

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

Cl 91 SC 91 P 89 L 5 # 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 P 89 L 31 # 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.

Cl 91 SC 91.6.7a P 91 L 5 # I-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.

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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.

Cl 91 SC 91.7.3 P92 L 41 # 1-165

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 161 SC 161 P 133 L 4 # 1-8

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 # 1-76

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.

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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)

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-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.

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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 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_i<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 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 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.

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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.

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.

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 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.

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.

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

Cl 161 SC 161.6 P 146 L 49 # 1-17

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

- 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 # 1-6

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.

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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.

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

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 34 # 1-47

Ran, Adee 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."

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.

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 27 # I-48

Ran, Adee 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.

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.

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 9 # 1-49

Ran, Adee

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.

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

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

Dudek, Michael

Marvell

Comment Type TR Comment Status A Residual ISI

With the $N_p=200$ 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 # I-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.

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.

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 162.9.3.1.5 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.

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.

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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 162.9.3.4 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 162.9.3.5 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.

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]

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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.

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

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 dawe_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 dawe_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.

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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 daw_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:

$$IL_{ddMTFref}(f) = 0.942(0.471\sqrt{f}) + 0.1194f + 0.002f^2$$

to

$$IL_{ddMTFref}(f) = 0.8153\sqrt{f} + 0.003405f^2$$

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.

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.

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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 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 specifiices 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)

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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