative to *local oscillator*" - seems wrong. We are interested in the difference between I and Q; the phase of the local oscillator, which is not defined anyway, should cancel out.

SuggestedRemedy

Delete "measured relative to local oscillator"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.13** *P***106** *L***44** # I-200

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of an unsigned quantity

SuggestedRemedy

below the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.14** *P***106** *L***49** # I-202

Dawe, Piers J G NVIDIA

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

This says that the I-Q quadrature skew is the maximum *relative* skew": tautology.

SuggestedRemedy

Delete "relative", or change "relative skew" to "timing offset"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.14** *P***106** *L***49** # I-201

Dawe, Piers J G NVIDIA

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

This says that the I-Q quadrature skew is the *maximum* relative skew

SuggestedRemedy

Define "maximum skew"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.14** *P***106** *L***50** # I-203

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"within the limits" but there is only a maximum of an unsigned quantity

SuggestedRemedy

below the limit

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.15** *P***107** *L***5** # I-213

Dawe, Piers J G NVIDIA

Comment Type **T** *Comment Status* **X**

"the maximum spectral excursion as defined in OIF-400ZR-02.0, Implementation Agreement 400ZR section 13.4.2" is too clumsy. Investigation shows it is 32 GHz.

SuggestedRemedy

Change to 32 GHz, several times

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.15** *P***107** *L***5** # I-87

Issenhuth, Tom — Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

The document uses "center frequency" and not "central frequency" with 2 exceptions.

SuggestedRemedy

Change "central frequency" to "center frequency" to be consistent with the rest of the document.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.16** *P***107** *L***19** # I-88

Issenhuth, Tom — Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

The document uses "center frequency" and not "central frequency" with 2 exceptions.

SuggestedRemedy

Change "central frequency" to "center frequency" to be consistent with the rest of the document.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.17** *P***107** *L***28** # I-41

D'Ambrosia, John — Futurewei Technologies, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

It is noted that this "definition of OSNR is consistent with the definition of OSNR in ITU-T G.698.2"
No reference to the term "Transmitter out-of-band OSNR" is found in ITU-T G.698.2

SuggestedRemedy

Either use the intended term in the ITU-T G.698.2 or if the reference is incorrect - point to the correct document.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.17** *P***107** *L***29** # I-42

D'Ambrosia, John — Futurewei Technologies, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

It is noted -"except that in this clause the noise power density is referred to 12.5 GHz, instead of 0.1 nm in ITU-T G.698.2." The parameter "transmitter out-of-band OSNR" is not found in ITU-T G.698.2, but there are multiple parameters that note "0.1 nm" so it is unclear which parameter is being referred to.

SuggestedRemedy

Either use the intended term in the ITU-T G.698.2 or if the reference is incorrect - point to the correct document.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.18** *P***107** *L***34** # I-73

Bruckman, Leon — Huawei

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

The sentence: "The transmit output power stability shall be within the limits given in Table 156–7. Transmit output power worst case deviation from a target set value operating at a fixed wavelength and temperature." is dificult to parse, and seems different from similar text in the next section

SuggestedRemedy

Change: "The transmit output power stability shall be within the limits given in Table 156–7. Transmit output power worst case deviation from a target set value operating at a fixed wavelength and temperature." to: "Transmit output power stability is the transmit output power worst case deviation from a target set value operating at a fixed wavelength and temperature and it shall be within the limits given in Table 156–7."

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.20** *P***107** *L***48** # I-74

Bruckman, Leon — Huawei

Comment Type **T** *Comment Status* **X**

"Adjustable range" is a range, not a field

SuggestedRemedy

Change: "This field specifies the minimum range" to: "Specifies the minimum range"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.21** *P***108** *L***3** # I-75

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

"Minimum average channel power at maximum adjustable power setting" is not a field, it is a required parameter

SuggestedRemedy

Change: "This field specifies the minimum average channel power" to: "Specifies the minimum average channel power"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.23** *P***108** *L***14** # I-76

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

"while achieving the specified maximum FLR in 156.1.1" this seems to imply that if the FLR is lower than the one defined in 156.1.1 the receiver is not compliant. Is that the case ?

SuggestedRemedy

Change: "while achieving the specified maximum FLR in 156.1.1" to: "while maintaining the FLR within the limit specified in 156.1.1."

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.24** *P***108** *L***24** # I-77

Bruckman, Leon Huawei

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

"frame loss ratio" is usually named "FLR"

SuggestedRemedy

Change: "frame loss ratio" to: "FLR"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.24** *P***108** *L***26** # I-125

Maniloff, Eric Ciena Corporation

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

Comma needed between loss and or

SuggestedRemedy

Include comma in list

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.26** *P***108** *L***38** # I-43

D'Ambrosia, John Futurewei Technologies, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

In the ITU-T G.698.2 document optical path OSRN penalty is defined for NRZ and DP-DQPSK signaling. The text in the document does not make any indication that these notes are for QAM signaling.

SuggestedRemedy

Modify the following sentences -
— Lowest OSNR at TP2 is the lowest OSNR that meets the maximum BER of the application from a
reference receiver as defined in 156.10.1.
— Lowest OSNR at TP3 is the lowest OSNR that meets the maximum BER of the application from a
reference receiver as defined 156.10.1.
to
— Lowest OSNR at TP2 is the lowest OSNR that meets the maximum BER of the application from a
reference receiver as defined in 156.10.1 for DP-16QAM signaling befire transmission through the DWDM black link.
— Lowest OSNR at TP3 is the lowest OSNR that meets the maximum BER of the application from a
reference receiver as defined 156.10.1 for DP-16QAM signaling befire transmission through the DWDM black link.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.26** *P***108** *L***41** # I-104

Huber, Thomas — Nokia

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

Normally the reference receiver used for measuiring optical path OSNR penalty includes CD and PMD compensation. This is what Annex A of the referenced G.698.2 indicates for 100G DP-DQPSK (which is what 100GBASE-ZR aligns to). The text in this clause is correctly modifying G.698.2 to identify the reference receiver for 400GBASE-ZR (as defined in 802.3cw), but the reference receiver in 156.10.1 is specified primarily for measuring EVM, andas such does *not* include CD and PMD compensation - so if we use the reference receiver as specified, optical path OSNR penalty would also be measured without CD and PMD compensation.

SuggestedRemedy

Either add another bullet to the list in 156.9.26 indicating that CD and PMD are compensated, or replace the reference to 156.10.1 with a reference to a new clause that fully specifies the processes that are performed by the reference receiver for the optical path OSNR measurement (e.g., such a clause could include a figure similar to figure 156-11, with the addition of CD and PMD compensation on the left side of the figure and removing EVM calculation from the right side).

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.26** *P***108** *L***43** # I-126

Maniloff, Eric — Ciena Corporation

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

The path OSNR penalty is specified in terms that aren't defined in 802.3cw. Maximum BER is not specified. The EVM reference receiver is not specified to have compensation for DWDM Black Link parameters or to provide BER. Path OSNR Penalty should be defined as an Rx rather than a Tx parameter.

SuggestedRemedy

Modify the Path OSNR Penalty to refer to the Rx OSNR Penalty between TP_2 and TP_3 as measured at the Receiver

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.26** *P***108** *L***43** # I-78

Bruckman, Leon — Huawei

Comment Type **T** *Comment Status* **X**

Where is the "maximum BER of the application" defined ?

SuggestedRemedy

Consider replacing "maximum BER of the application" (twice in this section), to: “FLR defined in 156.1.1”

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.27** *P***108** *L***52** # I-44

D'Ambrosia, John — Futurewei Technologies, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

The definition points to ITU-T G.698.2, however in the ITU-T document the definition is based on Ss to Rs, while P802.3cw would be defined from TP2 to TP3.

SuggestedRemedy

Modify the following sentence -
The polarization dependent loss, as defined in Recommendation ITU-T G.698.2, shall be within the limit
given in Table 156–9.
to
The polarization dependent loss, as defined in Recommendation ITU-T G.698.2, shall be within the limit
given in Table 156–9 from TP2 to TP3.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.9.28** *P***109** *L***1** # I-45

D'Ambrosia, John — Futurewei Technologies, U.S. Subsidiary of Huawei

Comment Type **ER** *Comment Status* **X**

The definition points to ITU-T G.698.2, however in the ITU-T document the parameter is defined @ Rs, which is not defined in P802.3cw.

SuggestedRemedy

add @ end of sentence "… at TP3."

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.1** *P***109** *L***48** # I-79

Bruckman, Leon Huawei

Comment Type **T** *Comment Status* **X**

Figure 156-9 shows the whole conformance test setup, not just the EVM reference receiver, as the title suggests

SuggestedRemedy

Change Figure 156-9 title to: "EVM conformance test setup". Add "EVM reference receiver" as a label to the figure center box

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.2.1** *P***111** *L***3** # I-89

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

The use of "4" does not follow the IEEE SA Standards Style Manual, 14.2 Numbers.

SuggestedRemedy

Change "4" to "four"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.10.2.1** *P***111** *L***3** # I-204

Dawe, Piers J G NVIDIA

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

4

SuggestedRemedy

four

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.11.2** *P***112** *L***54** # I-129

Rolfe, Benjamin Blind Creek Associates

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

You can't put requirements in a footnote: "A host system that fails to meet the manufacturer's requirements and/or usage restrictions may emit laser radiation in excess of the
safety limits of one or more safety standards. In such a case, the host manufacturer is required to obtain its own laser safety certification."
(use of "may" - normative language). Also this seems to be way out of scope of this standard and stating an obvious fact.

SuggestedRemedy

Delete footnote

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.11.2** *P***122** *L***1** # I-128

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of "may":
"Conformance to additional laser safety standards may be required for operation within specific geographic
regions."
may defines an optional requirement within scope of the standard. This is stating a fact, not a requirement within the scope of this standard

SuggestedRemedy

Change to: conformance to safety standards required for operation within specific geographic regions is the responsibility of the implementer.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13** *P***114** *L***54** # I-132

Rolfe, Benjamin Blind Creek Associates

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

I realize this is from IEEE boilerplate but it's wrong. A footnote can not contain requirements, and "may" defines optional requirements. May is the wrong word for other reasons (may is equivalent to may or may not). The correct phrase s/b "is granted permission"

SuggestedRemedy

Change "may" to "is granted permission" everywhere that the intended purpose is to grant permission.

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13.2.1** *P***114** *L***28** # I-133

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of "may". Not a requirement within the scope of this standard.

SuggestedRemedy

change "may" to "can"

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13.2.2** *P***115** *L***12** # I-131

Rolfe, Benjamin Blind Creek Associates

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

*** Comment submitted with the file image.png attached ***

Incorrect use of "may". This is not an optional requirement within the scope of the standard.

SuggestedRemedy

Remove comment

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13.3** *P***115** *L***9** # I-130

Rolfe, Benjamin Blind Creek Associates

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

Incorrect use of "may". This is not an optional requirement within the scope of the standard.

SuggestedRemedy

Remove comment

Proposed Response *Response Status* **O**

Cl **156** *SC* **156.13.3** *P***115** *L***19** # I-90

Issenhuth, Tom Huawei Technologies Co., Ltd,Issenhuth Consulting,

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

The item SC skew constraints references subclause 156.4 which is on PMD MDIO function mapping and not skew. Skew constraints were removed from 156 in D2.1.

SuggestedRemedy

Remove item SC from the list

Proposed Response *Response Status* **O**

Cl **156A** *SC* **156A.1** *P***120** *L***17** # I-134

Rolfe, Benjamin Blind Creek Associates

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

incorrect use of "may" (defining a requirement) in an informative annex.
"In implementations of the DWDM black link for 400GBASE-ZR, the channels supporting the full duplex links may be implemented on one fiber per direction,"

SuggestedRemedy

change "may" to "can"

Proposed Response *Response Status* **O**