

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 D (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

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 91 SC 91.5.3.3 P 89 L 31 # I-41

Ran, Adeo Cisco Systems, Inc.  
 Comment Type ER Comment Status D (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>

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 91 SC 91.7.3 P 92 L 41 # I-165

Dawe, Piers J G NVIDIA  
 Comment Type T Comment Status D (bucket1)

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

Proposed Response Response Status W

PROPOSED 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

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

Nicholl, Shawn Xilinx  
 Comment Type E Comment Status D (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.

Proposed Response Response Status W

PROPOSED ACCEPT.

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

Slavick, Jeff Broadcom Inc  
 Comment Type E Comment Status D (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

Proposed Response Response Status W

PROPOSED ACCEPT.

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

Ben-Artzi, Liav Marvell Semiconductor, Inc.

Comment Type TR Comment Status D (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

Proposed Response Response Status W

PROPOSED 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](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 (bucket1)

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 W

PROPOSED ACCEPT.

Cl 161 SC 161.5.2.6.1 P 136 L 5 # I-43

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D (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.

Proposed Response Response Status W

PROPOSED 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 D (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.

Proposed Response Response Status W

PROPOSED 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 D (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.

Proposed Response Response Status W

PROPOSED 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.

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Cl 161 SC 161.5.2.6.2 P 137 L 6 # [redacted]

Marris, Arthur Cadence Design Systems, Inc.  
 Comment Type T Comment Status D (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)."

Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 7 # [redacted]

Nicholl, Shawn Xilinx  
 Comment Type E Comment Status D (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)."

Proposed Response Response Status W  
 PROPOSED ACCEPT.

Cl 161 SC 161.5.2.6.2 P 137 L 7 # [redacted]

Dawe, Piers J G NVIDIA  
 Comment Type T Comment Status D (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.

Proposed Response Response Status W  
 PROPOSED 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 # [redacted]

Nicholl, Shawn Xilinx  
 Comment Type E Comment Status D (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.

Proposed Response Response Status W  
 PROPOSED 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 D (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

Proposed Response Response Status W

PROPOSED 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 D (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

Proposed Response Response Status W

PROPOSED 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 D (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

Proposed Response Response Status W

PROPOSED ACCEPT.

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

Nicholl, Shawn

Xilinx

Comment Type E Comment Status D (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)

Proposed Response Response Status W

PROPOSED ACCEPT.

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

Nicholl, Shawn

Xilinx

Comment Type E Comment Status D (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.

Proposed Response Response Status W

PROPOSED 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 D (bucket1)

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.

Proposed Response Response Status W

PROPOSED 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 D (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)

Proposed Response Response Status W

PROPOSED ACCEPT.

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

Nicholl, Shawn

Xilinx

Comment Type ER Comment Status D (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"

Proposed Response Response Status W

PROPOSED 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 D (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

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 161 SC 161.6.10 P 147 L 30 # 1-45

Ran, Adeo Cisco Systems, Inc.

Comment Type ER Comment Status D (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.

Proposed Response Response Status W

PROPOSED ACCEPT.

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Cl 161 SC 161.7.3 P 150 L 13 # 1-46

Ran, Adeo Cisco Systems, Inc.

Comment Type E Comment Status D (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.

Proposed Response Response Status W

PROPOSED ACCEPT.