Cl **167** *SC* **167.8.1** *P* **53** *L* **20** # 1

Ghiasi, Ali — Ghiasi Quantum/Marvell

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

There is no definition of valid 100GBASE-ZV1/SR1, etc., instead you should reference the PCS sginal

SuggestedRemedy

Please replace PMD signals with PCS signals, 100GBASE-R with CL91 RS-FEC, 200GBASE-R, or 400GBASE-R signals

Proposed Response *Response Status* **W**

DISCUSS
Multimode clauses 86, 95, 138, and 150 have defined "valid PMD signal" as a test pattern.
Single mode clauses such as 121 and 150 have defined "-R signal" as a test pattern.

Cl **167** *SC* **167.8.14** *P* **57** *L* **25** # 2

Ghiasi, Ali — Ghiasi Quantum/Marvell

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

There is no clause 121.8.10

SuggestedRemedy

Please replace 121.8.10 with 121.8.9 for stress receiver sensitivity test

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Stressed receiver sensitivity description is now under 121.8.10 in P802.3dc D3.0.

Cl **167** *SC* **167.8.14.1** *P* **57** *L* **57** # 3

Ghiasi, Ali — Ghiasi Quantum/Marvell

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

db draft reference CL 121.8.9 for stress receiver sensitivity and this clasue include sinusiodal jitter mask, if we are referencing CL121 why duplicate jitter mask in the db CL 167?

SuggestedRemedy

Remove CL 167.8.14.1

Proposed Response *Response Status* **W**

DISCUSS
Past multimode clauses 95, 138 and 150 have carried the description of the sinusoidal jitter for testing receiver jitter tolerance.

Cl **167** *SC* **167.8.6** *P* **55** *L* **19** # 4

Ghiasi, Ali — Ghiasi Quantum/Marvell

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

Font for table 167-12 is different thatn other tables

SuggestedRemedy

Please use the same font and

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Font in Table 167-12 is the same as other tables. The interier and exterior borders of Table 167-12 are not in the IEEE format and will be changed to IEEE format.

Cl **167** *SC* **167.8.6.1** *P* **55** *L* **33** # 5

Ghiasi, Ali — Ghiasi Quantum/Marvell

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

measured data from https://www.ieee802.org/3/db/public/September-09-September-29-2021/ghiasi_802.3db_01_092321.pdf
page 6 show that taps 7, 8, and 9 are <5%

SuggestedRemedy

Suggest reducing taps 6 and 7 to 10%, and taps 8 and 9 to 5%

Proposed Response *Response Status* **W**

DISCUSS
The absolute values of taps 7, 8, and 9 are constrained to be less than 0.4, 0.3, and 0.2, respectively in D2.1.

In general, the tap weights on the reference equalizer will depend on the extent of pre-emphasis on the Tx drive signal.

lewis_3db_01_071921.pdf contains an example of an equalized signal with TECQ of 4.13 dB and absolute tap weights of 0.39 (#6), 0.16 (#7), 0.08 (#8), and 0.02 (#9).

Cl **167** *SC* **167.7.1** *P* **49** *L* **27** # 6

Ghiasi, Ali — Ghiasi Quantum/Marvell

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

It was shown that TDECQ with MMSE is accurate and reduce test time and associated test cost.
https://www.ieee802.org/3/db/public/September-09-September-29-2021/ghiasi_802.3db_01_092321.pdf

SuggestedRemedy

MMSE is representative of real receiver and a full grid search may produce results sliglty better, as shown by in Ghiasi contribution there is excellent correlation for scope measurements. MMSE will reduce test time specillay given 802.3db reference receiver is 9 taps will longer to do full grid search and will increase test cost. Full grid search may produce as much as 0.2 dB of lower TDECQ than real receiver and pushing real TDECQ>4.5 dB is risky. Task force need to make a decision either stay with sull grid search and reduce TDECQ to 4.3 dB or stay with current 4.4 dB with MMSE.

Proposed Response *Response Status* **W**

DISCUSS

Cl **167** *SC* **167.8.5** *P* **56** *L* **35** # 8

Dawe, Piers — Nvidia

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

1.3, Normative references, says "For undated references, the latest edition of the referenced document (including any amendments or corrigenda) applies." So the effect of dating the reference is to exclude future amendments after Amendment 1 (which is forecast for April 2022 by the way) until 802.3 acts to reference them, not to mandate the Amendment 1 which is done anyway.

SuggestedRemedy

Consider deleting ":202x".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment #27.

Cl **116** *SC* **116.1.3** *P* **32** *L* **37** # 9

Dawe, Piers — Nvidia

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

Some tables put e.g. 100GBASE-SR1 before 100GBASE-SR2 because the reach on OM3 is a little less, others put e.g. 200GBASE-SR2 before 200GBASE-SR4 because it's narrower. Typically, reach takes precedence. Anyway, we should be consistent.

SuggestedRemedy

If reach takes strict precedence: change tables 78-1 80-1 116-1 116-2 116-4 116-5 and 116-7.
If the other way, change tables 80-5, 80-7 and 116-6.
Either way, the new PMDs have less reach than 400GBASE-SR4.2 (150 m on OM5) - change tables 116-2 and 116-7.
Make the lists in e.g. PICS 91.7.3 consistent with the decision.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #241 on D2.0 stated:
"Comment #65 against P802.3cj D2.0 defined the order of items in Table 78-1. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14"

Sort the result in "speed/reach" order using the following set of rules.
1. Increasing speed.
2. Increasing reach (maximum supported distance over the medium).
3. Decreasing number of lanes

The following supplemental rules address are included to address special cases.
4. PHY "family designations, by convention, are assigned a reach of 0.
5. "Copper" PHYs precede "Fiber" PHYs (all else being equal).
6. Alphanumeric sort (all else being equal).

Cl **167** *SC* **167.8.2** *P* **53** *L* **33** # 16

Dawe, Piers Nvidia

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

This description assumes there are 4 lanes, but multi-lane testing considerations apply to a 2-lane PMD also.

SuggestedRemedy

Change "the three unstressed lanes" to "the one or three unstressed lanes", change "multiplying by four if" to "multiplying by two or four if".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement with editorial license.

Change
"If each lane is stressed in turn, the BER is diluted by the three unstressed lanes, and the BER for that stressed lane alone is found, e.g., by multiplying by four if the unstressed lanes have low BER."

to
"If each lane is stressed in turn, the BER is diluted by the unstressed lanes, and the BER for that stressed lane alone is found, e.g., by multiplying by four for 400GBASE-SR4 if the unstressed lanes have low BER."

Cl **167** *SC* **167.8.13** *P* **57** *L* **11** # 20

Dawe, Piers Nvidia

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

This says "The receiver sensitivity (OMAouter) *of each lane*", but as we have adopted interface BER for stressed sensitivity, we should be consistent and adopt it for this sensitivity too. Using the interface BER method for sensitivity is still conservative because we don't average the TDECQ, so some Tx-Rx lanes are better than spec.
Also, I didn't see a reference to 167.1.1, which is relevant because errors should be counted correctly considering Gray coding, which is a PMA function.

SuggestedRemedy

Delete "of each lane".
In 167.8.2, change "Stressed receiver sensitivity is defined" to "Receiver sensitivity and stressed receiver sensitivity are defined".
Add cross-references to 167.1.1 Bit error ratio and 167.8.2 Multi-lane testing considerations.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement with editorial license.

In 167.8.13, change
"The receiver sensitivity (OMAouter) of each lane shall be within the limit …"
to
"The receiver sensitivity (OMAouter) shall be within the limit …".

In 167.8.13, add
"For multi-lane testing considerations, see 167.8.2."

In 167.8.2, change
"Stressed receiver sensitivity is defined …"
to
"Receiver sensitivity and stressed receiver sensitivity are defined ...".

Cl **167** *SC* **167.8.14** *P* **57** *L* **42** # 21

Dawe, Piers Nvidia

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

This says "The BER is required to be met for each lane under test on its own", contradicting 167.8.2. Using the interface BER method for sensitivity is still conservative because we don't average the TDECQ, so some Tx-Rx lanes are better than spec.
For an example, 95.8.8.1 says: For 100GBASE-SR4 the relevant BER is the interface BER at the PMD service interface. The interface BER is the average of the four BER of the receive lanes when stressed: see 95.8.1.1. If present, the RS-FEC sublayer can measure the lane symbol error ratio at its input. The lane BER can be assumed to be one tenth of the lane symbol error ratio. If each lane is stressed in turn, the PMD interface BER is the average of the BERs of all the lanes when stressed: see 95.8.1.1.
Also, I didn't see a reference to 167.1.1, which is relevant because errors should be counted correctly considering Gray coding, which is a PMA function.

SuggestedRemedy

Delete "The BER is required to be met for each lane under test on its own".
Add an entry to the list of exceptions from 121: "The relevant BER is the interface BER; see 167.1.1 and 167.8.2."
If it is helpful, add text about how to find BER using FEC symbol counters to 167.8.2.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Implement with editorial license.

In 167.8.14,
Delete "The BER is required to be met for each lane under test on its own".

Add the following exception from 121.8.10:
"For multi-lane interfaces, the relevant BER is the interface BER, see 167.8.2."

Cl **167** *SC* **167.10.2.1** *P* **61** *L* **20** # 23

Dawe, Piers Nvidia

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

This sounds like effective guidance, not guidance about modal bandwidth

SuggestedRemedy

Change "Effective modal bandwidth guidance is provided at all wavelengths in" to "Guidance is provided for effective modal bandwidth(s) at all wavelengths in".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **167** *SC* **167.11.4.6** *P* **69** *L* **13** # 24

Dawe, Piers Nvidia

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

This table should mention VRn as well as SRn

SuggestedRemedy

Several places

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change 167.11.4.6 as follows:

OC4
MDI layout for 200GBASE-VR2 and 200GBASE-SR2

OC5
MDI layout for 400GBASE-VR4 and 400GBASE-SR4

OC6
MDI mating, 100GBASE-VR1 and 100GBASE-SR1

OC7
MDI requirements for 100GBASE-VR1 and 100GBASE-SR1

OC8
MDI mating,
200GBASE-VR2, 200GBASE-SR2, 400GBASE-VR4 and 400GBASE-SR4

OC9
MDI dimensions for 200GB ASE-VR2, 200GBASE-SR2, 400GBASE-VR4, and 400GBASE-SR4

OC10
Cabling connector dimensions for 200GBASE-VR2, 200GBASE-SR2, 400GBASE-VR4, and 400GBASE-SR4

OC11
MDI requirements for 200GBASE-VR2, 200GBASE-SR2, 400GBASE-VR4, and 400GBASE-SR4

Cl **167** *SC* **167.11.4.6** *P* **69** *L* **21** # 25

Dawe, Piers Nvidia

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

PICS needs modification to align with 167.10.3.2 which allows a 1-lane PMD with an MDI using a multifiber connector

SuggestedRemedy

Per comment

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change 167.11.4.6

OC7
MDI requirements for 100GBASE-VR1 and 100GBASE-SR1, duplex optical fiber connector

Cl **167** *SC* **167.8.6** *P* **55** *L* **11** # 26

Lingle, Robert OFS

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

Editor's note states: "Use of minimum mean squared error optimization in place of optimization of TDECQ has been proposed." This topic has had a presentation in TF & discussion in TF and offline. Whatever the TF decides during comment resolution on D2.0, I think the Editor's Note has served its purpose (of stimulating consideration) and should be removed at this point.

SuggestedRemedy

Remove this editor's note

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment #6.

Cl **1** *SC* **1.3** *P* **17** *L* **8** # 27

Zimmerman, George CME Consulting/ADI, APL Gp, Cisco, CommScope, M

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

Does this have to be a dated reference? If undated, it just points to the most current version of 60793-2-10. If dated, particularly with an as-yet-unpublished draft, this standard cannot publish before 60793-2-10:202x (whatever x may be) publishes. Making it an undated reference both achieves the end of getting the new version when it is available, AND allows this draft to move forward without the hitch.

SuggestedRemedy

Delete the inserted date (:202x) on the reference to IEC 60793-2-10:202x

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
Discuss.

Cl **91** *SC* **91.5.3.3** *P* **27** *L* **30** # 28

Ran, Adee Cisco

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

Comment #114 against D2.0 was resolved in a way that does not address the comment. The suggested remedy was to include the third paragraph of 91.5.3.3, but the response changed the second paragraph of 91.5.3.3 (first paragraph amended) instead, and the text is unformatted, so 10^-6 now reads as 10-6.

The problem still exists in the third paragraph which says "This option shall not be used". Since this is a normative requirement, it would be friendly to readers to include the text tells what "this option" is about (it is the option to bypass error correction)

The change of the second paragraph is unnecessary and can be reverted.

SuggestedRemedy

Include the entire third paragraph from the base document as listed below:

"The Reed-Solomon decoder may provide the option to perform error detection without error correction to reduce the delay contributed by the RS-FEC sublayer. The presence of this option is indicated by the assertion of the FEC_bypass_correction_ability variable (see 91.6.8). When the option is provided, it is enabled by the assertion of the FEC_bypass_correction_enable variable (see 91.6.1). This option... <remainder of the text as in D2.1>"

Change the editorial instruction accordingly.

Revert the second paragraph (starting with "When used to form a 100GBASE-CR4"), to the text in D2.0.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **167** *SC* **167.5.2** *P* **45** *L* **43** # 29

Ran, Adee Cisco

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

See comment #121 against D2.0 was not implemented fully - one instance of "signal stream" still exists.

SuggestedRemedy

Change "signal stream" to "signal".

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.3** *P* **17** *L* **8** # 30

Ran, Adee Cisco

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

IEC 60793-2-10 is listed as 202x. I assume this document is not published yet and it is expected that it is published before 802.3db is finalized.

The "202x" should not find its way to the published amendment.

SuggestedRemedy

Add an editor's note (to be removed prior to publication) to update the year here and in Table 167–15 footnote f.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment #27.

Cl **167** *SC* **167.10.3** *P* **61** *L* **37** # 31

Ran, Adee Cisco

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

I am repeating comment #133 against D2.0 (which was marked as bucket and not discussed).

The comment said "Receiver compliance testing is done at TP3 which is the MDI per 167.5.1. So the note should apply only to the transmitter."

The NOTE in 167.10.3 seems to have been inherited from some previous clause. The base document has 11 instances of similar notes. However, starting in clause 86, this note was changed to refer only to transmitter compliance, viz. "NOTE—Transmitter compliance testing is performed at TP2 as defined in 86.5.1, not at the MDI." There are 15 instances of this version of the note, which fixes the issue I referred to in the comment.

This project should use the better precedent text.

I have submitted a comment to the maintenance project to align all clauses to the version of the text in clause 86.

SuggestedRemedy

Change the NOTE to read:
NOTE—Transmitter compliance testing is performed at TP2 as defined in 167.5.1, not at the MDI.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **1** *SC* **1.4.142a** *P* **17** *L* **42** # 33

Dudek, Mike Marvell

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

Shouldn't 400GBASE-SR4 be listed after 400GBASE-SR8 rather than between 400GBASE-SR16 and 400GBASE-SR8

SuggestedRemedy

Change the section to 1.4.144a and make 400GBASE-VR4 into section 1.4.144b

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The items in 1.4 follow a numerical and alphabetical order. Accordingly, 400GBASE-SR4 should appear between 400GBASE-SR16 and 400GBASE-SR4.2, and 400GBASE-VR4 after 400GBASE-SR8.

Cl **30** *SC* **30.5.1.1.2** *P* **18** *L* **19** # 34

Dudek, Mike Marvell

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

Removing the reaches has left nothing that differentiates between VR and SR. Note that draft 3.0 of 802.3cd preserves the reaches to differentiate between FR and LR.

SuggestedRemedy

Re-instate the distances as they were in draft 2.0. Also in table 116-1

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

These reaches were removed after discussion of comments #66, 67, 68, 70, 71, and 72 on D2.0

Discuss as a Task Force.

Cl **116** *SC* **116.1.3** *P* **32** *L* **35** # 35

Dudek, Mike Marvell

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

The reach is not included in the descriptions of VR and SR in table 116-1 leaving nothing that differentiates between VR and SR. Note that the reach is included to differentiate the single mode variants.

SuggestedRemedy

Add the reach to the description as is done for 400G in table 116-2

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

These reaches were removed after discussion of comments #66, 67, 68, 70, 71, and 72 on D2.0

Discuss as a Task Force.

Cl **167** *SC* **167.8.14** *P* **57** *L* **43** # 36

Dudek, Mike Marvell

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

The requirement for the BER to be met for each lane on it's own is conflicting with section

SuggestedRemedy

Change "The BER is required to be met for each lane under test on its own" to "The required BER is specified in 167.1.1. For multilane interfaces the requirements are specified in 167.8.2"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.
See response to comment #21.

Cl **FM** *SC* **FM** *P* **2** *L* **40** # 40

Grow, Robert RMG Consulting

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

I can't check the Framemaker templates, but this draft is missing content that is on all other current drafts I've examined and is also included in the 2020 Style Manual Annex C (page 69).

SuggestedRemedy

Please use the correct template.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

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Cl **30** *SC* **30.3.2.1.2** *P* **18** *L* **2** # 42

Grow, Robert RMG Consulting

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

Though out of scope, it hits me that I do not understand why there is no definition of aPHYType and aPHYTypeList. This is compounded by reference to 100GBASE-VR1, 200GBASE-VR2, 400GBASE-VR4, 100GBASE-SR1, 200GBASE-SR2, and 400GBASE-SR4 in other clauses as PHYs or PHY types.

SuggestedRemedy

Insert enumerations for: 100GBASE-VR1, 200GBASE-VR2, 400GBASE-VR4, 100GBASE-SR1, 200GBASE-SR2, and 400GBASE-SR4, into aPHYType and aPHYTypeList.

Proposed Response *Response Status* **W**

Discuss as a Task Force

Cl **80** *SC* **80.1.4** *P* **24** *L* **27** # 48

Grow, Robert RMG Consulting

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

If there is a logic in the insert point for new items, it is something I can't discern (it isn't in the Description clause number order nor alphanumeric on Name). Comments have been submitted on such tables on P802.3/D3.0. (Also applies to 100GBASE-SR1.)

SuggestedRemedy

Monitor P802.3/D3.0 comment resolution and if a order beyond data rate is found, adjust insert points per that resolution.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #241 on D2.0 stated:
"Comment #65 against P802.3cj D2.0 defined the order of items in Table 78-1. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14"

Sort the result in "speed/reach" order using the following set of rules.
1. Increasing speed.
2. Increasing reach (maximum supported distance over the medium).
3. Decreasing number of lanes

The following supplemental rules address are included to address special cases.
4. PHY "family designations, by convention, are assigned a reach of 0.
5. "Copper" PHYs precede "Fiber" PHYs (all else being equal).
6. Alphanumeric sort (all else being equal).

Cl **116** *SC* **116.1.3** *P* **32** *L* **34** # 49

Grow, Robert RMG Consulting

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

If there is a logic in the insert point for new items, it is something I can't discern. It would appear to be consisttent with the already apparently random (other than data rate grouping) order of the existing table.

SuggestedRemedy

Monitor P802.3/D3.0 comment resolution and if a order beyond data rate is found, adjust insert points per that resolution.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Comment #241 on D2.0 stated:
"Comment #65 against P802.3cj D2.0 defined the order of items in Table 78-1. See:
http://www.ieee802.org/3/cj/comments/P8023-D2p0-Comments-Final-byID.pdf#page=14"

Sort the result in "speed/reach" order using the following set of rules.
1. Increasing speed.
2. Increasing reach (maximum supported distance over the medium).
3. Decreasing number of lanes

The following supplemental rules address are included to address special cases.
4. PHY "family designations, by convention, are assigned a reach of 0.
5. "Copper" PHYs precede "Fiber" PHYs (all else being equal).
6. Alphanumeric sort (all else being equal).