

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

CI **FM** SC **FM** P1 L 10 # I-157
 Dawe, Piers J G NVIDIA
 Comment Type **E** Comment Status **A** (bucket2)
 Missing amendment number
 SuggestedRemedy
 Insert amendment number or a placeholder if the number is not known yet. Also on page 30 line 3. It would help if the placeholders were in the template.
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #83.

CI **FM** SC **FM** P1 L 34 # I-82
 Grow, Robert RMG Consulting
 Comment Type **E** Comment Status **A** (bucket2)
 Don't forget to update copyright year here, next page, and in the footer when producing the next draft
 SuggestedRemedy
 Update framemaker variable and inspect front pages and footer to to assure all use the vairable and if not, update.
 Response Response Status **C**
 ACCEPT.

CI **FM** SC **FM** P4 L 32 # I-123
 Healey, Adam Broadcom Inc.
 Comment Type **E** Comment Status **A** (bucket2)
 The "Important Notices and Disclaimers Concerning IEEE Standards Documents" does not align with the latest template.
 SuggestedRemedy
 Update the frontmatter to be consistent with the latest template. Note changes to the second paragraph of "Notice and Disclaimer of Liability Concerning the Use of IEEE Standards Documents", two additional paragraphs under "Patents", and other minor changes.
 Response Response Status **C**
 ACCEPT.

CI **FM** SC **FM** P11 L 3 # I-83
 Grow, Robert RMG Consulting
 Comment Type **E** Comment Status **A** (bucket2)
 Missing Amendment #.
 SuggestedRemedy
 Amendment 5
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Implement with editorial license.

CI **FM** SC **FM** P11 L 17 # I-84
 Grow, Robert RMG Consulting
 Comment Type **E** Comment Status **A** (bucket2)
 Slight differences from P802.3/D3.0 front matter.
 SuggestedRemedy
 Update Introduction text to match the most recent P802.3 draft.
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #123.

CI **FM** SC **FM** P13 L 3 # I-85
 Grow, Robert RMG Consulting
 Comment Type **E** Comment Status **A** (bucket2)
 No amendment numbers on descriptions of amendments 3 through 5
 SuggestedRemedy
 Add Amendment number as on Amendment 1 through Amendment 2.
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Implement suggested remedy with editorial license.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **FM** SC **FM** P **13** L **9** # **I-86**
 Grow, Robert RMG Consulting
 Comment Type **E** Comment Status **A** (bucket2)
 PHY is the acronym for Physical Layer Device, not Physical Layer. The self description in P802.3db/D2.1 deletes "(PHY)".
 SuggestedRemedy
 Delete "(PHY)"
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 The description in 802.3db D2.1 appears to have fixed this error.
 Update the decription to match the description in 802.3db.

Cl **FM** SC **FM** P **13** L **20** # **I-87**
 Grow, Robert RMG Consulting
 Comment Type **E** Comment Status **A** (bucket2)
 While the integrity of copying self descriptions exactly is to be commended, perhaps changing 2018 to 202x on Amendment 2 could be done. Multiple comments were submitted on P802.3de/D2.1 about the 2018 date of the base standard in the self description (proposed accept). P802.3cs/D3.0 has a significantly different self description.
 SuggestedRemedy
 When producing the latest draft, check for updates to the self descriptions of Amendments 2 and 3. Update the P802.3de reference to 2018 in any case. Delete the note.
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 The decriptions and amendment numbers should be updated to match the amendments. However, errors in these decriptions should be addressed by comments against each amendment.
 Update the amendment descriptions to match the description in the latest draft for each amendment.

Cl **FM** SC **FM** P **30** L **47** # **I-158**
 Dawe, Piers J G NVIDIA
 Comment Type **E** Comment Status **A** (bucket2)
 As this is an amendment to 802.3dc, P802.3cn and P802.3cu have gone, and new readers need not know of them. Further, the editor's note would be more use to reviewers and editor if it listed the actual amendments that the editor has noted as running in parallel and affecting this draft, not just the concept. Also, it helps to state which amendments running in parallel are believed not to affect the draft, so the reviewer knows they have been considered. Apparently, only P802.3db affects this draft, but others might.
 SuggestedRemedy
 Change "(e.g., IEEE P802.3cn and IEEE P802.3cu)" to "(IEEE P802.3db; no impact is noted from IEEE P802.3dd, P802.3de, or IEEE P802.3cs)"
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 The list of prior amendments should be updated to list only relevant ones. However, the list of prior amendments is for example only and is not meant to be exhaustive.
 Change "(e.g., IEEE P802.3cn and IEEE P802.3cu)" to "(e.g., IEEE P802.3db)"

Cl **FM** SC **FM** P **30** L **48** # **I-159**
 Dawe, Piers J G NVIDIA
 Comment Type **E** Comment Status **A** (bucket2)
 "the same text and tables" so clashing edits to figures are OK?
 SuggestedRemedy
 Change to "the same portions of the draft standard".
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 The text in this editor's note is consistent with the amendment template. However, it would be good to correct this statement.
 Update the text based on the suggested remedy and guidance from the template author with editorial license.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 0 SC 0 P 0 L 0 # I-18
 Brown, Matthew Huawei Technologies Canada
 Comment Type E Comment Status A (bucket2)
 Keep this draft in line with the new revision (802.3dc) and any amendments that precede 802.3ck.
 SuggestedRemedy
 Align the next draft with the latest versions of the new revision (802.3df) and any preceding amendments.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Implement with editorial license.

Cl 1 SC 1.3 P 32 L 12 # I-37
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 The references for QSFP-DD and for SFP-DD don't have periods at the end, unlike other references.
 SuggestedRemedy
 Add final periods for these two references.
 Response Response Status C
 ACCEPT.

Cl 1 SC 1.4 P 32 L 51 # I-38
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 For consistency, URLs should be formatted in blue and underlined.
 SuggestedRemedy
 Apply URL format in four URL instances on this page.
 Response Response Status C
 ACCEPT.

Cl 30 SC 30.5.1.1.16 P 36 L 39 # I-5
 Marris, Arthur Cadence Design Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 Reconcile the last paragraph of 30.5.1.1.16 with the text in the revision standard.
 SuggestedRemedy
 Make it so the last paragraph of 30.5.1.1.16 is identical to the revision standard so it reads:
 "If a Clause 45 MDIO Interface is present, then this attribute maps to the FEC enable bit or to the RS-FEC enable bit in the appropriate FEC control register based upon the PHY type and the FEC operating mode (see 45.2.10.3, 45.2.1.108, and 45.2.1.116).;"
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #39

Cl 30 SC 30.5.1.1.16 P 36 L 39 # I-39
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 The fourth paragraph of 30.5.1.1.16 has been changed by 802.3dc to the following text:
 If a Clause 45 MDIO Interface is present, then this attribute maps to the FEC enable bit or to the RS-FEC enable bit in the appropriate FEC control register based upon the PHY type and the FEC operating mode (see 45.2.10.3, 45.2.1.108, and 45.2.1.116).;
 This removes the need for the changes in this paragraph in the 802.3ck draft.
 SuggestedRemedy
 Remove the fourth paragraph of 30.5.1.1.16.
 Change the editorial instruction from "Change remainder of 30.5.1.1.16 as follows" to "change the three subsequent paragraphs as follows".
 Response Response Status C
 ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 30 SC 30.5.1.1.16 P 36 L 39 # I-122
 Healey, Adam Broadcom Inc.
 Comment Type E Comment Status A (bucket2)
 IEEE P802.3ck will be an amendment to the next revision of IEEE Std 802.3. The changes shown in the last paragraph of the "BEHAVIOR DEFINED AS:" section do not correspond to the text in the latest revision draft (D3.0).
 SuggestedRemedy
 Specify the changes relative to the text in IEEE P802.3 (IEEE 802.3dc) D3.0.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #39

Cl 30 SC 30.5.1.1.17 P 37 L 8 # I-226
 Ben-Artsi, Liav Marvell Semiconductor, Inc.
 Comment Type E Comment Status R (bucket2)
 Historically speeds were stated lowest first, this 10/1Gboa-PRX should be changed to 1/10Gbase-PRX
 SuggestedRemedy
 change to 1/10Gbase-PRX
 Response Response Status C
 REJECT.
 This comment refers to text in the base standard that is not relevant to the P802.3ck project and so is out of scope for comment. Also making this change might have side effects by requiring a similar change in 45.2.3.43.

Cl 30 SC 30.5.1.1.18 P 37 L 22 # I-227
 Ben-Artsi, Liav Marvell Semiconductor, Inc.
 Comment Type E Comment Status R (bucket2)
 Historically speeds were stated lowest first, this 10/1Gboa-PRX should be changed to 1/10Gbase-PRX
 SuggestedRemedy
 Change to 1/10Gbase-PRX
 Response Response Status C
 REJECT.
 This comment refers to text in the base standard that is not relevant to the P802.3ck project and so is out of scope for comment. Also making this change might have side effects by requiring a similar change in 45.2.3.43.

Cl 45 SC 45.2.1.21 P 42 L 18 # I-229
 Ben-Artsi, Liav Marvell Semiconductor, Inc.
 Comment Type ER Comment Status A (bucket2)
 "ability 1" is "1" a typo?
 SuggestedRemedy
 If a typo, erase
 Response Response Status W
 ACCEPT IN PRINCIPLE.
 "1" is a typo so erase it

Cl 45 SC 45.2.1.131a P 56 L 33 # I-162
 Dawe, Piers J G NVIDIA
 Comment Type E Comment Status A (bucket2)
 Table layout
 SuggestedRemedy
 Make the second column wider and the third, narrower.
 Response Response Status C
 ACCEPT.

Cl 45 SC 45.2.7.13.1 P 64 L 48 # I-3
 Marris, Arthur Cadence Design Systems, Inc.
 Comment Type T Comment Status A (bucket2)
 Bit 7.49.6 needs its own subclause
 SuggestedRemedy
 Insert new subclause "45.2.7.13.A RS-FEC-Int negotiated (7.49.6)" and make it contain the this text currently in 45.2.7.13.1:
 "When the Auto-Negotiation process has completed as indicated by the AN complete bit (7.1.5), bit 7.49.6 indicates that Forward Error Correction codeword-interleaved (RS-FEC-Int) operation as defined in Clause 161 has been negotiated. This bit is set only if RS-FEC-Int operation has been negotiated for a 100GBASE-P PHY supporting negotiation of RS-FEC-Int operation."
 Response Response Status C
 ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 45 SC 45.2.7.13.1 P 64 L 49 # I-75

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status A (bucket2)

Bit 6 is related to the negotiation of FEC operation and not the Port Type. So the first paragraph that begins with "When the Auto-Negotiation" should be its own sub-clause similar to 45.2.7.12.2

SuggestedRemedy

Revert the text of 45.2.7.13.1 to original baseline text.

Make the first paragraph of 45.2.7.13.1 its own new sub-clause

Response Response Status W

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #3

Cl 73 SC 73.6.4 P 71 L 3 # I-230

Ben-Artsi, Liav Marvell Semiconductor, Inc.

Comment Type T Comment Status R (bucket2)

What is the reason to shorten this field? I'd rather have a 24-bit field instead. More software friendly.

SuggestedRemedy

Change to 24 bit

Response Response Status C

REJECT.

The field was shortened to accommodate the extra FEC capability bit F4

Cl 73 SC 73.6.5 P 71 L 33 # I-80

Lusted, Kent Intel Corporation

Comment Type TR Comment Status A (bucket2)

The text describing the use of bit F4 in 73.6.5 differs enough from Cl 73.6.5.a to imply that many 100G PHYs have the RS-FEC-Int capability. At this time, there are only two: 100GBASE-CR1 and 100GBASE-KR1. With the exception of 100GBASE-KP4, these are all 100GBASE-P PHY types and improved wording would make it more clear and align it with the title of 73.6.5.a.

SuggestedRemedy

Change the last sentence of the last paragraph to "F4 is used by 100GBASE-P PHYs where RS-FEC-Int (see Clause161) is an alternative to the default RS-FEC (see Clause91)."

Additionally, change item (e) in the list of Cl 73.6.5 to be "F4 is 100GBASE-P RS-FEC-Int requested"

Response Response Status W

ACCEPT.

Cl 80 SC 80.1.3 P 76 L 41 # I-2

Marris, Arthur Cadence Design Systems, Inc.

Comment Type E Comment Status A (bucket2)

Add:

"Clause 167 for 100GBASE-VR1 and 100GBASE-SR1"

on line 42 for the case of single lane datapath as added by 802.3db

SuggestedRemedy

Add: "Clause 167 for 100GBASE-VR1 and 100GBASE-SR1" on line 42 showing appropriate changes from the text in 802.3db

Response Response Status C

ACCEPT IN PRINCIPLE.

Add: "-- Clause 167 for 100GBASE-VR1 and 100GBASE-SR1" after "-- in Clause163 for 100GBASE-KR1"

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 80 SC 80.1.3 P76 L41 # I-93
 Parsons, Earl CommScope, Inc.
 Comment Type T Comment Status A (bucket2)
 Include 100GBASE-SR1 and 100GBASE-VR1 from 802.3db.
 SuggestedRemedy
 Insert a line below the Clause 140 line in item i):
 "-- Clause 167 for 100GBASE-VR1 and 100GBASE-SR1"
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #2.

Cl 80 SC 80.1.3 P76 L42 # I-81
 Lusted, Kent Intel Corporation
 Comment Type E Comment Status A (bucket2)
 there is an extra "in" at the start of the bullets for Clause 162 and Clause 163 list items.
 SuggestedRemedy
 in 80.1.3, list item i) change:
 "in Clause 162 for 100GBASE-CR1" to " Clause 162 for 100GBASE-CR1" and "in
 Clause163 for 100GBASE-KR1" to "Clause163 for 100GBASE-KR1"
 Response Response Status C
 ACCEPT.

Cl 80 SC 80.1.5 P80 L14 # I-19
 Brown, Matthew Huawei Technologies Canada
 Comment Type T Comment Status A (bucket2)
 100GAUI-1 C2C and C2M are listed in Table 80-5 as optional for 100GBASE-VR1 and
 100GBASE-SR1, but the sublayer table in Clause 167 does not list these.
 SuggestedRemedy
 Import Clause 167 and Table 167-1, adding 100GBASE-1 C2C and C2M.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #36.

Cl 80 SC 80.2.3 P80 L33 # I-88
 Grow, Robert RMG Consulting
 Comment Type ER Comment Status A (bucket2)
 Capitalization of "forward error correction" has been made consistent in P802.3/D3.0.
 SuggestedRemedy
 A search and replace will find 8 places where capitalization needs to be corrected to lower
 case in subclause headings and text.
 Response Response Status W
 ACCEPT.

Cl 91 SC 91 P89 L5 # I-40
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket1)
 The amendment of clause 91 has subclauses under 91.5 and 91.5.2 without the full
 hierarchy. It is common to include the full hierarchy of each amended subclause.
 SuggestedRemedy
 Add headings for:
 91.5 Functions within the RS-FEC sublayer
 91.5.2 Transmit function
 Response Response Status C
 ACCEPT.

Cl 91 SC 91.5.3.3 P89 L31 # I-41
 Ran, Adeo Cisco Systems, Inc.
 Comment Type ER Comment Status A (bucket1)
 The amended text in this paragraph refers to "This option", without stating what option it
 is... (it is the option to bypass error correction)
 It would be easier for readers to understand the requirement if the option is stated explicitly.
 SuggestedRemedy
 Include the entire third paragraph from the base document. In 802.3dc the text is:
 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 D3.0>
 Response Response Status W
 ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 91 SC 91.6.7a P91 L 5 # 1-163

Dawe, Piers J G

NVIDIA

Comment Type T Comment Status A RSFEC enable

This paragraph seems to be written as if Clause 91 RS-FEC and Clause 161 RS-FEC-Int are in series, and 91 is bypassed when 161 is used. However, Figure 161-1 and Figure 91-1 show separate scenarios, one with Clause 91 RS-FEC and the other with Clause 161 RS-FEC-Int, but no pass-through arrangement.

SuggestedRemedy

Either show the two sublayers as in series, or describe them as alternatives.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "When the variable is set to zero, the RS-FEC transmit and receive functions are disabled, and the RS-FEC sublayer is bypassed, effectively connecting its service interface to the service interface of its underlying sublayer."

To: "When the variable is set to zero, the RS-FEC transmit and receive functions are disabled, and the 100G RS-FEC sublayer is not used allowing the RS-FEC-Int sublayer (see Clause 161) to be used instead."

Make similar change in 161.6.14 100G_RS_FEC_Int_enable

Implement with editorial license.

Cl 91 SC 91.6.7a P91 L 5 # 1-164

Dawe, Piers J G

NVIDIA

Comment Type T Comment Status A RSFEC enable

This says "An MDIO interface or ... shall be provided to access the variable 100G_RS_FEC_Enable for the RS-FEC sublayer. When the 100G_RS_FEC_Enable variable is set to one, the RS-FEC sublayer performs the transmit function ... and the receive function When the variable is set to zero, the ... RS-FEC sublayer is bypassed... .

So all implementations, whether they need this FEC enable/disable function or not, have to have the management variable, and they have to bypass the FEC function when the variable or bit is 0 (default). I think this breaks existing implementations twice over.

SuggestedRemedy

The requirement for this enable/disable switch should be tied to the first sentence "For PHYs supporting RS-FEC-Int operation". Change "An MDIO interface" to "For these PHYs, an MDIO interface". Then the text will agree with the PICS.

0 and 1 should be swapped so that the default is 0, FEC operating, which is what existing implementations do: per 45.2, "If a device supports the MDIO interface it shall respond to all possible register addresses ... The operation of an MMD shall not be affected by writes to reserved and unsupported register bits..."

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "An MDIO interface" to "For these PHYs, an MDIO interface"

The 100G_RS_FEC_Enable variable and the control bit 1.200.6 defined in 45.2.1.116 are only applicable to PHYs that offer a choice of Clause 91 or Clause 161 operation so there should be no impact on existing implementations (which will only contain Clause 91 RS-FEC functionality).

This could be made clearer in Table 45-94 by moving the text "(only applicable for PHYs that include multiple FEC sublayers)" from the "Description" column to a footnote on the address.

Add a footnote to "1.200.6" as follows:

"Only applicable for PHYs that include an alternative FEC sublayer, for example RS-FEC-Int defined in Clause 161"

In the Description column of Table 45-94 row 1.200.6 change "1 = Clause 91 RS-FEC is enabled (only applicable for PHYs that include multiple FEC sublayers)" to "1 = Clause 91 RS-FEC is enabled".

Implement with editorial license.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 91 SC 91.7.3 P92 L41 # I-165

Dawe, Piers J G NVIDIA

Comment Type T Comment Status A

There is a "major capability/option" "RS-FEC-Int is supported. 161 Used to form complete 100GBASE-CR1, or 100GBASE-KR1 PHY".

I don't see text in this clause or in 161 to justify this.

SuggestedRemedy

Add the text. In 161, state which PHY types use the RS-FEC-Int

Response Response Status C

ACCEPT IN PRINCIPLE.

Change *FINT row so that it is named *KP1, with feature "100GBASE-CR1, or 100GBASE-KR1 PHY", with subclause cell blank, and existing value/comment. Move this row so it comes before the *KP4 row.

Change "FINT:M" to "KP1:M" in the status column of the FE row on line 44

Change subclause reference from 91.6 to 91.6.7a.

Cl 116 SC 116.1.2 P95 L24 # I-231

Ben-Artzi, Liav Marvell Semiconductor, Inc.

Comment Type E Comment Status R (bucket2)

400GBASE-SR4.2 seems to have a nomenclature very different than all others - find one which is more aligned with all others

SuggestedRemedy

Response Response Status C

REJECT.

This nomenclature reflects the nomenclature in the base standard. Changes to this text are out of scope for 802.3ck.

Cl 116 SC 116.1.3 P96 L34 # I-94

Parsons, Earl CommScope, Inc.

Comment Type E Comment Status A (bucket2)

802.3db modifies Table 116-2. 400GBASE-VR4 now comes before 400GBASE-SR16.

SuggestedRemedy

Replace the 400GBASE-SR16 row with 400GBASE-VR4.

Response Response Status C

ACCEPT.

Cl 116 SC 116.1.4 P98 L18 # I-95

Parsons, Earl CommScope, Inc.

Comment Type T Comment Status A (bucket2)

200GBASE-VR2 and 200GBASE-SR2 should be in this table.

SuggestedRemedy

Add rows to Table 116-4 for 200GBASE-VR2 and 200GBASE-SR2. 200GBASE-VR2 should be the new top row and 200GBASE-SR2 should be between 200GBASE-SR4 and 200GBASE-DR4. Add the appropriate columns too.

Response Response Status C

ACCEPT.

Cl 116 SC 116.1.4 P99 L18 # I-96

Parsons, Earl CommScope, Inc.

Comment Type T Comment Status A (bucket2)

400GBASE-VR4 and 400GBASE-SR4 should be in Table 116-5.

SuggestedRemedy

Add new rows and columns for 400GBASE-VR4 and 400GBASE-SR4. 400GBASE-VR4 should be the new top row. 400GBASE-SR4 should be between 400GBASE-SR8 and 400GBASE-SR4.2.

Response Response Status C

ACCEPT.

Cl 116 SC 116.2.5 P99 L42 # I-97

Parsons, Earl CommScope, Inc.

Comment Type T Comment Status A (bucket2)

Add reference to Clause 167 to these two sentences.

SuggestedRemedy

The 200GBASE-R PMDs and their corresponding media are specified in Clause 121, Clause 122, and Clause 136 through Clause 138, Clause 162, Clause 163, and Clause 167. The 400GBASE-R PMDs and their corresponding media are specified in Clause 122 through Clause 124, Clause 138, and Clause 150, Clause 162, Clause 163, and Clause 167.

Response Response Status C

ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 116 SC 116.5 P 102 L 13 # I-99
 Parsons, Earl CommScope, Inc.
 Comment Type T Comment Status A (bucket2)
 Add references to Clause 167.3.2 to Table 116-8 and Table 116-9 as in D2.1 of 802.3db
 SuggestedRemedy
 Per comment
 Response Response Status C
 ACCEPT.

Cl 120 SC 120.5.11.2.a P 110 L 46 # I-42
 Ran, Adee Cisco Systems, Inc.
 Comment Type E Comment Status R (bucket2)
 Equation (120-1) and Figure 120-6a are placed after a large block of text and a full pattern, and seem to be out of context. The block could be broken to two paragraph so the equation and figure are placed after their reference, and are in the right context.
 SuggestedRemedy
 Break the paragraph into two after "Equation(120-1)", and have the equation, note, and figure follow the first paragraph.
 Response Response Status C
 REJECT.
 The proposed changes to not improve the accuracy and do not improve the clarity of the text.

Cl 120F SC 120F.4.2 P 248 L 20 # I-24
 Brown, Matthew Huawei Technologies Canada
 Comment Type T Comment Status A Channel ILdd (bucket2)
 The sentence specifying insertion loss refers to a maximum value, but the equation is an inequality. Reword the specify to be of the for used in 120G.4.1.
 SuggestedRemedy
 Change: "The channel differential-mode to differential-mode insertion loss should be equal to or less than Equation (120F-2)."
 To: "The channel differential-mode to differential-mode insertion loss should meet Equation (120F-2)."
 Response Response Status C
 ACCEPT.

Cl 120F SC 120F.4.2 P 248 L 26 # I-25
 Brown, Matthew Huawei Technologies Canada
 Comment Type E Comment Status A (bucket2)
 To be consistent with other similar specifications in this draft the units should be in the variable definition not the equation.
 SuggestedRemedy
 In Equation 120F-2, delete "(dB)"
 Change the definition of ILdd to "is the channel differential-mode to differential-mode insertion loss in dB"
 Response Response Status C
 ACCEPT.

Cl 120G SC 120G.3.1 P 258 L 17 # I-155
 Hidaka, Yasuo Credo Semiconductor
 Comment Type E Comment Status A PICS (bucket2)
 PICS entry seems missing for "Steady-state voltage, v_f (max)" in Table 120G-1.
 SuggestedRemedy
 Add a PICS entry for "Steady-state voltage" per Table 120G-1 with a reference to 120G.5.3.
 Response Response Status C
 ACCEPT IN PRINCIPLE.
 Add new PICS item with editorial license.

Cl 120G SC 120G.3.1 P 258 L 19 # I-184
 Dawe, Piers J G NVIDIA
 Comment Type TR Comment Status A HO EH
 Eye height measurements are inaccurate, receivers can cope with much smaller eye height than this as they do for CR; VEC is much more important. C2M drivers are traditionally 900/1200 as strong as CR/KR drivers, and receiver noise is already in the measurement, and . So a small EH is acceptable.
 SuggestedRemedy
 Reduce the eye height by 2 dB, from 10 mV to 8 mV.
 Response Response Status C
 ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.1** P **258** L **21** # **-107**

Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

Comment Type **TR** Comment Status **R** HO eye width

ESMW/EW were removed in draft 1.4 with the introduction of the +/- 50 mUI rectangular window with VEO and VEC limits not passing the task force introduced Gaussian window which in effect reduces implicit minimum receiver eye opening. With current Gaussian window for typical high loss channel EW can be as little as 120 mUI, in comparisons CL120E min ESMW=220 mU. The 120 mUI can be further degraded for lower loss channel with pathological reflections/jitter may result in EW <100 mUI. Eye width opening is as critical as VEC/VEO, without explicit EW specifications and with current Gaussian window there is significant interoperability risk.

SuggestedRemedy

An explicit ESMW>=175 mUI specifications which is available in the scope might be the simplest, other alternative would be to go back to rectangular mask with +/- 50 mUI or introduce 10 sides mask as demonstrated in https://www.ieee802.org/3/ck/public/21_01/dawe_3ck_01_0121.pdf

Response Response Status **U**

REJECT.

There is no consensus to make the proposed changes.

For details, see the reponse to comment i-211.

Cl **120G** SC **120G.3.2** P **261** L **11** # **-187**

Dawe, Piers J G NVIDIA

Comment Type **TR** Comment Status **R** MO EH

On one hand: the eye height measurement method is very inaccurate, host receivers that implement CR can cope with much smaller eye height than this, VEC is much more important. Receiver noise is already in the measurement, C2M drivers are traditionally 900/1200 as strong as CR/KR drivers, and the end-to-end loss is lower by a much larger ratio. So a small EH is acceptable.

On the other hand: if the eye height limit is the same at near end as at far end, there is huge margin at near end and the implementer can optimise beyond far end, only limited by the NE VEC spec, while we want modules to be set up consistently, for the full range from near to far. NE and FE EH naturally differ, and the spec should reflect that. Also, host designers know their own loss and low-loss hosts (NICs) can take advantage of a naturally larger signal that cost the module nothing. This applies to both the short and long modes.

SuggestedRemedy

Change the far end eye height so that it is 2 dB below near end: if near can remain at 15 mV, far becomes 12 mV. Far end remains the one with less margin, that the implementer should tune the module for.

Response Response Status **U**

REJECT.

The comment makes reference to the capabilities of a CR SERDES. Annex 120G is specifying C2M recievers and transmitters. Although it is true that the host might have a CR-capable SERDES that may not be universally the case. Note that there are different host channel budgets for CR and C2M.

The comment does not provide sufficient justification for the proposed changes. Analysis is required to demonstrate the need.

There is no consensus to make the proposed changes.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.2** P **261** L **11** # **I-188**
 Dawe, Piers J G NVIDIA
 Comment Type **TR** Comment Status **R** MO EH/VEC

The module output eye height and VEC have to comply at both near end and far end, and depending on the cleanliness of its signal, a module can be tuned to either end or somewhere in the middle, or even somewhere outside the range. The host stressed input signal is tuned to far end, only, so the host isn't required to receive those other tuning choices. This is inconsistent and a serious flaw in the spec. Yet we would rather not have multiple host stress tests, nor require the host to receive unnecessary and sub-optimal signal tunings, so we need to make sure that modules are tuned correctly.

SuggestedRemedy

Tighten the equaliser limits for module output so that modules are tuned consistently across the industry. Because the channel losses in short and long mode testing are significantly different, in Table 20G-11 use separate gDC limits for short and long mode (see other comments). To discourage module implementers from mis-tuning modules so they are optimised significantly beyond the far end, in Table 120G-3, ensure that each near end VEC is 0.5 dB less (better) than its corresponding far end VEC, and the far end EHs are 2 dB less than the corresponding near end EHs. Note other comments that address what these values should be.

Response **REJECT.** Response Status **U**

The comment provides insufficient evidence evidence that the proposed changes are necessary or improve the interoperability.

Cl **120G** SC **120G.3.2** P **261** L **12** # **I-108**
 Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type **TR** Comment Status **R** MO eye width

ESMW/EW were removed in draft 1.4 with the introduction of the +/- 50 mUI rectangular window with VEO and VEC limits not passing the task force introduced Gaussian window which in effect reduces implicit minimum receiver eye opening. With current Gaussian window for typical high loss channel EW can be as little as 120 mUI, in comparisons CL120E min farend ESMW=200 mU. The 120 mUI can be further degraded for lower loss channel with pathological reflections/jitter may result in EW <100 mUI. Eye width opening is as critical as VEC/VEO, without explicit EW specifications and with current Gaussian window there is significant interoperability risk.

SuggestedRemedy

An explicit ESMW>=150 mUI specifications which is available in the scope might be the simplest, other alternative would be to go back to rectangular mask with +/- 50 mUI or introduce 10 sides mask as demonstrated in https://www.ieee802.org/3/ck/public/21_01/dawe_3ck_01_0121.pdf

Response **REJECT.** Response Status **U**

There is no consensus to make the proposed changes.

For details, see the reponse to comment i-211.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

CI **120G** SC **120G.3.2.2** P **262** L **3** # **1-68**

Ran, Adee Cisco Systems, Inc.

Comment Type **TR** Comment Status **A** MO output conditions

The test configuration shown in Figure 120G-7 is unclear about the source of the pattern used to drive the module output during the test.

In practice, three possibilities are likely to be considered by a test engineer:

1. The module can be fed an externally-generated compliant signal to its optical receiver. This would represent a real-life use case; but it makes a complicated test setup, and the pattern may contain occasional errors from the optical receiver, which will interfere with sampling scope operation (unless the BER on the optical segment is low enough).
2. The module can be fed a minimally compliant signal to its electrical input (e.g. the stressed input tolerance signal, 120G.3.4.3) its optical output looped back through an optical patch cord. This would approximate a real-life use case, without requiring optical test signal calibration. But this method is ruled out by the requirement to have asynchronous co- and counter-propagating signals.
3. The module can generate the test pattern internally, and be feed asynchronous electrical counter-propagating signals to its input. But this would not represent a real-life use case, since the pattern uses an internal clock likely with very low jitter compared to the clock recovered from an optical signal.

Option 3 is not prohibited anywhere in the text; if it is allowed, modules may pass their tests but have degraded output in the field, due to excessive jitter from using a recovered clock. The host input tolerance requirements are equal to the module output requirement, and do not account for such degradation, so a system with compliant components may fail.

The suggested remedy is to clarify that the requirements hold for any compliant optical signal input to the module, and note that using internally generated test pattern does not create a representative signal; the test engineer will have to sort it out.

Alternatively, we could remove the requirement for asynchronous counter- and co-propagating signals, to enable testing with optical loopback, which would be easier to conduct. If that is done, it should be required to use optical loopback (through the PMD) rather than internal electrical loopback (which would still not be representative, since it would involve only one clock regeneration); and in addition, the electrical signal should be a stressed input signal.

SuggestedRemedy

In 120G.3.2, change "The module output shall meet the specifications given in Table 120G-3" to "The module output shall meet the specifications given in Table 120G-3 for any compliant optical input signal".

In 120G.3.2.2, add a NOTE after Figure 120G-7:

NOTE—Driving the module output using an internally generated pattern might not create output signals representative of full-link operation, and may result in false pass results. It is recommended to use feed the module with an optical signal modulated by the test pattern.

Response Response Status **U**

ACCEPT IN PRINCIPLE.

It does not make sense to add a caveat that all parameters in Table 120G-3 meet the specifications with any optical input since only EH and VEC might be affected. However, the for EH and VEC a table footnote might be used for that purpose. With such an addition it is not necessary to insert the additional note proposed in the suggested remedy; for instance a module might properly isolate the electrical output from the optical input by design. Also, it is not necessary to test, but rather only to meet the requirements. Finally, the EH/VEC are measured with PRBS13Q whereas a worst case optical signal would be a richer pattern.

Add a note "Driving the module output using an internally generated clock, rather than the recovered clock from the PMD input, might create output signals that are more optimistic than full-link operation."

CI **120G** SC **120G.3.2.2.1** P **263** L **14** # **1-189**

Dawe, Piers J G NVIDIA

Comment Type **TR** Comment Status **R** MO test channel

If we include an allowance for host transmitter package loss for the host stressed input test, it would make sense to include the same allowance for far-end module output specs. As the change is to the reference host channel which is in software, it's convenient to do, rather than rely on extrapolation.

SuggestedRemedy

Increase the two far-end lengths by 2.2 dB (taking 16 dB to 18.2 dB, aligning with 120G.3.4.3.2). In Table 120G-11, increase bbmax(1) from 0.4 to 0.55. Reduce module output eye height by 2.2 dB.

Response Response Status **U**

REJECT.

The total host side insertion loss prescribed is 9.6 dB for the synthetic transmission line and 2.3 dB for the module compliance board for a total of 11.9 dB, which matches with the maximum host insertion loss recommendation in Figure 120G-2.

The comment proposes that the module output should be measured with the maximum host insertion loss plus an allocation similar to that used in the frequency-dependant attenuator in 120G.3.4.3.2 then scale the eye height proportionally and increase the DFE tap range.

The reasoning for making the changes seems sounds, but insufficient analysis has been provided to show that the changes to the DFE tap range and the eye height value are appropriate.

There is some interest in increasing the channel loss as proposed, but there is insufficient analysis provided to support the proposed new values for bbmax and eye height. Further analysis and consensus is encouraged.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.3.5.1** P **265** L **50** # **I-112**
 Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type **TR** Comment Status **A** (bucket2)
 Not sure why you are referencing Table 120F-3, maybe the intention was Figure 120F-3!
 SuggestedRemedy
 Please change to Figure 120F-3
 Response Response Status **W**
 ACCEPT IN PRINCIPLE.
 The cross reference should be pointing to Figure 120F-3 not Table 120F-3.
 Implement the suggested remedy.

Cl **120G** SC **120G.3.3.5.1** P **265** L **50** # **I-192**
 Dawe, Piers J G NVIDIA
 Comment Type **TR** Comment Status **R** HI SIT PG
 For module output, the optimum setting for the *first* precursor is 0.02 to 0.04, and the optimum for the *second* precursor is much smaller, so very weak. It would be better to make stressed signals (and real signals) consistent across the industry and simplify the tuning challenge for real modules than to try to squeeze out the last drop of tuning. We don't use smaller than 0.02 steps in COM.
 The same point applies to module stressed input signal generator, but 120G.3.4.3.1 refers back to here.
 SuggestedRemedy
 For the host stressed input signal generator functional model, set the third precursor to zero. Modify "The tap coefficients are not specified with the exception that".
 Response Response Status **C**
 REJECT.
 Per straw poll #12 there is no consensus to make the proposed changes.
 Straw poll #12
 I support reducing the pattern generator reference architecture to have 2 precursor taps instead of 3.
 Yes: 7
 No: 21

Cl **120G** SC **120G.3.3.5.1** P **265** L **52** # **I-113**
 Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type **TR** Comment Status **R** HI SIT PG (bucket2)
 What is the intention of defining no equalization state, I don't see it being used!
 SuggestedRemedy
 This sentence is either incomplete or should be removed.
 Response Response Status **W**
 REJECT.
 The "no equalization" state is requested in 120G.3.3.5.2 step a).

Cl **120G** SC **120G.3.3.5.1** P **266** L **6** # **I-27**
 Brown, Matthew Huawei Technologies Canada
 Comment Type **T** Comment Status **A** HI SIT BUJ
 The BUJ generation method is based on that specified in 120E.3.4.1.1. Since the BUJ pattern signaling rate doubles compared to that in 120E.3.4.1.1, the corner frequency limits for the BUJ jitter filter should be scaled the same to give the same jitter distribution.
 SuggestedRemedy
 Change: "The low-pass filter has 20 dB/decade rolloff with a -3 dB corner frequency between 150 MHz and 300 MHz."
 To: "The low-pass filter has 20 dB/decade rolloff with a -3 dB corner frequency between 600 MHz and 1.2 GHz."
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Changing the filter bandwidth may make the jitter driving signal too high in frequency for some test equipment. The problem may alternately be resolved by reducing the signal rate by half.
 Change "The pattern should be either PRBS7 or PRBS9 (see 83.5.10) with a signaling rate approximately 1/10 of the stressed pattern signaling rate (e.g., 5.3125 GBd)."
 To "The pattern should be either PRBS7 or PRBS9 (see 83.5.10) with a signaling rate approximately 1/20 of the stressed pattern signaling rate (e.g., 2.656 GBd)."

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.3.5.1** P **266** L **15** # **I-194**
 Dawe, Piers J G NVIDIA
 Comment Type **TR** Comment Status **A** HI SIT VEC/EH
 The host stressed input signal is emulating a module so obviously it must obey the same rules. VEC and eye height must be in spec for both near end and far end. Ensuring this is part of the calibration process. See comment against page 267, line 25.
SuggestedRemedy
 Change "short or long mode far-end test" to "short or long mode far-end calibration or long mode near-end verification"
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment i-198.

Cl **120G** SC **120G.3.3.5.2** P **267** L **2** # **I-196**
 Dawe, Piers J G NVIDIA
 Comment Type **T** Comment Status **R** HI SIT calibration
 It may not be feasible to obtain a pattern generator signal with the right rise time (transition time with "no equalization"), or perfect compliance boards, but that's OK if the loss board is tweaked to allow for this.
SuggestedRemedy
 Add text: The reference host channel may be adjusted so that combination of the pattern generator output transition time (see step a), the HCB and the reference host channel has the effect of the ideal setup described here.
 There is another comment for 120G.3.4.3.2.
 Response Response Status **C**
 REJECT.
 [Editor's note: Changed line from 20 to 2.]
 It is always possible to make up for the shortcomings of test equipment on hand by adjusting the entire setup to result in the same result. It is not necessary to state that for every test.

Cl **120G** SC **120G.3.3.5.2** P **267** L **21** # **I-197**
 Dawe, Piers J G NVIDIA
 Comment Type **TR** Comment Status **A** HI SIT near-end
 The host stressed input signal is emulating a module so obviously it must obey the same rules. VEC and eye height must be in spec for both near end and far end. Ensuring this is part of the calibration process. See comment against line 25.
 This says "parameters in Table 120G-5 for far-end host channel type and the requested mode": but in one case, the near end needs a parameter from the table.
SuggestedRemedy
 Change "for far-end host channel type and the requested mode" to "for host channel type and the requested module output mode".
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Resolve using the response to comment i-198.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.3.5.2** P **267** L **25** # **i-198**

Dawe, Piers J G

NVIDIA

Comment Type **TR** Comment Status **A** HI SIT near-end

The signal needs to be verified with the near end channel so that its eye height is at least the target and its VEC is no more than VEC (max) in the table. If it fails at NE, the signal must be adjusted to bring it into compliance. Also, the stressed input signal needs to obey the rules for differential peak-to-peak output voltage.

SuggestedRemedy

Change

... adjusted to minimize VEC, so that the eye height of the smallest eye matches the target value and VEC is within the limits in Table 120G-8.

to

... adjusted to minimize far-end VEC, so that the far-end eye height of the smallest eye matches the target value, far-end VEC is within the limits in Table 120G-8, and differential peak-to-peak output voltage, near-end VEC and eye height are within the limits in Table 120G-3.

Also (see other comments),

Include separate near-end and far-end VEC limits in Table 120G-8. As there will be more than one eye height limit for module output, there will be multiple EH targets here: it may be simpler to refer to Table 120G-3, Module output characteristics at TP4, rather than list them all again here.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

In D3.0, the host stressed input test the signal is calibrated for far-end (i.e., with a representative host channel). This would result in appropriate transmitter settings for a host with a fairly high-loss channel. However, for hosts with a lower loss channel this might be a problem if the signal is not within module requirements for near end measurement with these calibrated pattern generator settings.

Implement the modified text on slide 14 in the following presentation with editorial license. https://www.ieee802.org/3/ck/public/22_01/brown_3ck_02b_0122.pdf

Cl **120G** SC **120G.3.3.5.2** P **267** L **39** # **i-115**

Ghiasi, Ali

Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

Comment Type **TR** Comment Status **R** HI eye width

ESMW/EW were removed in draft 1.4 with the introduction of the +/- 50 mUI rectangular window with VEO and VEC limits not passing the task force introduced Gaussian window which in effect reduces implicit minimum receiver eye opening. With current Gaussian window for typical high loss channel EW can be as little as 120 mUI, in comparisons CL120E min farend ESMW=200 mU. The 120 mUI can be further degraded for lower loss channel with pathological reflections/jitter may result in EW <100 mUI. Eye width opening is as critical as VEC/VEO, without explicit EW specifications and with current Gaussian window there is significant interoperability risk.

SuggestedRemedy

An explicit ESMW>=150 mUI specifications which is available in the scope might be the simplest, other alternative would be to go back to rectangular mask with +/- 50 mUI or introduce 10 sides mask as demonstrated in https://www.ieee802.org/3/ck/public/21_01/dawe_3ck_01_0121.pdf

Response Response Status **U**

REJECT.

There is no consensus to make the proposed changes.

For details, see the reponse to comment i-211.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.3.5.3** P **268** L **10** # **I-199**

Dawe, Piers J G NVIDIA
 Comment Type **T** Comment Status **A** *HI/MI BER*

There's a problem with identifying which lanes are relevant. For example, if a host has QSFP-DD ports, there are 8 host lanes (per physical port), but there may be just 1, 2 or 4 lanes in each AUI. "The host electrical output is enabled on all lanes with any of the patterns above" is fine, it includes all the neighbours. While for "The host BER is the average of the BER of each of its lanes", only the lanes in the PMA (AUI) under test are relevant. "Module BER" in 120G.3.4.2.3 is even more open to misinterpretation because we are so clear how many lanes a module has. But, terminology for this has been set up: the term "interface BER" is used 19 times in the base document, and is defined in 86.8.2.1, 86.8.4.7, 86.8.4.8, 95.8.1.1 and 86A.5.3.8.1. 86A is an electrical spec. "host BER" and "module BER" are used just once each.

SuggestedRemedy

Change paragraph to:
 The relevant BER is the interface BER, which is the average of the BER of each of the lanes in the AUI under test.
 If the test is performed with PRBS31Q, the BER of a PMA lane may be calculated using the bit error counter in the PMA test pattern checker (see 120.5.11.2.2) as the number of bit errors divided by the number of received bits.
 If the test is performed with scrambled idle or another valid 100GBASE-R, 200GBASE-R, or 400GBASE-R sequence, the interface BER may be calculated using the host FEC decoder error counters (see 91.6 and 119.3.1), as the number of FEC symbol errors divided by the number of received bits.
 Similarly in 120G.3.4.2.3.

Response Response Status **C**
 ACCEPT IN PRINCIPLE.

Rather than redefine other terms, e.g., "interface BER", "host BER", "module BER", for this purpose, it would be better to avoid such nomenclature altogether by using descriptive terms. Also, for the FEC decoder since it might be a real host or a piece of test equipment remove the word host there.

In 120G.3.3.5.3...
 Change "The host BER is the average of the BER of each of its lanes."
 To "The BER for the AUI under test is the average of the BER of each of its lanes."
 Change "the host BER may be calculated using the host FEC decoder error counters"
 To: "the BER for the AUI under test may be calculated using the FEC decoder error counters"

In 120G.3.4.3.3...
 Change: "The module BER is the average of the BER of each of its lanes."
 To: "The BER for the AUI under test is the average of the BER of each of its lanes."
 Change: "The module BER is calculated using the host FEC decoder error counters"
 To: "The BER for the AUI under test is calculated using the FEC decoder error counters"

Implement with editorial license.

Cl **120G** SC **120G.3.4** P **269** L **12** # **I-29**

Brown, Matthew Huawei Technologies Canada
 Comment Type **E** Comment Status **A** *(bucket2)*

Table 120G-9 is titled "Module input characteristics" thus it is obvious that all specifications in this table relate to the module input. To match the other specifications in this table the word "input" should be removed from the parameter "Differential pk-pk input voltage tolerance (min)"

SuggestedRemedy

Change "Differential pk-pk voltage tolerance (min)"
 To "Differential pk-pk voltage tolerance (min)"

Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Change "Differential pk-pk input voltage tolerance (min)"
 To "Differential pk-pk voltage tolerance (min)"

Cl **120G** SC **120G.3.4** P **269** L **19** # **I-116**

Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type **TR** Comment Status **R** *MI eye width*

ESMW/EW were removed in draft 1.4 with the introduction of the +/- 50 mUI rectangular window with VEO and VEC limits not passing the task force introduced Gaussian window which in effect reduces implicit minimum receiver eye opening. With current Gaussian window for typical high loss channel EW can be as little as 120 mUI, in comparisons CL120E min ESMW=220 mUI. The 120 mUI can be further degraded for lower loss channel with pathological reflections/jitter may result in EW <100 mUI. Eye width opening is as critical as VEC/VEO, without explicit EW specifications and with current Gaussian window there is significant interoperability risk.

SuggestedRemedy

An explicit ESMW>=175 mUI specifications which is available in the scope might be the simplest, other alternative would be to go back to rectangular mask with +/- 50 mUI or introduce 10 sides mask as demonstrated in
https://www.ieee802.org/3/ck/public/21_01/dawe_3ck_01_0121.pdf

Response Response Status **U**
 REJECT.

There is no consensus to make the proposed changes.

For details, see the reponse to comment i-211.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.3.4.3.2** P **271** L **4** # **I-69**
 Ran, Adee Cisco Systems, Inc.
 Comment Type **T** Comment Status **A** ! *SIT transition time (bucket2)*
 In module stressed input calibration, the transition time should be defined with no Tx equalization in the pattern generator, as in the host stressed input calibration, 120G.3.3.5.2.
SuggestedRemedy
 Change from
 "The pattern generator is set to generate a PRBS13Q pattern (see 120.5.11.2.1) with transition time (see 120G.3.1.4) at the output of the pattern generator as specified in Table 120G-10"
 To
 "The pattern generator is set to generate a PRBS13Q pattern (see 120.5.11.2.1). The transition time (see 120G.3.1.4) measured at the output of the pattern generator when configured to "no equalization" is as specified in Table 120G-10".
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Resolve using the reponse to comment #200.

Cl **120G** SC **120G.3.4.3.2** P **271** L **4** # **I-200**
 Dawe, Piers J G NVIDIA
 Comment Type **T** Comment Status **A** ! *SIT transition time (bucket2)*
 120G.3.3.5.2 says that "The pattern generator is set to generate a PRBS13Q pattern (see 120.5.11.2.1). The transition time (see 120G.3.1.4) measured at TP4a with the pattern generator output equalization configured for "no equalization" is as specified in Table 120G-8." This says "The pattern generator is set to generate a PRBS13Q pattern (see 120.5.11.2.1) with transition time (see 120G.3.1.4) at the output of the pattern generator as specified in Table 120G-10."
 The point about neutral emphasis (so it's really rise time not transition time) applies to both. D2.2 comment 133. (The terminology problem is in the base document: generally, the parameter Tr is not a "transition time" as defined, but can be called a rise time.)
SuggestedRemedy
 Change
 "(see 120.5.11.2.1) with transition time (see 120G.3.1.4) at the output of the pattern generator as specified in Table 120G-10." to
 "(see 120.5.11.2.1). The transition time (see 120G.3.1.4) measured at the output of the pattern generator, with the pattern generator output equalization configured for "no equalization", is as specified in Table 120G-10."
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Implement the suggested remedy with editorial license.
 Also, align the punctuation (commas) on page 267 line 2.

Cl **120G** SC **120G.3.4.3.2** P **271** L **30** # **I-203**
 Dawe, Piers J G NVIDIA
 Comment Type **T** Comment Status **R** *HI SIT calibration*
 It may not be feasible to obtain a pattern generator signal with the right rise time (transition time with "no equalization"), or perfect compliance boards, but that's OK if the loss board is tweaked to allow for this.
SuggestedRemedy
 Add text: The combination of the pattern generator output transition time (see step a) and the implementations of the frequency-dependent attenuator and the MCB, may be chosen together so that the combination has the effect of the ideal parts described here.
 There is another comment for 120G.3.3.5.2.
 Response Response Status **C**
 REJECT.
 Resolve using the response to comment #196.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **120G** SC **120G.5.2** P **276** L **21** # **I-210**

Dawe, Piers J G

NVIDIA

Comment Type **T** Comment Status **R** EH/VEC method

This says "a minimum of 3 samples per symbol, or equivalent. Collect sufficient samples equivalent to at least 1.2 million PAM4 symbols to allow for construction of a normalized cumulative distribution function (CDF) to a probability of 10^{-5} without extrapolation." With a uniform-weighted histogram/mask, one needs several times $1e5$ samples in the 0.1 UI window to get several hits in each tail. If samples are distributed uniformly across time, and using 10 for "several" for simplicity, we need $10 * 1e5 / 0.1 = 10$ million samples. The first sentence implies that maybe several times fewer are needed, but still, 1.2 million seems too few for a reference (accurate) measurement. If Gaussian weighting is used (which it should not be, see another comment) then one needs many more de-weighted hits to get to a false $1e-5$ in the tails. Also, giving a number is like telling the test engineer to use an instrument with a certain precision. That's not the standard's business; we say what the outcome of an accurate, possibly idealised, measurement must be, and the test engineer balances cost, time, margin, accuracy and so on. Including choosing how many samples.

SuggestedRemedy

Change "equivalent to at least 1.2 million PAM4 symbols" into an example, with a higher number, or delete it.

Response Response Status **C**

REJECT.

There are two concerns being discussed in the comment. The first is whether the equivalent number of symbols suggested is sufficient. The second is whether this number should be provided at all, leaving it to the test engineer to determine an appropriate number.

Change the last two sentences to:

"The signal is captured such that samples, after any post-processing as necessary, are evenly distributed throughout the measurement window and are numerous enough for an accurate normalized cumulative distribution function (CDF) to a probability of $1E-5$ without extrapolation."

Cl **120G** SC **120G.5.2** P **277** L **6** # **I-211**

Dawe, Piers J G

NVIDIA

Comment Type **TR** Comment Status **R** EH/VEC method mask

This draft has a (de-)weighted rectangular eye mask spec with mask height = $\max(\text{EHmin}, \text{EA}/\text{VECmax})$ and effective mask width $\sim 2x0.03$ to $2x0.035$ UI, although it is described as a histogram $2x0.05$ UI wide. This is too narrow; compare 120E with ESMW of 0.2 or 0.22 UI. It's half as wide as TDECQ with histograms extending to ± 0.07 UI.

This de-weighted histogram might have worked if there had been a guarantee that no host or module would ever produce a fast, highly jittered eye, but we don't have that guarantee. Work needs to be done to repair the hole in the spec.

See healey_3ck_01a_1020 slide 6, orange dots for ± 0.025 UI which is the closest to the current draft. For VEC of 10 dB, EW can be anywhere in the range 160 to 290 mUI: an almost 2:1 range. Driver risetime is not reported; if it is always the COM default slowest-reasonable 7.5 ps, then even worse EW is possible with faster or peaked drivers. This is too much worse than 120E. As the plot shows, a wide range of eye widths are possible, so we don't need to allow the worst ones by an oversight.

De-weighting the sides of the histogram with flat top and bottom, rather than chamfering the corners, means that infringing the corners by a mile is counted the same as infringing by an inch, which is bad.

Most of the weight of samples is in the middle of the eye which is a waste of measurement time; we know the corners will fail first so we should measure them, not the middle. Hence the 2-offsets approach of TDEC and healey_3ck_01a_1020.

The effective BER criterion of the (de-)weighted mask seems to be around $1e-4$, not $1e-5$ as before.

The distribution of repeated measurements is very skewed.

We need an eye mask that's more eye shaped, so that a higher proportion of the samples near the boundary are measured at full weight and contribute properly to the measurement. Eye mask measurement with a 10-sided mask has been pre-programmed into scopes for about 20 years, we should use established tools and methods where they work well.

The 10-sided mask controls the eye on the diagonal more strongly than the rectangular uniform histogram/mask because hits are collected over the time of the chamfer, rather than just in corners. The de-weighted rectangular histogram controls the eye on the diagonal more weakly than the rectangular uniform histogram/mask because hits are collected just in corners, and de-weighted.

SuggestedRemedy

Change from a 4-cornered weighted mask with corners at $t = ts \pm 0.05$, $V = y \pm H/2$ to a 10-cornered unweighted mask with corners at $t = ts \pm 1/16$, $ts \pm 0.05$, $ts \pm 3/32$, $V = y \pm H/2$, $y \pm H * 0.4$, y . y is near VCmid, VCupp or VClow (vertically floating, as in D3.0). H is $\max(\text{EHmin}, \text{Eye Amplitude} * 10^{-(\text{VECmax}/20)})$. Eye Amplitude is AVupp, AVmid or AVlow, as today.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

This simple scalable method gives VEC results 0.5 to 1 dB more optimistic than the unweighted rectangular mask. It can remain as the EH and VEC limits are revised in the light of experience.

Response Response Status **U**

REJECT.

Straw polls #8 and #9 indicate strong consensus to continue with a weighted window approach. Straw polls #10 and #11 indicate strong consensus to continue with the currently specified weighting function.

There is no consensus to make the proposed changes to the draft.

Straw poll #8 (chicago rules)

Straw poll #9 (choose one)

I support the following direction of the eye opening specification method:

A. weighted window per Draft 3.0 (as is or with some improvements)

B. revert to uniform weighted window per D2.1 (D3.0 comment #212)

C. 10pt mask per D3.0 comment #211

#8 A: 31 B: 12 C: 6

#9 A: 27 B: 5 C: 1

Note: Straw poll #8 and #9 are the same question and answers except #8 is chicago rules (pick any) and #9 is choose one.

Straw poll #10 (chicago rules)

Straw poll #11 (choose one)

To address eye width issues expressed, I support the following method to modify the weighted window:

A. no change

B. "wider" weighting mask (e.g., larger sigma, alternate distribution shape)

C. add jitter specification

D. add eye width specification (i.e., per D3.0 comments 107, 108, 115, 116)

#10 A: 26 B: 15 C: 9 D:9

#11 A: 19 B: 5 C: 3 D: 4

Note: Straw poll #10 and #11 are the same question and answers except #10 is chicago rules (pick any) and #11 is choose one.

Cl **120G** SC **120G.5.2** P **277** L **6** # **i-212**

Dawe, Piers J G NVIDIA

Comment Type **TR** Comment Status **R** EH/VEC method mask

The Gaussian weighting has the effect of destroying the histogram width, allowing bad fast eyes to pass, while failing less bad slow eyes. It gives the false impression that the histogram width still applies. With a weighting standard deviation of 0.02 UI, the eye height is measured at around +/-0.035 UI rather than the +/-0.05 UI with the unweighted histogram - depending on eye shape. Compare 120E with ESMW of 0.2 or 0.22 UI, and TDECQ with histograms extending twice as wide, to +/-0.07 UI.

This weighting is equivalent to relaxing the VEC spec by 1.5 to 2 dB - but it depends on the eye shape, it weakens the spec most for the worst-shaped eyes, which is bad. It applies a worse BER criterion than the 1e-5 intended.

SuggestedRemedy

Remove the Gaussian weighting and set the eye height and VEC limits (which need revision anyway) appropriately. ghiasi_3ck_01_0721, which was not given the presentation time it deserved, says that the minimum eye height in particular needs to be reduced for TP1 and TP4 far end.

Response Response Status **U**

REJECT.

There is no consensus to make the proposed changes.

For details, see the reponse to comment i-211.

Cl **121** SC **121.1** P **115** L **19** # **i-233**

Ben-Artsi, Liav Marvell Semiconductor, Inc.

Comment Type **E** Comment Status **R** (bucket2)

120-F and 120G have a different format than the line above - Same applies for table 122-1 on page 116

SuggestedRemedy

aline formats between the three and write: 120F-Chp-to-chip 200GAUI-2 and 120G-Chip-to-module 200GAUI-2. Fix also table 122-1

Response Response Status **C**

REJECT.

The newly inserted 200GAUI-2 C2C and C2M are consistent with the nomenclature in the corresponding Annexes and other PMD clauses. The description used for the other AUIs as written in the base standard; addressing these is outside the scope of 802.3ck.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 124 **SC 124.1** **P 118** **L 19** # **I-234**

Ben-Artsi, Liav Marvell Semiconductor, Inc.

Comment Type E **Comment Status R** (bucket2)

120-F and 120G have a different format than the line above

SuggestedRemedy
 aline formats between the three and write: 120F-Chp-to-chip 200GAUI-2 and 120G-Chip-to-module 200GAUI-2.

Response **Response Status C**

REJECT.
 The newly inserted 200GAUI-2 C2C and C2M are consistent with the nomenclature in the corresponding Annexes and other PMD clauses. The description used for the other AUIs as written in the base standard; addressing these is outside the scope of 802.3ck.

Cl 135 **SC 135.5.7.2** **P 123** **L 48** # **I-235**

Ben-Artsi, Liav Marvell Semiconductor, Inc.

Comment Type E **Comment Status R** (bucket2)

Stating the GAUI lane amounts in an increasing order makes more sense

SuggestedRemedy
 Replace 100GAUI-1 and 100GAUI-2 order on lines 47 and 51

Response **Response Status C**

REJECT.
 It is common practice to list in order of lane rate. The proposed changes do not improve the accuracy or clarity of the draft.

Cl 154 **SC 154.1** **P 133** **L 0** # **I-35**

Ran, Adeo Cisco Systems, Inc.

Comment Type T **Comment Status A** (bucket2)

Clause 154 (recently added to 802.3dc) defines the 100GBASE-ZR PHY, which may use the 100GAUI-1 C2C/C2M interfaces, in addition to the 100GAUI-2 and other interfaces currently listed.

SuggestedRemedy
 Add Clause 154 and 154.1 to the draft.

Amend Table 154–1 to include 100GAUI-1 C2C and 100GAUI-1 C2M, both optional.

Response **Response Status C**

ACCEPT IN PRINCIPLE.
 Implement the suggested remedy and also update Clause 80 appropriately.
 Implement with editorial license.

Cl 161 **SC 161** **P 133** **L 4** # **I-8**

Nicholl, Shawn Xilinx

Comment Type E **Comment Status A** (bucket1)

The latest P802.3/D3.0 (i.e. 802.3dc) nows uses lowercase "forward error correction", where previously uppercase was used.

SuggestedRemedy
 For P802.3ck, propose to change the Clause 161 title to lower case.

Also, within the text body of Clause 161 propose to change to lowercase other places where "Forward Error Correction" is currently found.

Response **Response Status C**

ACCEPT.

Cl 161 **SC 161.5.2.6** **P 134** **L 46** # **I-76**

Slavick, Jeff Broadcom Inc

Comment Type E **Comment Status A** (bucket1)

With the breaking up of 161.5.2.6 into two sub-clauses the introduction paragraph could use some pointers towards which sub-clause it's referring to.

SuggestedRemedy
 Add "(see 161.5.2.6.2)" after the word re-inserted on line 46

Add "(see 161.6.2.6.1)" at the end of the first sentence of 161.5.2.6

Response **Response Status C**

ACCEPT.

Cl 161 **SC 161.5.2.6** **P 135** **L 3** # **I-238**

Ben-Artsi, Liav Marvell Semiconductor, Inc.

Comment Type TR **Comment Status R** (bucket1)

In figure 161-2 it seems that this FEC does not support EEE. If such is desired recommend amending in a similar manner as Figure 91-2 in clause 91

SuggestedRemedy
 Add EEE support similar to Figure 91-2 in clause 91

Response **Response Status W**

REJECT.
 EEE is not an objective of P802.3ck.
 The baseline proposal says EEE deep sleep is not supported (see https://www.ieee802.org/3/ck/public/19_05/nicholl_3ck_01_0519.pdf)

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 161 SC 161.5.2.6.1 P 135 L 50 # I-77
 Slavick, Jeff Broadcom Inc
 Comment Type E Comment Status D
 The introduction paragraph and the first sentence of this sub-clause call this a "function"
 SuggestedRemedy
 Change the sub-clause title to be "Alignment marker mapping function"
 Proposed Response Response Status Z
 REJECT.
 This comment was WITHDRAWN by the commenter.

Cl 161 SC 161.5.2.6.1 P 136 L 5 # I-43
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket1)
 The variable x is inconsistency italicized in the text of list items a-c.
 SuggestedRemedy
 Make x italic wherever it denotes a lane number.
 Response Response Status C
 ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 3 # I-44
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket1)
 "x" should not be used as a multiplication symbol.
 Also applies in 161.5.3.5.
 SuggestedRemedy
 Change to a multiplication symbol as in the last paragraph of 161.5.2.6.1, in both places.
 Response Response Status C
 ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 6 # I-166
 Dawe, Piers J G NVIDIA
 Comment Type T Comment Status R (bucket1)
 What do you mean, "let"? In IEEE standards, we have shall, should, may and can. See 1.1.6.
 SuggestedRemedy
 Change "Let the set of vectors tx_scrambled_i<256:0> represent consecutive values of tx_scrambled<256:0>" to "In the following, the set of vectors tx_scrambled_i<256:0> represent consecutive values of tx_scrambled<256:0>", or "Consecutive values of tx_scrambled<256:0> are represented by a set of vectors tx_scrambled_i<256:0>". Or use "Given" as on the previous page.
 Response Response Status C
 REJECT.
 This text is consistent with the text in 119.2.4.4.1 in the base standard from which it is derived. The word "let" is used in this manner throughout Clause 91 and similar clauses. It is also a common form for defining a variable in a function.

Cl 161 SC 161.5.2.6.2 P 137 L 6 # I-4
 Marris, Arthur Cadence Design Systems, Inc.
 Comment Type T Comment Status A (bucket1)
 It would help understanding to point to where tx_scrambled is defined
 SuggestedRemedy
 Change:
 "Let the set of vectors tx_scrambled_i<256:0> represent consecutive values of tx_scrambled<256:0>."
 To:
 "Let the set of vectors tx_scrambled_i<256:0> represent consecutive values of the transcoder output tx_scrambled<256:0> (see 161.5.2.5 for a definition of the transcoder)."
 Response Response Status C
 ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 161 SC 161.5.2.6.2 P 137 L 7 # I-167

Dawe, Piers J G

NVIDIA

Comment Type T Comment Status A (bucket1)

Something called "tx_scrambled" appears without explanation. According to the text and figures 161-4 and 161-5, it is 257 bits long (but what is it?), but according to Fig 161-3 it's 2 RS symbols or 20 bits.

SuggestedRemedy

In 161.5.2.5, add a sentence saying that the transcoder output is tx_scrambled which is a 257-bit block. In Figures 161-3, change "tx_scrambled" to "Beginning of tx_scrambled", pointing at row 0, if that is what is intended.

Response Response Status C

ACCEPT IN PRINCIPLE.

Comments 4 and 9 add a reference to 161.5.2.5 which defines tx_scrambled by referencing 91.5.2.5 which makes clear the tx_scrambled is a 257-bit block. Make changes to Figure 161-3 in accordance with the response to comment 11

Cl 161 SC 161.5.2.6.2 P 137 L 7 # I-9

Nicholl, Shawn

Xilinx

Comment Type E Comment Status A (bucket1)

The variable tx_scrambled<256:0> is mentioned with little context to its origin or definition. Readers of the sub-clause may not realize that the variable's detailed definition is found outside of the Clause 161. Including some guiding text may help the reader to navigate.

SuggestedRemedy

Propose to change the sentence to:

- "Let the set of vectors tx_scrambled_j<256:0> represent consecutive values of the transcoder output tx_scrambled<256:0> (see 161.5.2.5 for the definition of the transcoder)."

Response Response Status C

ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 22 # I-10

Nicholl, Shawn

Xilinx

Comment Type E Comment Status A (bucket1)

The paragraph ending in "followed the alignment marker on each respective lane" leaves the reader thinking that some other text is meant to follow it.

SuggestedRemedy

Propose to re-locate this paragraph to the area prior to the text "For a 10280-bit block without an alignment marker group". This enhances readability of the sub-clause by co-locating the "with an alignment group" portions together.

Response Response Status C

ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 36 # I-11

Nicholl, Shawn

Xilinx

Comment Type E Comment Status A (bucket1)

In Figure 161-3 tx_scrambled is inserted into an area of 2x10 bits. However, tx_scrambled is 257 bits wide. This causes confusion. The diagram should be clarified.

SuggestedRemedy

P802.3/D3.0 (i.e. 802.3dc) Figure 119-5 and Figure 119-7 are very similar to Figure 161-3 and are the basis for the following proposed changes to Figure 161-3:

- Remove the arrow from the diagram
- Replace "FEC codeword A" with "from FEC codeword A"
- Replace "FEC codeword B" with "from FEC codeword B"
- Add shading to the final cell/column of the table (i.e. for the rows pertaining to FEC lane 0-3). The shading should be different colour from the 5-bit pad shading.
- Add superscript text "B A" into the newly shaded area for FEC lanes 1 and 3
- Add superscript text "A B" into the newly shaded area for FEC lanes 2
- Replace "tx_scrambled" with "Resumption of 257-bit blocks" or "Resumption of 257-bit tx_scrambled blocks"
- If "Resumption of 257-bit tx_scrambled blocks" is chosen, then propose to make similar text change to Figure 119-5 and Figure 119-7 through maintenance of P802.3/D3.0 (i.e. 802.3dc)
 - Beside the new text, add an "=" (equal symbol) and a rectangle that is shaded the same colour as the newly shared area
 - Note that this diagram is also consistent with latest P802.3/D3.0 (i.e. 802.3dc) Figure 91-4 and ideally will remain consistent with Figure 91-4

Response Response Status C

ACCEPT IN PRINCIPLE.

The commenter has made a similar comment against Clause 91 in the ballot against draft 3.0 of the 802.3dc revision project. Draft 3.1 of the revision project is expected to be published before draft 3.1 of 802.3ck.

Implement the suggested remedy with editorial licence and as far as possible maintain consistency with Figure 91-4 in draft 3.1 of the 802.3dc revision project.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 161 SC 161.5.2.6.2 P 137 L 44 # I-12

Nicholl, Shawn

Xilinx

Comment Type E Comment Status A (bucket1)

In Figure 161-4 tx_scrambled is mentioned in several places -- for an area of 35x257-bit and also in an area of 40x257-bit. However, tx_scrambled is 257 bits wide.

SuggestedRemedy

Propose to make the following change(s) to Figure 161-4:

- Replace (in two places) "am_txmapped 5x257-bit blocks" with "am_txmapped (5x257 bits)"
- Replace (in two places) "tx_scrambled 35x257-bit blocks" with "35x257-bit tx_scrambled blocks"
- Replace "tx_scrambled 40x257-bit blocks" with "40x257-bit tx_scrambled blocks"
- Note that this diagram is consistent with latest P802.3/D3.0 (i.e. 802.3dc) Figure 119-6 and Figure 119-8 and ideally will remain consistent with Figure 119-6 and Figure 119-8

Response Response Status C

ACCEPT IN PRINCIPLE.

The commenter has made a similar comment against Clause 119 in the ballot against draft 3.0 of the 802.3dc revision project. Draft 3.1 of the revision project is expected to be published before draft 3.1 of 802.3ck.

Implement the suggested remedy with editorial licence and as far as possible maintain consistency with Figure 119-6 in draft 3.1 of the 802.3dc revision project.

Also rename 161-4 to "Alignment marker insertion period"

Cl 161 SC 161.5.2.6.2 P 137 L 50 # I-13

Nicholl, Shawn

Xilinx

Comment Type ER Comment Status A (bucket1)

Figure 161-4 has the wrong caption.

SuggestedRemedy

Propose to replace the Figure 161-4 caption with:

- Figure 161-4 Alignment marker insertion period

Response Response Status W

ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 54 # I-14

Nicholl, Shawn

Xilinx

Comment Type E Comment Status A (bucket1)

In order to enhance readability and help readers to mentally connect together sections that are called by reference, the draft should include some detail about how tx_scrambled_am<10279:0> is consumed.

SuggestedRemedy

Propose to add a new final paragraph at the end of 161.5.2.6.2 with the following text:

- the contents of tx_scrambled_am<10279:0> are an input to the Pre-FEC distribution (see 161.5.2.7 for the definition of the Pre-FEC distribution)

Response Response Status C

ACCEPT.

Cl 161 SC 161.5.4.2.1 P 142 L 46 # I-15

Nicholl, Shawn

Xilinx

Comment Type E Comment Status A (bucket1)

Recently, P802.3/D2.3 (i.e. 802.3dc) introduced fec_lane_mapping<x> to the list of variables in 91.5.4.2.1. It seems appropriate to similarly update CL161.

SuggestedRemedy

Propose to insert fec_lane_mapping<x> after fec_lane.

For fec_lane_mapping<x> definition propose to use: "Identical to the definition of fec_lane in 91.5.4.2.1 except that 161.6.8 defines the FEC lane mapping."

- Note that this sub-section number may be changed by a related comment against the draft.

Response Response Status C

ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 161 SC 161.5.4.2.2 P 143 L 6 # I-33

Rannow, R K IEEE member / Self Employed

Comment Type T Comment Status R

Multiple instances of the term "both", and both = and. This appears verbose and perhaps ambiguous.

Confusing statement:

If current_pcs1 and first_pcs1 both found a match and indicate the same PCS lane number, amp_match is set to true. Otherwise, amp_match is set to false.

SuggestedRemedy

Review and remove the term "both".

Suggested modification:

If current_pcs1 and first_pcs1 match and indicate the same PCS lane number, amp_match is set to true. Otherwise, amp_match is set to false.

Response Response Status C

REJECT.

The commenter has not explained why the existing text is confusing.

The text is similar to existing text in the base standard in 119.2.6.2.3.

The suggested remedy does not improve upon the accuracy or clarity of the existing text.

Cl 161 SC 161.6 P 146 L 19 # I-16

Nicholl, Shawn Xilinx

Comment Type ER Comment Status A (bucket1)

The latest P802.3/D3.0 (i.e. 802.3dc) Table 91-3 lists rows sorted by "Register/bit number" it seems appropriate for P802.3ck Table 161-2 to do the same.

SuggestedRemedy

Summary of proposed changes to P802.3ck CL161:

- move "1.201.3" higher in the table (i.e. after 1.201.2)
- move "1.201.4" higher in the table (i.e. after the new location of 1.201.3)
- move "1.207 to 1.209" higher in the table (i.e. after 1.206)

Response Response Status W

ACCEPT.

Cl 161 SC 161.6 P 146 L 49 # I-17

Nicholl, Shawn Xilinx

Comment Type ER Comment Status A (bucket1)

In the sub-sections of 161.6, a number of cross-references to sections of CL91 of the latest P802.3/D3.0 (i.e. 802.3dc) are incorrect. There are also some ordering issues with the sub-sections of 161.6.

SuggestedRemedy

Summary of proposed changes to P802.3ck CL161:

- pg. 146, line 49, 161.6.1 FEC_bypass_indication_enable: change "91.6.1" to "91.6.2"
- pg. 146, line 50, move the existing 161.6.10 FEC_degraded_SER_enable sub-clause after 161.6.1 FEC_bypass_indication_enable sub-clause to retain consistency with the order of entries in Table 161-1 ; update the FEC_degraded_SER_enable section to contain the text "Identical to the definition in 91.6.4, except the reference becomes 161.5.3.3.2."
- pg. 146, line 50, move the existing 161.6.14 100G_RS_FEC_Int_enable after the new location of FEC_degraded_SER_enable to retain consistency with the order of entries in Table 161-1
- pg. 146, line 50, move the existing 161.6.11 FEC_degraded_SER_activate_threshold sub-clause after the new location of 100G_RS_FEC_Int_enable sub-clause to retain consistency with the order of entries in Table 161-1; update the FEC_degraded_SER_activate_threshold section to contain the text "Identical to the definition in 91.6.5, except the reference becomes 161.5.3.3.2."
- pg. 146, line 50, move the existing 161.6.12 FEC_degraded_SER_deactivate_threshold sub-clause after the new location of FEC_degraded_SER_activate_threshold sub-clause ; update the FEC_degraded_SER_deactivate_threshold section to contain the text "Identical to the definition in 91.6.6, except the reference becomes 161.5.3.3.2."
- pg. 146, line 50, move the existing 161.6.13 FEC_degraded_SER_interval sub-clause after the new location of FEC_degraded_SER_deactivate_threshold sub-clause ; update the FEC_degraded_SER_interval section to contain the text "Identical to the definition in 91.6.6, except the reference becomes 161.5.3.3.2."
- pg. 146, line 53, 161.6.2 FEC_bypass_indication_ability: change "91.6.4" to "91.6.9"
- pg. 147, line 3, 161.6.3 hi_ser: change "91.6.5" to "91.6.10"
- pg. 146, line 5, move the existing 161.6.20 FEC_degraded_SER_ability sub-clause after 161.6.3 hi_ser sub-clause to retain consistency with the order of entries in Table 161-2 ; update the FEC_degraded_SER_ability section to contain the text "Identical to the definition in 91.6.11, except the reference becomes 161.5.3.3.2."
- pg. 146, line 5, move the existing 161.6.21 FEC_degraded_SER sub-clause after the new location of FEC_degraded_SER_ability sub-clause ; update the FEC_degraded_SER section to contain the text "Identical to the definition in 91.6.12, except the reference becomes 161.5.3.3.2."
- pg. 147, line 7, 161.6.4 amps_lock<x>: change "91.6.7" to "91.6.14"
- pg. 147, line 11, 161.6.5 fec_align_status: change "91.6.8" to "91.6.15"
- pg. 147, line 15, 161.6.6 FEC_corrected_cw_counter: change "91.6.9" to "91.6.16"
- pg. 147, line 18, 161.6.7 FEC_corrected_cw_counter: change "91.6.10" to "91.6.17"
- pg. 147, line 23, 161.6.8 FEC_lane_mapping<x>: change "91.6.11" to "91.6.18"
- pg. 147, line 24, move the existing 161.6.22 FEC_cw_counter sub-clause after FEC_lane_mapping<x> sub-clause to retain consistency with the order of entries in Table 161-2

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

- pg. 147, line 27, 161.6.9 FEC_symbol_error_counter_i: change "91.6.12" to "91.6.19"
- pg. 147, line 28, move the existing 161.6.23 FEC_codeword_error_bin_i sub-clause after FEC_symbol_error_counter_i sub-clause to retain consistency with the order of entries in Table 161-2
- pg. 148, line 3, 161.6.15 align_status: change "91.6.13" to "91.6.20"
- pg. 148, line 7, 161.6.16 BIP_error_counter_i: change "91.6.14" to "91.6.21"
- pg. 148, line 11, 161.6.17 lane_mapping<x>: change "91.6.15" to "91.6.22"
- pg. 148, line 15, 161.6.18 block_lock<x>: change "91.6.16" to "91.6.23"
- pg. 148, line 19, 161.6.19 am_lock<x>: change "91.6.17" to "91.6.24"

Response Response Status **W**

ACCEPT IN PRINCIPLE.
Implement the suggested remedy with editorial licence

Cl **161** SC **161.6.2** P **146** L **53** # **I-6**

Marris, Arthur Cadence Design Systems, Inc.

Comment Type **E** Comment Status **A** (bucket1)

Some of the cross references point to the wrong subclauses in Clause 91.

SuggestedRemedy

- On page 146 line 49 change 91.6.1 to 91.6.2
- On page 146 line 53 change 91.6.4 to 91.6.9
- On page 147 line 2 change 91.6.5 to 91.6.10
- On page 147 line 7 change 91.6.7 to 91.6.14
- On page 147 line 11 change 91.6.8 to 91.6.15
- On page 147 line 15 change 91.6.9 to 91.6.16
- On page 147 line 20 change 91.6.10 to 91.6.17
- On page 147 line 23 change 91.6.11 to 91.6.18
- On page 147 line 28 change 91.6.12 to 91.6.19
- On page 147 line 32 change 91.6.2b to 91.6.4
- On page 147 line 35 change 91.6.2c to 91.6.5
- On page 147 line 39 change 91.6.2d to 91.6.6
- On page 147 line 43 change 91.6.2e to 91.6.7
- On page 148 line 3 change 91.6.13 to 91.6.20
- On page 148 line 7 change 91.6.14 to 91.6.21
- On page 148 line 11 change 91.6.15 to 91.6.22
- On page 148 line 16 change 91.6.16 to 91.6.23
- On page 148 line 19 change 91.6.17 to 91.6.24

Response Response Status **C**

ACCEPT.

Cl **161** SC **161.6.10** P **147** L **30** # **I-45**

Ran, Adeo Cisco Systems, Inc.

Comment Type **ER** Comment Status **A** (bucket1)

The reference for FEC_degraded_SER_enable is to 91.6.2b. This was the subclause added in 802.3cd. After integration into 802.3dc, this became 91.6.4.

Similarly in 161.6.11 through 161.6.13, 161.6.20, and 161.6.21.

SuggestedRemedy

- In 161.6.10 change the reference to 91.6.4.
- In 161.6.11 change the reference to 91.6.5.
- In 161.6.12 change the reference to 91.6.6.
- In 161.6.13 change the reference to 91.6.7.
- In 161.6.20 change the reference to 91.6.11.
- In 161.6.21 change the reference to 91.6.12.

Response Response Status **W**

ACCEPT.

Cl **161** SC **161.7.3** P **150** L **13** # **I-46**

Ran, Adeo Cisco Systems, Inc.

Comment Type **E** Comment Status **A** (bucket1)

The "FEC degraded SER detection" option for this clause is defined in 161.5.3.3.2.

SuggestedRemedy

- Change the reference of item *FDD from 91.5.3.3.1 to 161.5.3.3.2.
- Similarly change item RF12 in 161.7.4.2.

Response Response Status **C**

ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162 P 166 L 6 # I-224

Zivny, Pavel Tektronix, Inc.

Comment Type T Comment Status R TX measurement

The "using a test system with a fourth-order Bessel-Thomson low-pass response with 40 GHz 3 dB bandwidth." allows for large range of result change depending on the end of B-T filter compliance. This can readily be corrected by specifying the roll-off, as has been done in optical standards for years - see e.g. 140.7.5 Transmitter and dispersion eye closure for PAM4 (TDECQ).

Reasoning: experiments show that for realistic signals the sensitivity (of measurement results) to roll-off compliance becomes insignificant past about 55 GHz. Presentation available.

SuggestedRemedy

Append "using a test system with a fourth-order Bessel-Thomson low-pass response with 40 GHz 3 dB bandwidth" with "compliant (to the B-T response) to at least 58 GHz, and lower or the same level as the 58 GHz response thereafter".

Response Response Status C

REJECT.

According to straw poll #7 there is no consensus to implement the suggested remedy. Further consensus and analysis is encouraged.

Straw poll #7

I support specifying the scope filter response in line with the suggested remedy in comment i-224.

Yes: 11

No: 13

Cl 162 SC 162.5 P 157 L 17 # I-125

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the max delays listed in Table 162-4.

SuggestedRemedy

Add a PICS entry "The sum of the transmit and the receive delay at one end of the link shall be no more than the maximum delays listed in Table 162-4" with a reference to clause 162.5.

Response Response Status C

REJECT.

Following the precedent from Clause 136.14, the table in Clause 162.14.3 contains an entry for delay requirements that refers back to Clause 162.5 and specifies that the delay constraints be met.

Cl 162 SC 162.6.1 P 158 L 1 # I-126

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP3 for 100GBASE-CR1 less than 54ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP3 for 100GBASE-CR1 shall be less than 54ns" with a reference to clause 162.6.1.

Response Response Status C

REJECT.

There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.1 P 158 L 4 # I-127

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP4 for 100GBASE-CR1 less than 134ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP4 for 100GBASE-CR1 shall be less than 134ns" with a reference to clause 162.6.1.

Response Response Status C

REJECT.

There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.1 P 158 L 8 # I-128

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP5 for 100GBASE-CR1 less than 145ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP5 for 100GBASE-CR1 shall be less than 145ns" with a reference to clause 162.6.1.

Response Response Status C

REJECT.

There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.6.2 P 158 L 23 # I-130

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew variation at SP3 for 200GBASE-CR2 and 400GBASE-CR4 less than 600ps.

SuggestedRemedy

Add a PICS entry "The Skew Variation at SP3 for 200GBASE-CR2 and 400GBASE-CR4 shall be less than 600ps" with a reference to clause 162.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.2 P 158 L 23 # I-129

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP3 for 200GBASE-CR2 and 400GBASE-CR4 less than 54ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP3 for 200GBASE-CR2 and 400GBASE-CR4 shall be less than 54ns" with a reference to clause 162.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.2 P 158 L 26 # I-132

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew variation at SP4 for 200GBASE-CR2 and 400GBASE-CR4 less than 3.4ns.

SuggestedRemedy

Add a PICS entry "The Skew Variation at SP4 for 200GBASE-CR2 and 400GBASE-CR4 shall be less than 3.4ns" with a reference to clause 162.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.2 P 158 L 26 # I-131

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP4 for 200GBASE-CR2 and 400GBASE-CR4 less than 134ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP4 for 200GBASE-CR2 and 400GBASE-CR4 shall be less than 134ns" with a reference to clause 162.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.2 P 158 L 30 # I-133

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP5 for 200GBASE-CR2 and 400GBASE-CR4 less than 145ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP5 for 200GBASE-CR2 and 400GBASE-CR4 shall be less than 145ns" with a reference to clause 162.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

Cl 162 SC 162.6.2 P 158 L 30 # I-134

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew variation at SP5 for 200GBASE-CR2 and 400GBASE-CR4 less than 3.6ns.

SuggestedRemedy

Add a PICS entry "The Skew Variation at SP5 for 200GBASE-CR2 and 400GBASE-CR4 shall be less than 3.6ns" with a reference to clause 162.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 162.6 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.7 P 158 L 37 # I-135

Hidaka, Yasuo

Credo Semiconductor

Comment Type E Comment Status A PICS (bucket2)

PICS entry seems missing for "shall" for mapping of MDIO variables and registers.

SuggestedRemedy

Add a PICS entry "MDIO shall map MDIO variables and registers to PMD variables as shown in Table 162-5 through Table 162-7" with a reference to clause 162.7.

Response Response Status C

ACCEPT IN PRINCIPLE.

The PICS table in Clause 162.14.3 contains an entry for MDIO capability with reference to subclause 162.7 and Value/Comment entry of "Device implements Clause 45 MDIO." Including specific reference to Clause 162.7 in the Value/Comment field would provide additional clarity to the requirement.

Change "Device implements Clause 45 MDIO" to "Device implements Clause 45 MDIO with the variable mapping in Clause 162.7."

Cl 162 SC 162.8.1 P 161 L 53 # I-169

Dawe, Piers J G

NVIDIA

Comment Type T Comment Status A (bucket2)

"The channel (see 162.11) is defined between the transmitter (TP0) and receiver (TP5) blocks to include the transmitter and receiver differential controlled impedance printed circuit board (PCB) differential-mode to differential-mode insertion loss and the cable assembly differential-mode to differential-mode insertion loss, as illustrated in Figure 162-2" - but discussing insertion loss is going off topic, it's not keeping to what the channel includes and we define other things about the channel, principally COM.

SuggestedRemedy

Change to "The channel (see 162.11) is defined between the transmitter (TP0) and receiver (TP5) blocks to include the transmitter and receiver differential controlled impedance printed circuit boards (PCBs), and the cable assembly, as illustrated in Figure 162-2."

Response Response Status C

ACCEPT IN PRINCIPLE.

Change to "The channel (see 162.11) is defined between the transmitter (TP0) and receiver (TP5) blocks to include the transmitter and receiver differential controlled impedance printed circuit boards (PCBs) and the cable assembly, as illustrated in Figure 162-2."

Cl 162 SC 162.8.2 P 162 L 34 # I-47

Ran, Adeo

Cisco Systems, Inc.

Comment Type T Comment Status A TX QUIET mode

The transmit function operating modes listed are DATA and TRAINING, but with the change of the PMD control state diagram we also need a QUIET mode, as in clause 136 (in 802.3dc).

SuggestedRemedy

In the first paragraph change "The PMD transmit function has two operating modes, DATA and TRAINING" to "The PMD transmit function has three operating modes: DATA, TRAINING, and QUIET".

Add the following paragraph at the end of 162.8.2:

"When operating in QUIET mode the PMD transmit function shall turn off the transmitter such that the transmitter drives a constant level (i.e., no transitions) and does not exceed the differential peak-to-peak output voltage (max) with Tx disabled in Table 162-10."

Response Response Status C

ACCEPT IN PRINCIPLE.

The suggested remedy is good except the transmitter does not necessarily "turn off"; "disable" is a better term.

In the first paragraph change "The PMD transmit function has two operating modes, DATA and TRAINING" to "The PMD transmit function has three operating modes: DATA, TRAINING, and QUIET"

Add the following paragraph at the end of 162.8.2:

"When operating in QUIET mode the PMD transmit function shall disable the transmitter such that the transmitter drives a constant level (i.e., no transitions) and does not exceed the differential peak-to-peak output voltage (max) with Tx disabled in Table 162-10."

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.8.2 P 162 L 35 # 1-79

Lusted, Kent Intel Corporation

Comment Type **TR** Comment Status **A** TX QUIET mode

The IEEE P802.3dc revision project made a change to the PMD control state diagram referenced in the P802.3ck draft. The PMD transmit function now has three operating modes, DATA, TRAINING and QUIET. (see IEEE P802.3dc D3.0 Cl 136.8.2 on p5315, line 49). The 3ck text does not specify the QUIET mode nor it's use.

SuggestedRemedy

Change the first sentence of Cl 162.8.11 to include the QUIET state by changing the sentence to "The PMD transmit function has three operating modes: DATA, TRAINING, and QUIET."

Add a second sentence to the first paragraph in Cl 162.8.11: "Support for the QUIET operating mode is required and implementations shall set the variable use_quiet_in_training (see 136.8.11.7.1) to TRUE."

Add a new paragraph to the end of Cl 162.8.11 that describes the QUIET mode: "When operating in QUIET mode the PMD transmit function shall turn off the transmitter such that the transmitter drives a constant level (i.e., no transitions) and does not exceed the differential peak-to-peak output voltage (max) with Tx disabled in Table 136-11."

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Resolve using the responses to comments #47 and #48.

Cl 162 SC 162.8.11 P 164 L 27 # 1-48

Ran, Adeo Cisco Systems, Inc.

Comment Type **TR** Comment Status **A** TX QUIET mode

When we defined the addition of QUIET state to the PMD control function in 136.8.11, it had the text "This variable is always set to FALSE for 50 Gb/s per lane PHYs, otherwise it is set to TRUE". Now that this change has been implemented in 802.3dc D3.0 and clause 136 removed from 802.3ck, we lost the requirement to set it to TRUE for the PHYs in clauses 162 and 163.

The suggested remedy is to add this requirement as another exception in 162.8.11.

An alternative solution is to amend the updated 136.8.11.7.1 (as of 802.3dc D3.0), specifically the definition of use_quiet_in_training, to be optional only in 50 Gb/s. This could be done as follows:

"Boolean variable that is TRUE if the PMD control function (see Figure 136-7) can enter the QUIET state. The value of this variable is implementation dependent for 50 Gb/s per lane PHYs, and TRUE for all other PHYs"

And amend the PICS of clause 136 accordingly.

SuggestedRemedy

Add exception to the list in 162.8.11:
h) The value of use_quiet_in_training (see 136.8.11.7.1) is TRUE.

Add a corresponding PICS item in 163.13.4.2.

Response Response Status **W**

ACCEPT IN PRINCIPLE.

Implement the suggested remedy.

Also, add new PICS items in 162.14.4.2 as well.

Implement with editorial license.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.8.11 P 164 L 42 # I-78

Slavick, Jeff Broadcom Inc

Comment Type TR Comment Status A TX QUIET mode

In D2.2 the use_quiet_in_training variable found in Cl136 is set to TRUE for non-50Gbps PHYs. In the current baseline draft use_quiet_in_training being set to TRUE is implementation dependent.

SuggestedRemedy

In the list of exceptions add:

h) The variable use_quiet_in_training is set to TRUE (see 136.8.11.7.1)

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #48.

Cl 162 SC 162.8.11 P 164 L 42 # I-121

Healey, Adam Broadcom Inc.

Comment Type T Comment Status A TX QUIET mode

In IEEE P802.3ck/D2.2, the definition of the variable use_quiet_in_training included the statement that "this variable is always set to FALSE for 50 Gb/s per lane PHYs, otherwise it is set to TRUE." When the modifications to 136.8 were moved to the IEEE P802.3 (IEEE 802.3dc) revision project, the statement was modified to state that "the value of this variable is implementation dependent." Since there is no superseding statement in 162.8.11, the value of use_quiet_in_training is implementation dependent as defined in the base document and not required to be TRUE for 100G/lane as it was in IEEE P802.3ck/D2.2.

SuggestedRemedy

If the intent is require use_quiet_in_training to be TRUE for 100G/lane PHYs, then add the following item to the list: "f) The variable use_quiet_in_training is set to TRUE."

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #48.

Cl 162 SC 162.9.3 P 166 L 9 # I-49

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status A TX measurement

The 50 Ohm termination on each conductor is specified only for DC common mode measurement. I cannot find a requirement that differential signal measurement is also done with similar terminations.

It is important to specify the termination of each conductor separately, to avoid reflections from the test equipment, and to ensure the expected common mode termination (the scope cannot be isolated from signal ground).

SuggestedRemedy

Change "using a test system with a fourth-order Bessel-Thomson low-pass response with 40 GHz 3 dB bandwidth" to "using a test system with 50 Ohm termination on each conductor of the differential pair, and a fourth-order Bessel-Thomson low-pass response with 40 GHz 3 dB bandwidth".

Response Response Status W

ACCEPT IN PRINCIPLE.

Subclause 163.9.1 specifies the terminations expected for differential and common-mode measurements for KR. A similar subclause in Clause 162 would address the concern in this comment.

Insert a new subclause in 162.9 similar to 163.9.1.

Implement the suggested remedy with editorial license.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.9.3 P 166 L 24 # 1-103

Mellitz, Richard Samtec, Inc.
 Comment Type TR Comment Status A AC CM noise

RMS is poor indicator for CM mode noise. See CM histograms in mellitz_3k_adhoc_01_120821, mellitz_3ck_01a_0721, and mellitz_3ck_adhoc_01_121620. Clause 163.9.2.7 defines a more meaningful parameter V_CMPP as the peak-to-peak AC common-mode voltage.

SuggestedRemedy

Replace "AC common-mode RMS voltage, v_cmi (max)" with V_CMPP as the peak-to-peak AC common-mode voltage and set to 223 mV. See presentation.

Response Response Status C

ACCEPT IN PRINCIPLE.

The following presentation was reviewed by the task force:
https://www.ieee802.org/3/ck/public/22_01/mellitz_3ck_02_0122.pdf
https://www.ieee802.org/3/ck/public/22_01/mellitz_3ck_01_0122.pdf

There was consensus to adopt the specification methodology on slide 4 of mellitz_3ck_02_0122; except that there is no discrimination based on correlated and uncorrelated CM noise.

According to straw polls #4 and #5, the favored values for V_CMPP_LF and V_CMPP_HF are 60 mV and 80 mV, respectively.

Specify that V_CMPP general measurement is according 163.9.2.7 and measurement of HF and LF components is according mellitz_3ck_01_0122 slide 4.

For C2M include text that specifies that V_CMPP is measured over all except 1E-5, rather than 1E-4, of the distribution.

Set maximum V_CMPP_LF and V_CMPP_HF values to 60 mV and 80 mV, respectively.

Implement with editorial license.

Straw poll #4 (chicago)
 I support the following value for V_CMPP_HF:
 A: 80 mV
 B: 100 mV
 C: 120 mV
 A: 12, B: 9, C: 8

Straw poll #5 (chicago)
 I support the following value for V_CMPP_LF:
 A: 60 mV
 B: 65 mV
 A: 13, B: 11

Cl 162 SC 162.9.3 P 166 L 34 # 1-50

Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)

"peak" in Rpeak should be a subscript.

SuggestedRemedy

Format per comment.

Response Response Status C

ACCEPT.

Cl 162 SC 162.9.3 P 166 L 45 # 1-237

Dudek, Michael Marvell
 Comment Type TR Comment Status A Residual ISI

With the Np=200 value used for the linear fit procedure in the SNDR measurement it is possible that the transmitter can have significant pulse distortions at times beyond the reach of the receiver DFE. These pulse distortions cannot be equalized and could increase the BER unacceptably.

SuggestedRemedy

Add a Residual Intersymbol Interference specification with value -31dB max referring to the test procedure in 163.9.2.6

Response Response Status C

ACCEPT IN PRINCIPLE.

Implement the suggested remedy with editorial license except set the limit to -30 dB rather than -31 dB.

Cl 162 SC 162.9.3.1.2 P 169 L 1 # 1-172

Dawe, Piers J G NVIDIA
 Comment Type T Comment Status A TX Rpeak

Table 162-10 says "Linear fit pulse peak ratio" and refers to this subclause whose title is "Steady-state voltage and linear fit pulse peak", and does not say what "pulse peak ratio" means. Nor does 162.9.3.1.1.

SuggestedRemedy

Change the title to "Steady-state voltage and linear fit pulse peak ratio". Define linear fit pulse peak ratio.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the title to "Steady-state voltage and linear fit pulse peak ratio".

Otherwise resolve using the response to comment #51.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.9.3.1.2 P 169 L 8 # I-136

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status A TX Rpeak

The minimum value of the linear fit pulse peak ratio should not be described in the body text. The text is inconsistent with Table 162-10, because the text says "greater than" but Table 162-10 implicates "greter than or equal to". 0.397 is allowed in Table 162-10 as the minimum value, but not allowed in the body text. Avoid the minimum value in the text and the text should refer to the table.

SuggestedRemedy

Change "The linear fit pulse peak ratio shall be greater than 0.397 after the transmit equalizer initial condition has been set to preset 1 (no equalization)." to "The linear fit pulse peak ratio shall meet the requirements specified in Table 162-10 after the transmit equalizer initial condition has been set to preset 1 (no equalization)."

Response Response Status C

ACCEPT IN PRINCIPLE.

The equalization is already defined in the first paragraph of 162.9.3.1.2 so it need not be repeated here.

Change "The linear fit pulse peak ratio shall be greater than 0.397 after the transmit equalizer initial condition has been set to preset 1 (no equalization)."

to "The linear fit pulse peak ratio shall meet the requirement specified in Table 162-10."

Implement with editorial license.

Cl 162 SC 162.9.3.1.2 P 169 L 8 # I-51

Ran, Adeo Cisco Systems, Inc.

Comment Type TR Comment Status A TX Rpeak

"The linear fit pulse peak ratio shall be greater than 0.397" - but there is no definition of that parameter.

163.9.2.5 has a related parameter "Difference linear fit pulse peak ratio" calculated using a procedure in 163A.3.2.1, where Equation (163A-9) defines R_peak(meas). A similar calculation should be used here, but for this clause there is only a measured parameter without a reference parameter, so it can't point to 163A.

SuggestedRemedy

Insert a paragraph after the first paragraph of 162.9.3.1.2:

"The linear fit pulse peak ratio R_peak is defined as the ratio between the maximum value of p(k) and the steady-state voltage v_f."

{where _ indicates subscript}

Response Response Status W

ACCEPT.

Cl 162 SC 162.9.3.1.5 P 170 L 23 # I-52

Ran, Adeo Cisco Systems, Inc.

Comment Type T Comment Status A TX control

'A coefficient may be set to zero by asserting a coefficient request of "no equalization" for that coefficient' - but c(0) will be set to 1 this way.

The requirements to set to zero are only for c(-3), c(-2), c(-1) and c(1).

SuggestedRemedy

Change the quoted sentence to:

'Any of the coefficients c(-3), c(-2), c(-1), or c(1) may be set to zero by asserting a coefficient request of "no equalization" for that coefficient'.

Response Response Status C

ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.9.3.4 P 170 L 46 # I-225

Zivny, Pavel Tektronix, Inc.

Comment Type T Comment Status R TX jitter

the statement "The test pattern is either PRBS13Q or alternatively PRBS9Q. PRBS9Q is defined in 120.5.11.2.a. Meeting the even-odd jitter requirement with only one pattern is sufficient" includes PRBS9Q only as a test equipment work-around. Clarify that PRBS13Q is preferred. Reasoning: allowing either of two different patterns increases compliance uncertainty. The PRBS9Q is not needed for equipment available in 2022.

SuggestedRemedy

repalce "The test pattern is either PRBS13Q or alternatively PRBS9Q. PRBS9Q is defined in 120.5.11.2.a. Meeting the even-odd jitter requirement with only one pattern is sufficient." with

"The test pattern is PRBS13Q or alternatively PRBS9Q (deprecating). PRBS9Q is defined in 120.5.11.2.a. Meeting the even-odd jitter requirement with only PRBS13Q pattern is sufficient; in cases when that fails due to do test equipment problems the PRBS9Q might be used."

Response Response Status C

REJECT.

[Editor's note: Changed clause/subclause from 166/166.9.3.4 to 162/162.9.3.4]

The comment does not provided sufficient justification for the proposed changes.

Cl 162 SC 162.9.3.4 P 170 L 52 # I-175

Dawe, Piers J G NVIDIA

Comment Type E Comment Status A TX jitter

"may not be" is troublesome. As "The word may is used to indicate a course of action permissible within the limits of the standard (may equals is permitted to)", "may not" means is not permitted to.

SuggestedRemedy

Change "may not be correctly observed" to "might be incorrectly observed".

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #174.

Cl 162 SC 162.9.3.4 P 170 L 52 # I-174

Dawe, Piers J G NVIDIA

Comment Type T Comment Status A TX jitter

This says "NOTE—If the measuring instrument is triggered by a clock based on the signaling rate divided by an even number, the even-odd jitter may not be correctly observed." If the measurement sees the wrong EOJ, the reported J3u and Jrms will be off, too.

SuggestedRemedy

Delete "even-odd"

Response Response Status C

ACCEPT IN PRINCIPLE.

EOJ is a sub-component of J3u and Jrms so it makes sense that with the wrong pattern the latter two would be different.

Also to address comment #175, change "may" to "might".

Replace the note with the following:

"NOTE—If the measuring instrument is triggered by a clock based on the signaling rate divided by an even number, the even-odd jitter might not be correctly observed. As a result, the observation of J3u and Jrms might also be affected."

Cl 162 SC 162.9.3.5 P 172 L 13 # I-176

Dawe, Piers J G NVIDIA

Comment Type T Comment Status R TX ERL

ERL needs a parameter Delta f for the S-parameter measurement. I don't see that it is defined for ERL nor incorporated by reference from COM.

SuggestedRemedy

Add a Delta f entry to all the ERL tables. I suppose the value can be the usual 10 MHz, although for small test fixtures, a larger value might work too.

Response Response Status C

REJECT.

Clause 162.9.3.5 states: "Parameters that do not appear in Table 162-13 take values from Table 162-19. Table 162-19 specifies the delta f requirement, which addresses the concern raised by the comment.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.9.3.5 P 172 L 19 # I-177

Dawe, Piers J G NVIDIA
 Comment Type T Comment Status R TX ERL

I wouldn't call this switch or option, a flag with a numerical value. I think it is a parameter, as in functional specifications, and as it is called in 93A.5.1.

SuggestedRemedy

Change flag to parameter, here and in tables 162-18 and 163-6, 163-7, 163-12 and 93A-4. Here and in tables 162-18 and 163-6, 163-7 and 163-12, change 1 to true.

Response Response Status C

REJECT.
 The suggested remedy does not improve the accuracy or clarity of the specified method.

There was no consensus make the proposed changes.

[Editor's note: CC: 93A, 162, 163]

Cl 162 SC 162.9.4.1 P 174 L 4 # I-20

Brown, Matthew Huawei Technologies Canada
 Comment Type T Comment Status A (bucket2)

This paragraph provides the nominal value for the UI. This is not provided in 162 for KR, in 120F for C2C, or in 120G for C2M. It is not necessary to specify this number since it is easily determined by the nominal signaling rate. To be consistent with other similar PMD/AUI clauses this sentence should be removed.

SuggestedRemedy

Remove the following sentence: "This translates to a nominal unit interval of approximately 18.8235 ps."

Response Response Status C

ACCEPT.

Cl 162 SC 162.11 P 181 L 18 # I-232

Ben-Artzi, Liav Marvell Semiconductor, Inc.
 Comment Type E Comment Status R (bucket2)

The term twinaxial cabling os used in multiple places, but never defined.

SuggestedRemedy

Suggest changing twinaxial cable to "twinaxial shielded balanced copper cable", which would explain it a bit better

Response Response Status C

REJECT.
 1.4 Definitions includes twinaxial cable used in clauses characterizing this cable assembly type. See 1.4.480 twinaxial cable: A cable similar to coaxial cable in construction but containing two insulated inner conductors rather than one.

Cl 162 SC 162.11.2 P 182 L 6 # I-22

Brown, Matthew Huawei Technologies Canada
 Comment Type T Comment Status A Channel ILdd (bucket2)

The specified for ILDD says the value "should be greater than or equal" to Equation 162-17, but Equation 162-17 is an inequality. Change the wording to the form used in 120G.4.1.

SuggestedRemedy

Change: "The measured differential-mode to differential-mode insertion loss of a cable assembly shall be greater than or equal to the minimum cable assembly differential-mode to differential-mode insertion loss given in Equation (162-17) and illustrated in Figure 162-7."

To: "The channel differential-mode to differential-mode insertion loss shall meet Equation (162-17), which is illustrated in Figure 162-7."

In Equation 162-17 change ILddmin to ILdd.

Change the description of ILddmin (now ILdd) to "is the cable assembly differential-mode to differential-mode insertion loss in dB".

Response Response Status C

ACCEPT IN PRINCIPLE.
 Resolve using the response to comment #56

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.11.2 P 182 L 12 # I-56

Ran, Adeo Cisco Systems, Inc.
 Comment Type TR Comment Status A Channel ILdd (bucket2)

The text specifying the minimum insertion loss and equation 162-17 are inconsistent: The text says the ILDD shall be lower than the limit defined by the equation, but the equation has "ILDD_min(f) >="; this reads as if the limit is anywhere below the line defined by the equation, so the limit is not defined.

The suggested remedy is a minimal change. Alternatively, the definition can be changed to state that ILDD "shall meet the equation" and have the equation in terms of ILDD instead of ILDDmin, as done in other similar cases.

SuggestedRemedy

In equation 162-17, change ">=" to "=".

Response Response Status W

ACCEPT IN PRINCIPLE.
 Change ILddmin(f)>=(equation 162-17) to ILdd(f)>= ILddmin(f)=(equation 162-17)
 Add
 ILdd(f) is the measured cable assembly differential-mode to differential-mode insertion loss in dB

Cl 162 SC 162.11.5 P 184 L 33 # I-57

Ran, Adeo Cisco Systems, Inc.
 Comment Type TR Comment Status R CA ILcd

Equation 162-19 lets the difference between ILcd and ILdd be 10 dB up to half of (an old Nyquist frequency) and then linearly lower at higher frequencies. This does not make sense physically, and open the door to poor cables. The Tx output common mode noise problem is exacerbated by strong conversion from common mode to differential signal.

Note that COM does not cover the conversion loss term, so we should strive to make it negligible, rather than allowing it to be large.

At low frequencies we expect low ILdd and high ILcd, and the difference is much larger than 10 dB. Even at high frequencies up to 40 GHz, channels submitted to 802.3ck do not exceed 10 dB. We should not allow less than 10 dB difference across the upper half of the spectrum.

Based on samples of submitted channels and some measured channels it is suggested to tighten this specification to be 24 dB at the lowest frequency, linear slope to 10 dB at Nyquist/2, and constant 10 dB at maximum frequency.

This also holds for the specification in clause 163 (channel construction may be different but the arguments above still hold and the effect on the link budget is the same).

A presentation of some contributed data compared to the proposed limit is planned. Any contradictory data would be welcome.

SuggestedRemedy

Change equation 162-19 limit to be
 $24 - 13.56/f * 14 \mid 0.05 \leq f \leq 13.56$
 $10 \mid 13.56 \leq f \leq 40$

Change Figure 162-9 accordingly.

Response Response Status W

REJECT.

Commenter has requested to update suggested remedy to:
 Change equation 162-19 limit to be
 $30 - 8f \mid 0.05 \leq f \leq 2.5$
 $10 \mid 2.5 \leq f \leq 25$
 $10 - (f-25)/3 \mid 25 \leq f \leq 40$

This proposed responses is shown plotted along with the current limit line and responses of posted channels on slide 28 of the following presentation:
https://www.ieee802.org/3/ck/public/22_01/heck_3ck_01a_0122.pdf

There is interest in aligning the limit line with recently adopted test methodology for TX common-mode AC noise. However, a complete proposal with consensus is required.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

There is no consensus to adopt the proposed changes at this time.

Cl 162 SC 162.11.7 P 187 L 3 # I-182
 Dawe, Piers J G NVIDIA
 Comment Type E Comment Status A (bucket2)
 Empty cells

SuggestedRemedy

If unitless, use a long dash

Response Response Status C
 ACCEPT.

Cl 162 SC 162.11.7 P 187 L 31 # I-183
 Dawe, Piers J G NVIDIA
 Comment Type TR Comment Status A Rx bgmax

Cable channels' reference receiver tap weights are less -ve than -0.02, and taps 13 to 40 are less than +0.025. The tap weight limits are not hard cable or channel limits, but they let cables that go outside the envelope pay a price in COM for it (see daw_3ck_01a_0921).

The normalized DFE coefficient minimum limit bbmin for taps 3 to 12 is -0.03 and for taps 13 to 40 it is -0.05 (bgmax 0.05) but the receiver is protected from bad taps 25-40 by the tail RSS limit. But the receiver is not protected so well for taps 13 to 24.

We can expect cable channels to be better for reflections than backplane channels because hosts must be designed for maximum-loss performance, and cable technology will also be adequate for maximum-loss performance. As a cable can have worse tap weights than the headline numbers for a very small COM penalty (see daw_3ck_01a_0921 slide 5), this remedy leaves margin for the cable.

SuggestedRemedy

For CR, in Table 162-19, change Normalized coefficient magnitude limit for DFE floating taps, bgmax, from 0.05 to 0.03.

Response Response Status C
 ACCEPT.

Cl 162 SC 162.11.7.1 P 187 L 43 # I-58

Ran, Adee Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)

"The scattering parameters for a PCB transmission line are calculated using the method defined in 93A.1.2.3 using Equation (93A-13), Equation (93A-14) and the parameter values given in Table 162-20"

93A.1.2.3 (in the base document) includes equations 93A-13 and 93A-14, so there is no need to include these references in addition, with repetitive "using".

(If they are to be retained, a serial comma should be inserted after Equation (93A-14))

SuggestedRemedy

Change the quoted sentence to "The scattering parameters for a PCB transmission line are calculated using the method defined in 93A.1.2.3 with the parameter values given in Table 162-20".

Response Response Status C

ACCEPT IN PRINCIPLE.
 Implement the suggested remedy.
 Also, in Table 162-20 row 5 change the parameter "t" back to Greek letter Tau.

Cl 162 SC 162.11.7.2 P 189 L 35 # I-59

Ran, Adee Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)

The sentence "Annex 162C specifies the MDIs for 100GBASE-CR1, 200GBASE-CR2, 400GBASE-CR4." seems unnecessary and out of place here (subclause title is "Signal and crosstalk paths used in calculation of COM").

The same sentence appears in the next subclause 162.12, MDI specifications, where it makes more sense, so it may be an unintended leftover.

SuggestedRemedy

Consider deleting this sentence.

Response Response Status C

ACCEPT IN PRINCIPLE.
 Delete the sentence referenced in the comment.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162 SC 162.14.3 P 192 L 32 # I-60

Ran, Adee Cisco Systems, Inc.
 Comment Type E Comment Status A PICS (bucket2)

In item FEC100, "RS(544,514)" is larger than surrounding text.
 Other items that include large text (different text) are CA2, CA5, CA6.

SuggestedRemedy

Make text size match the surrounding text.

Response Response Status C

ACCEPT.

Cl 162 SC 162.14.4.2 P 194 L 17 # I-137

Hidaka, Yasuo Credo Semiconductor
 Comment Type E Comment Status A PICS (bucket2)

Item PC6 refers to clause 136.8.11.4.1.

SuggestedRemedy

Change the reference of PC6 from 136.8.11.4.1 to 162.9.3.1.3.

Response Response Status C

ACCEPT.

Cl 162A SC 162A P 284 L 9 # I-213

Dawe, Piers J G NVIDIA
 Comment Type E Comment Status A (bucket2)

I wondered why 162.9.3 was referring to an annex whose title seemed to be nothing to do with the subject...

The title of this annex is "TP0 and TP5 test point parameters and channel characteristics ..." yet it contains recommended transmitter and receiver characteristics, which aren't mentioned in 162A.1 Overview, "This annex provides information on..." either. I don't recognise "test point parameters" as including transmitter IC recommendations.

SuggestedRemedy

Change the title from
 TP0 and TP5 test point parameters and channel characteristics for 100GBASE-CR1,
 200GBASE-CR2, and 400GBASE-CR4

to
 Transmitter, receiver and channel recommendations at test points TP0 and TP5 for
 100GBASE-CR1, 200GBASE-CR2, and 400GBASE-CR4

Change the first sentence from
 This annex provides information on parameters associated with test points TP0 and TP5
 that might not be testable in an implemented system.

to
 This annex provides information on transmitter, receiver and channel parameters
 associated with test points TP0 and TP5 that might not be
 testable in an implemented system.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the title from
 TP0 and TP5 test point parameters and channel characteristics for 100GBASE-CR1,
 200GBASE-CR2, and 400GBASE-CR4

to
 Transmitter, receiver and channel parameters associated with test points TP0 and TP5 for
 100GBASE-CR1, 200GBASE-CR2, and 400GBASE-CR4

Change the first sentence
 from
 This annex provides information on parameters associated with test points TP0 and TP5
 that might not be testable in an implemented system.

to
 This annex provides information on transmitter, receiver and channel parameters
 associated with test points TP0 and TP5 that might not be testable in an implemented
 system.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl **162A** SC **162A** P **284** L **15** # **I-214**
 Dawe, Piers J G NVIDIA
 Comment Type **E** Comment Status **A** (bucket2)
 "TP0 and TP5 that might not be testable": see style guide
 SuggestedRemedy
 TP0 and TP5, which might not be testable
 Response Response Status **C**
 ACCEPT.

Cl **162A** SC **162A.4** P **285** L **1** # **I-215**
 Dawe, Piers J G NVIDIA
 Comment Type **E** Comment Status **A** (bucket3)
 ILPCBmin
 SuggestedRemedy
 ILddPCBmin
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Change "ILPCBmin" to "ILddPCBmin".

Cl **162B** SC **162B.2.1** P **291** L **3** # **I-216**
 Dawe, Piers J G NVIDIA
 Comment Type **E** Comment Status **A** (bucket2)
 Please make it easier for the reader to judge the size of these losses. Also, it's test fixture reference ... loss as in the text, not reference test fixture ... loss.
 SuggestedRemedy
 Please put ILddcatf on Figure 162B-1, and label the two lines (e.g. make one dashed), change figure title to "reference differential-mode to differential-mode insertion losses of test fixtures", refer to it from 162B.3, delete Figure 162B-2.
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Graph ILddcatf on Figure 162B-1; delete Figure 162B-2.
 Change figure 162B-1 title to " Test fixtures PCB reference differential-mode to differential-mode insertion losses"

Cl **162B** SC **162B.4.1** P **293** L **1** # **I-218**
 Dawe, Piers J G NVIDIA
 Comment Type **T** Comment Status **A** MTF ILdd
 The reference differential-mode to differential-mode insertion loss of the mated test fixture is a scaled version of Eq 120E-3 and it doesn't align well to kocsis_3ck_01_0719, slide 4. This causes a problem when constructing the lossy channel for the module stressed input test (in dawe_3ck_01a_1121 slide 8, the green line is straighter than the black line at low frequencies).
 The new equation has the same loss at Nyquist as the existing one.
 See new presentation.

SuggestedRemedy
 Change equation 162B-5 from:
 $ILddMTFref(f) = 0.942(0.471\sqrt{f}) + 0.1194f + 0.002f2$
 to
 $ILddMTFref(f) = 0.8153\sqrt{f} + 0.003405f^2$
 Update Figure 162B-3, Mated test fixtures differential-mode to differential-mode insertion loss
 Response Response Status **C**
 ACCEPT IN PRINCIPLE.
 Implement the suggested remedy with editorial license.

Cl **162B** SC **162B.5.4** P **300** L **38** # **I-119**
 Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.
 Comment Type **TR** Comment Status **D** PICS
 I suggest TF7 under feature add single-lane
 SuggestedRemedy
 Single-lane, SFP112, ..
 Proposed Response Response Status **Z**
 REJECT.
 This comment was WITHDRAWN by the commenter.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 162C SC 162C.1 P 302 L 3 # I-1

Lusted, Kent Intel Corporation

Comment Type TR Comment Status A MDI table

For D2.2 comment resolution, there was contribution for an improved MDI connector mapping that was not accepted by the comment resolution group (CRG). see https://www.ieee802.org/3/ck/public/21_09/ghiasi_3ck_01_0921.pdf One key feedback point on the contribution from the CRG was that the Ground pins should remain in the specification.

QSFP-DD800: For the TX2n/TX2p pair, note that GND pin #1 is closest to TX2n and GND pin #4 is closest to TX2p. Also, GND pin #4 is closest to TX4n and GND pin #7 is closest to TX4p.

For the OSFP TX2n/TX2p pair, note that GND pin #1 is closest to TX2p and GND pin #4 is closest to TX2n. Also, GND pin #4 goes with TX4p and GND pin #7 goes with TX4n.

The issue now comes from having both the OSFP and QSFP-DD800 pins in the same table.

For the QSFP-DD800 column, GND pin #1 is the physical pin next to SL1n (TX2n in the connector spec) and GND pin #4 is the physical pin next to SL1p (TX2p). However, in the OSFP column, the physical GND pin next to SL1n (TX2n) is pin #4, not pin #1 as shown above, and the physical GND pin next to SL1p (TX2p) is pin #1, not #4. Then the table becomes very messy on subsequent rows because the GND pin number can be one of two values in the OSFP case; for example, GND pin #1 is next to SL1p (TX2p) but GND pin #7 is next to SL3n (TX4n).

The GND pins are useful information, keep them in the table(s)

SuggestedRemedy

Replace Table 162C-3 with three tables:
QSFP/QSFP-DD800 table
OSFP table
SFP/SFP-DD/DSFP table

see accompanying presentation.

Response Response Status C

ACCEPT IN PRINCIPLE.

A proposal to address this comment is provided in the following presentation:
https://www.ieee802.org/3/ck/public/22_01/lusted_3ck_01_0122.pdf

Implement, with editorial license, the proposal in lusted_3ck_01_0122.

Cl 162C SC 162C.1 P 303 L 10 # I-120

Ghiasi, Ali Ghiasi Quantum LLC,Marvell Semiconductor, Inc.

Comment Type TR Comment Status A MDI table

Table 162C-3 has number of error due to lack of pin alignment between OSFP and QSFP/QSFP-DD800

SuggestedRemedy

These need to be broken in to three tables: SFP112/SFP-DD112/DSFP, QSFP112/QSFP-DD800, and the 3rd table for OSFP. Plesae see Lusted-Ghiasi presentation.

Response Response Status C

ACCEPT IN PRINCIPLE.

Resolve using the response to comment #1.

Cl 162C SC 162C.1 P 303 L 14 # I-219

Dawe, Piers J G NVIDIA

Comment Type E Comment Status A (bucket2)

As these aren't proper names, according to the house style they don't get capitals (except at the beginning of a sentence, cell or similar)

SuggestedRemedy

Change "Transmitter Inverted Data Input" to "Transmitter inverted data input" and so on.

Response Response Status C

ACCEPT IN PRINCIPLE.

In Table 162C-3 description column fix the capitalization with editorial license.

Cl 163 SC 163.5 P 199 L 51 # I-141

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the max delays listed in Table 163-4.

SuggestedRemedy

Add a PICS entry "The sum of the transmit and receive delays at one end of the link shall be no more than the maximum delays listed in Table 163-4" with a reference to clause 163.5.

Response Response Status C

REJECT.

There is already a PICS entry "DC"

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 163 SC 163.6.1 P 201 L 18 # I-142

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP3 for 100GBASE-KR1 less than 54ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP3 for 100GBASE-KR1 shall be less than 54ns" with a reference to clause 163.6.1.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.1 P 201 L 21 # I-143

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP4 for 100GBASE-KR1 less than 134ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP4 for 100GBASE-KR1 shall be less than 134ns" with a reference to clause 163.6.1.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.1 P 201 L 25 # I-144

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP5 for 100GBASE-KR1 less than 145ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP5 for 100GBASE-KR1 shall be less than 145ns" with a reference to clause 163.6.1.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.2 P 201 L 40 # I-145

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP3 for 200GBASE-KR2 and 400GBASE-KR4 less than 54ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP3 for 200GBASE-KR2 and 400GBASE-KR4 shall be less than 54ns" with a reference to clause 163.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.2 P 201 L 40 # I-146

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew variation at SP3 for 200GBASE-KR2 and 400GBASE-KR4 less than 600ps.

SuggestedRemedy

Add a PICS entry "The Skew Variation at SP3 for 200GBASE-KR2 and 400GBASE-KR4 shall be less than 600ps" with a reference to clause 163.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.2 P 201 L 43 # I-147

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP4 for 200GBASE-KR2 and 400GBASE-KR4 less than 134ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP4 for 200GBASE-KR2 and 400GBASE-KR4 shall be less than 134ns" with a reference to clause 163.6.2.

Response Response Status C

REJECT.
There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 163 SC 163.6.2 P 201 L 43 # I-148

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew variation at SP4 for 200GBASE-KR2 and 400GBASE-KR4 less than 3.4ns.

SuggestedRemedy

Add a PICS entry "The Skew Variation at SP4 for 200GBASE-KR2 and 400GBASE-KR4 shall be less than 3.4ns" with a reference to clause 163.6.2.

Response Response Status C

REJECT.

There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.2 P 201 L 46 # I-149

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew at SP5 for 200GBASE-KR2 and 400GBASE-KR4 less than 145ns.

SuggestedRemedy

Add a PICS entry "The Skew at SP5 for 200GBASE-KR2 and 400GBASE-KR4 shall be less than 145ns" with a reference to clause 163.6.2.

Response Response Status C

REJECT.

There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.6.2 P 201 L 46 # I-150

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status R PICS (bucket2)

PICS entry seems missing for "shall" for the skew variation at SP5 for 200GBASE-KR2 and 400GBASE-KR4 less than 3.6ns.

SuggestedRemedy

Add a PICS entry "The Skew Variation at SP5 for 200GBASE-KR2 and 400GBASE-KR4 shall be less than 3.6ns" with a reference to clause 163.6.2.

Response Response Status C

REJECT.

There is already a PICS entry "SC" to cover multiple requirements in 163.6.1 (denoted by shall statements). This is consistent with preceding 100G Ethernet and faster PMD clauses. Align with similar comments against 162.

Cl 163 SC 163.9.2 P 203 L 43 # I-101

Mellitz, Richard Samtec, Inc.

Comment Type TR Comment Status A AC CM noise

Low frequency CM will not be very dependent on a test fixture. Signal to AC common-mode noise ratio, SCMR (min), is related to the Peak Pulse and used to compensate for test fixture loss. Since the low frequency the loss is very small the tp0v compensation is not correct. As demonstrated in mellitz_3k_adhoc_01_120821 noise originating from a power supply or other low frequency sources can be detrimental.

SuggestedRemedy

Add a new line to table 163-5 called maximum low frequency AC common mode max peak to peak noise (V_CMPP) and set to 30 mV. Create a new section for such indicating the a low pass 4th order Bessel Thomson filter with a 3 dB point of 10 MHz is to be applied to the CM measurement. Additionally in section 163.9.2.7 indicate that the a high pass 4th order Bessel Thomson filter with a 3 dB point of 10 MHz is to be applied to the AC CM measurement and set SCMR (min) to 11.8 dB. See presentation.

Response Response Status C

ACCEPT IN PRINCIPLE.

The following presentations were reviewed by the task force:

https://www.ieee802.org/3/ck/public/adhoc/jan12_22/mellitz_3ck_adhoc_01_011222.pdf
https://www.ieee802.org/3/ck/public/22_01/mellitz_3ck_01_0122.pdf

According to straw poll #1 there is strong support to adopt the measurement methodology on slides 4 and 5 of mellitz_3ck_01_0122.

According to straw polls #2 and #3, the favored specification values for V_CMPP_LF and SCMR_HF are 60 mV and 15 dB, respectively.

Implement methodology and values summarized above for KR and C2C.

For C2C add text that specifies that V_CMPP is measured over all except 1E-5, rather than 1E-4, of the distribution.

Implement with editorial license.

STRAW POLLS

Straw poll #1 (Direction)

For KR and C2C, I support the AC CM voltage test methodology in mellitz_3ck_01_0122 slides 4 and 5.

A. Yes

B. No

C. Abstain

Results: A: 20, B: 4 C: 6

Straw poll #2 (Direction)

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

For KR and C2C, I support V_CMPP_LF value of:

- A. 30 mV
- B. 60 mV
- Results: A: 8, B: 15

Straw poll #3 (Direction)

For KR and C2C, I support SCMR_HF value of:

- A. 16 dB
- B. 15 dB
- Results: A: 9, B: 14

Cl 163 SC 163.9.2.6 P 206 L 53 # I-152

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status A PICS (bucket2)

PICS entry seems missing for "shall" for the residual intersymbol interference ISI_RES.

SuggestedRemedy

Add a PICS entry for residual intersymbol interference per Table 163-5 with a reference to clause 163.9.2.6.

Response Response Status C

ACCEPT IN PRINCIPLE.
Add new PICS item with editorial license.

Cl 163 SC 163.9.2.7 P 207 L 7 # I-62

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status A (bucket2)

In "p(k)", p and k should be italicized, as in line 18 and in 162.9.3.1.1.

SuggestedRemedy

Apply formatting per comment.

Response Response Status C

ACCEPT.

Cl 163 SC 163.9.2.7 P 207 L 9 # I-153

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status A AC CM noise (bucket2)

PICS entry seems missing for "shall" for signal to AC common-mode noise ratio.

SuggestedRemedy

Add a PICS entry for signal to AC common-mode noise ratio per Table 163-5 with a reference to clause 163.9.2.7.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add new PICS item with editorial license.

Cl 163 SC 163.9.2.7 P 207 L 10 # I-154

Hidaka, Yasuo Credo Semiconductor

Comment Type E Comment Status A (bucket2)

Table 163-11 does not define SCMR.

SuggestedRemedy

Change the reference to Table 163-11 with a reference to Table 163-5.

Response Response Status C

ACCEPT.

Cl 163 SC 163.9.2.7 P 207 L 10 # I-21

Brown, Matthew Huawei Technologies Canada

Comment Type T Comment Status A (bucket2)

This table incorrectly points to Table 163-11 for the SCMR value.

SuggestedRemedy

Change "Table 163-11" to "Table 163-5".

Response Response Status C

ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 163 SC 163.9.2.7 P 207 L 10 # I-63

Ran, Adee

Cisco Systems, Inc.

Comment Type TR Comment Status A AC CM noise (bucket2)

The peak-to-peak common-mode noise measured can be significantly increased by mismatched cabling in the test setup or routing in the test fixture. A difference of 1 mm between single-ended path translates to ~25% of a UI. This would cause significant conversion of the differential signal to CM signal and degradation the SCMR. This common-mode signal would be correlated to the data pattern, but so far we have not separated the CM specification to correlated and uncorrelated components.

Also, there are no conversion loss specifications for test fixture (even if we had, they would be difficult to measure). Poorly designed test fixtures may cause a good device to fail the test even in a well-calibrated test setup. This may make SCMR seem difficult to meet.

It may be possible to calibrate the measurement for differences between cables, mitigating some of the problem. But we may not want to provide an open ticket to full deskew of the single-ended signals, because it can "correct" problems in the DUT as well as in the test system.

As a minimum remedy to this problem, it is suggested to add a note informing the reader that good matching of the test fixture and calibration of the test setup is recommended.

Alternatively, the CM measurement could be separated to correlated and uncorrelated, and SCMR calculated only for the uncorrelated component. This would be preferable if there is consensus for this path.

SuggestedRemedy

Add an informative NOTE at the end of this subclause:
NOTE—SCMR measurement may be sensitive to mismatches between the single-ended paths in the test fixture and the test setup. Careful design and calibration of the test system is recommended.

Response Response Status W

ACCEPT IN PRINCIPLE.

Add an informative NOTE at the end of this subclause:
NOTE—SCMR measurement may be sensitive to mismatches between the single-ended paths in the test fixture and the test setup. Careful design and calibration of the test system is recommended.

Cl 163 SC 163.9.2.7 P 207 L 11 # I-64

Ran, Adee

Cisco Systems, Inc.

Comment Type E Comment Status A AC CM noise (bucket2)

Incorrect cross-reference to Table 163-11 - SCMR (min) is specified in Table 163-5.

Also, this subclause is also referred to by Table 120F-1 and maybe others in the future. To separate definition from required limit, the "shall" statement should be placed at the end of the subclause, as done in 163.9.2.6.

SuggestedRemedy

In the sentence "The signal to AC common-mode noise ratio shall meet the specification for SCMR (min) in Table 163-11", change Table 163-11 to Table 163-5.

Move this sentence to the end of the subclause, after equation 163-2 and its variable list.

Response Response Status C

ACCEPT.

Cl 163 SC 163.9.2.7 P 207 L 11 # I-34

Wu, Mau-Lin

MediaTek Inc.

Comment Type TR Comment Status A (bucket2)

The specification for SCMR (min) is defined in Table 163-5, instead of Table 163-11.

SuggestedRemedy

Change Table 163-11 to Table 163-5. Correct the hyperlink as well.

Response Response Status W

ACCEPT.

Cl 163 SC 163.10.2 P 214 L 16 # I-23

Brown, Matthew

Huawei Technologies Canada

Comment Type T Comment Status A (bucket2)

The sentence specifying insertion loss refers to a maximum value, but the equation is an inequality. Reword the specify to be of the for used in 120G.4.1.

SuggestedRemedy

Change: "The maximum recommended differential-mode to differential-mode insertion loss of the channel is given by Equation (163-6)."
To: "The channel differential-mode to differential-mode insertion loss should meet Equation (163-6)."

Response Response Status C

ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 163 SC 163.13.4.3 P 222 L 49 # I-151
 Hidaka, Yasuo Credo Semiconductor
 Comment Type E Comment Status A (bucket2)
 "peak" is missing.
 SuggestedRemedy
 Change "Difference linear fit pulse ratio" to "Difference linear fit pulse peak ratio".
 Response Response Status C
 ACCEPT.

Cl 163 SC 163.13.4.3 P 222 L 51 # I-140
 Hidaka, Yasuo Credo Semiconductor
 Comment Type E Comment Status A (bucket2)
 The border between TC9 and TC10 is thick.
 SuggestedRemedy
 Make the border between TC9 and TC10 same as other rows.
 Response Response Status C
 ACCEPT.

Cl 163A SC 163A P 316 L 1 # I-220
 Dawe, Piers J G NVIDIA
 Comment Type E Comment Status A (bucket2)
 annex Annex ... and ...
 SuggestedRemedy
 annexes Annex ... and ...
 Response Response Status C
 ACCEPT.

Cl 163A SC 163A.3.1.1 P 317 L 49 # I-72
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 In expressions that include italics, parentheses and numbers should be set in upright font.
 This line includes some instances, and there are many others.
 SuggestedRemedy
 Format per comment, apply throughout the document.
 Response Response Status C
 ACCEPT.

Cl 163A SC 163A.3.1.3 P 319 L 24 # I-221
 Dawe, Piers J G NVIDIA
 Comment Type E Comment Status A (bucket2)
 Eq 163A-5 is part of step b, and Eq 163A-4 is part of step d, is after b.
 SuggestedRemedy
 Swap equations 163A-5 and 4
 Response Response Status C
 ACCEPT.

Cl 163A SC 163A.3.2.1 P 320 L 9 # I-73
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 Equation 163A-7 is truncated from the top.
 SuggestedRemedy
 Fix it.
 Response Response Status C
 ACCEPT.

Cl 163A SC 163A.3.2.1 P 320 L 24 # I-74
 Ran, Adeo Cisco Systems, Inc.
 Comment Type E Comment Status A (bucket2)
 Equation 163A-6 and Equation 163A-10 use the reference voltage terms $v_f(\text{ref})$ and $v_{\text{peak}}(\text{ref})$. These are not defined here but in 163A.3.1.1. A cross-reference would help.
 SuggestedRemedy
 Add a paragraph at the end of this subclause: " $v_f(\text{ref})$ and $v_{\text{peak}}(\text{ref})$ are defined in 163A.3.1.1."
 Response Response Status C
 ACCEPT.

IEEE P802.3ck D3.0 100/200/400 Gb/s Electrical Interfaces Task Force Initial Sponsor ballot comments

Cl 167 SC 167 P 225 L 1 # I-100
Parsons, Earl CommScope, Inc.
Comment Type T Comment Status A (bucket2)
Include modification to Clause 167 (from 802.3db).
SuggestedRemedy
Show modified Table 167-1 and Table 167-2 with rows for 120F--100GAUI-1 C2C and 120G--100GAUI1 C2M.
Response Response Status C
ACCEPT IN PRINCIPLE.
Resolve using the response to comment #36.

Cl 167 SC 167.1 P 225 L 0 # I-36
Ran, Adeo Cisco Systems, Inc.
Comment Type T Comment Status A (bucket2)
Clause 167 (part of 802.3db) defines six new PHY with optical PMDs that use 53.125 GBd signaling. These PHYs may use the 100GAUI-1, 200GAUI-2, and 400GAUI-4 C2C/C2M interfaces, in addition to the interfaces currently listed.

Since 802.3db is scheduled to be published before 802.3ck, this should be an amendment of clause 167.
SuggestedRemedy
Add Clause 167 and 167.1 to the draft.

Amend Table 167-1 to include 100GAUI-1 C2C and 100GAUI-1 C2M, both optional.

Amend Table 167-2 to include 200GAUI-2 and 400GAUI-4, each with C2C and C2M, all optional.
Response Response Status C
ACCEPT.