

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 030 SC 30.5.1.1.4 P30 L1 # 1 [redacted]  
 Lewis, Jon Dell

Comment Type E Comment Status A Bucket

If the MAU is a 10M b/s... This should be 10 Mb/s for consistency

SuggestedRemedy

Change 10M b/s to 10 Mb/s.

Response Response Status C

ACCEPT IN PRINCIPLE.

This text is part of the base standard and modifications to this text are out of scope for P802.3by.

The suggested remedy to Comment 50 proposes to remove this text since it is not being modified by P802.3by.

See comment 50.

Cl 069 SC 69.2.3 P54 L19 # 2 [redacted]  
 Lewis, Jon Dell

Comment Type E Comment Status D withdrawn

In Table 69-1a on the line for 25GBASE-KR: I don't understand M(a) It seems that this would indicate Mandatory/Optional which doesn't make sense. Also, O(a) and (a)O seem to be reversed in the table and table footer.

SuggestedRemedy

I think for the column labeled RS it should only be "M" and the "(a)" should be removed.

Make the O(a) consistent by changing the table footer/note to be the same as the table content

Proposed Response Response Status Z

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl 093A SC 93A.1 P203 L24 # 3 [redacted]  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Please fix font size for "Table 83D-6" - it seems larger than other entries

SuggestedRemedy

Per comment

Response Response Status C

ACCEPT.

Cl 110B SC 110B P225 L8 # 4 [redacted]  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Missing serial ",", in "25GBASE-CR, 25GBASE-CR-S and 25GAUI C2M"

SuggestedRemedy

Change to "25GBASE-CR, 25GBASE-CR-S, and 25GAUI C2M"  
 Same fix on page 228, line 9, in 110B.2.1; and page 228, line 38, in 110B.2.2.2; page 229, line 14, in 110B.2.4 (caption)

Response Response Status C

ACCEPT.

Cl 110C SC 110C.1 P230 L21 # 5 [redacted]  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Missing serial comma in "CA-L, CA-S and CA-N"

SuggestedRemedy

Change to "CA-L, CA-S, and CA-N"

Response Response Status C

ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 110C SC 110C.1 P230 L48 # 6  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

The text "QSFP28 to 4xSFP28 (110C.3.3)" should be left aligned. Now "to" seems to be right aligned for some reason

SuggestedRemedy

Per comment

Response Response Status C

ACCEPT IN PRINCIPLE.

Fix alignment.

Cl 110C SC 110C.2.1 P231 L10 # 7  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

missing "see" when referencing subclauses.

SuggestedRemedy

Change "(110C.3.1)" to "(see 110C.3.1)". Multiple locations in 110C.2.1 and 110C.2.2, 110C.3.1, 110C.3.2, and 110C.3.3

Response Response Status C

ACCEPT.

Cl 045 SC 45.2.3.17 P47 L38 # 8  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Unclear editorial instruction: "Change second last sentence of first paragraph as follows:"

SuggestedRemedy

Mmodify "second last" to "second sentence from the end"

Response Response Status C

ACCEPT.

Cl 069 SC 69.3 P54 L30 # 9  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Missing "," after "111.4"

SuggestedRemedy

Insert missing ","

Response Response Status C

ACCEPT.

Cl 074 SC 74.7.4.5.1 P68 L3 # 10  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Wrong format of editorial instructions "Change Figure 74-8 and item b) as follows:"

SuggestedRemedy

Apply the proper style to editorial instructions

Response Response Status C

ACCEPT.

Cl 078 SC 78.1.1 P73 L20 # 11  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

"these PCSs generate" - I think it should be "these PCSes generate" or even better "these PCS types generate"

SuggestedRemedy

Per comment

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "these PCSs generate" To "these PCS types generate"

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Cl 078 SC 78.1.1 P73 L23 # 12  
 Hajduczenia, Marek Bright House Networks  
 Comment Type E Comment Status A bucket  
 Missing serial comma in "25GAUI, XLAUI and CAUI-n" (two instances)  
 SuggestedRemedy  
 Change "25GAUI, XLAUI and CAUI-n" to ""25GAUI, XLAUI, and CAUI-n"  
 Use proper markup  
 Response Response Status C  
 ACCEPT.

Cl 078 SC 78.1.4 P74 L4 # 13  
 Hajduczenia, Marek Bright House Networks  
 Comment Type E Comment Status A bucket  
 Stray line with "."  
 SuggestedRemedy  
 Remove  
 The same issue on page 76, line 11  
 Response Response Status C  
 ACCEPT.

Cl 105 SC 105.4.1 P83 L20 # 14  
 Hajduczenia, Marek Bright House Networks  
 Comment Type E Comment Status A  
 Unnecessary reference to Clause 78 in "(see Clause 78, 78.1.3.3.1)"  
 SuggestedRemedy  
 Change to "(see 78.1.3.3.1)"  
 Response Response Status C  
 ACCEPT.

Cl 107 SC 107.1.3 P97 L29 # 15  
 Hajduczenia, Marek Bright House Networks  
 Comment Type E Comment Status A bucket  
 Double "." at the end of the sentence  
 SuggestedRemedy  
 Change ".." to "."  
 Response Response Status C  
 ACCEPT.

Cl 108 SC 108.5.2.7 P109 L1 # 16  
 Hajduczenia, Marek Bright House Networks  
 Comment Type E Comment Status A bucket  
 Figure 108-3 breaks text into two section.  
 SuggestedRemedy  
 Wrestle with Frame and make sure that Figure 108-3 does not break text in the middle.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Apply formatting changes to prevent the figure from breaking the text.

Cl 108 SC 108.7.4.2 P123 L44 # 17  
 Hajduczenia, Marek Bright House Networks  
 Comment Type E Comment Status A Bucket  
 Wrong font format in RF12  
 SuggestedRemedy  
 Font for "Figure 49-7" seems larger than the remaining text in PICS entries  
 Response Response Status C  
 ACCEPT.

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Cl 030 SC 30.5.1.1.2 P29 L30 # 18  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A bucket

"Change "BEHAVIOUR DEFINED AS" section of 30.5.1.1.2 as follows:" - typically, in cases like this, we only include the second para that is being modified to avoid attracting comments on text that was not changed.

SuggestedRemedy

Remove first para (lines 32-43) and change editorial note to read "Change second paragraph in "BEHAVIOUR DEFINED AS" section of 30.5.1.1.2 as follows:"

There are also other locations in Clause 30, e.g., 30.5.1.1.4, 30.5.1.1.17, 30.5.1.1.18 where similar change should be applied, i.e., show only changes to specific para of interest and scrub paras with text that are not being modified. In 30.5.1.1.18 (for example), the only change is in first sentence of "BEHAVIOUR DEFINED AS:" and "APPROPRIATE SYNTAX:"

Response Response Status W

ACCEPT.

See comments 50 and 208.

Cl 030 SC 30.6.1.1.5 P32 L16 # 19  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A legacy text

Rather than list the whole aAutoNegLocalTechnologyAbility list of PHYs, remove everything up to "10GBASE-KRFD" entry (inclusive) and from 40GBASE-KR4 onwards (inclusive) - editorial instruction is already clear and sufficient for editor to merge in new listings in order.

SuggestedRemedy

Per comment

Response Response Status W

ACCEPT.

Cl 045 SC 45.2.1.94 P41 L40 # 20  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A

In cases like this, it is sufficient to indicate to change caption for Table 45-74 and then show changes, without dragging in the table structure itself.

SuggestedRemedy

Change editorial instructions to read as follows: "Change the text of heading 45.2.1.94, first sentence in 45.2.1.94, and caption for Table 45-74 as follows:"

Remove empty table 45-74 and leave just the text of caption with proper markup.

Change ":" to "." at the end of line 37 (seems like something got copied incorrectly).

The same changes to be applied to 45.2.1.95, 45.2.1.96

Response Response Status W

ACCEPT IN PRINCIPLE.

Use response to comment 213.

Also, change ":" to "." at the end of line 37 (seems like something got copied incorrectly).

Cl 045 SC 45.2.1.102.1 P43 L45 # 21  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A

Since you're replacing the whole content of 45.2.1.102.1 with a new text, the proper editorial instruction is "Replace" and not "Change"

SuggestedRemedy

Align editorial instructions per comment, for 45.2.1.102.1, 45.2.1.102.2

Response Response Status W

ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI 073 SC 73.6.5.2 P57 L35 # 22  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status R

Incorrect editorial instructions: "Make second and third paragraphs of 73.6.5 a new subclause "73.6.5.2 For 10 Gb/s per lane PHYs" and change as follows:"

SuggestedRemedy

Change to "Remove second and third paragraphs in 73.6.5. Insert new subclause 73.6.5.2 as follows:" - and then new text in 73.6.5.2 does not require any markup since it is considered new text, even though it is based on existing text from 73.6.5.

Similar change for 73.6.5.3 and associated editorial instructions.

Response Response Status W

REJECT.

The commenter has not described how the existing editing instruction is incorrect. Almost all of the existing text of 73.6.5 stays unmodified so it is appropriate to use the editing instruction "change" rather than "insert". Also "remove" is not a recognized editing instruction.

CI 073 SC 73.10.1 P59 L35 # 23  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A bucket

List format does not match list format in 802.3bx-D3.2

SuggestedRemedy

Please align - there are missing "." at the end of each entry

Response Response Status W

ACCEPT.

CI 031B SC 31B.4.3 P201 L27 # 24  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A bucket

Modify editorial instruction to read: "Insert a new PICS item MIIf and renumber current MIIf and MIlg accordingly" + remove all unmodified PICS items to avoid comment bait

SuggestedRemedy

Per comment

Response Response Status W

ACCEPT.

See also comments 57, 29, and 25.

CI 031B SC 31B.4.6 P202 L1 # 25  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A bucket

Modify editorial instruction to read: "Insert a new PICS item TIM7 and renumber current TIM7 and TIM8 accordingly" + remove all unmodified PICS items to avoid comment bait. Remove TIM1

SuggestedRemedy

Per comment

Response Response Status W

ACCEPT.

See also comments 57, 29, and 24.

CI 110B SC 110B.1 P225 L17 # 26  
 Hajduczenia, Marek Bright House Networks

Comment Type ER Comment Status A bucket

Multiple dead links:

Cable assembly measurements for the SFP28-SFP28 form factor (see >>110C.3.1<<) are made between TP1 and TP4 with cable assembly test fixtures as specified in 110B.1.2 on both ends. Cable assembly measurements for the QSFP28-QSFP28 form factor (see >>110C.3.2<<) are made between TP1 and TP4 with cable assembly test fixtures as specified in 92.11.2 on both ends. Cable assembly measurements for the QSFP28-4xSFP28 form factor (see >>110C.3.3<<) are made between TP1 and TP4 with a cable assembly test fixture as specified in 110B.1.2 for each connector on the SFP28 end, and with a cable assembly test fixture as specified in 92.11.2. Links to 110B work fine, but to 110C not so much ... for the QSFP28 end.

SuggestedRemedy

Please fix broken links

Response Response Status W

ACCEPT.

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Cl **FM** SC **FM** P**4** L**1** # **27**  
 Hajduczenia, Marek Bright House Networks

Comment Type **ER** Comment Status **A** bucket

please re-apply the front matter text again into the draft - there are apparently extra white lines inserted between paragraphs without any reason.

*SuggestedRemedy*

For example, page 4, lines 6-8, 14-18, etc.

Response Response Status **W**

ACCEPT IN PRINCIPLE.

Fix vertical spacing between lines to be consistent with the template.

Cl **078** SC **78.2** P**75** L**16** # **28**  
 Hajduczenia, Marek Bright House Networks

Comment Type **ER** Comment Status **A**

Editorial instruction could be more detailed, and no need to show all of Table 78-2 and attract stray comments

*SuggestedRemedy*

Change "Change Table 78-2 as follows:" to "Insert two rows into Table 78-2, between 10GBASE-T and 40GBASE-KR4, as follows (unmodified rows not shown):"  
 Remove all existing rows from Table 78-2 apart from two newly added rows for 25G PHYs.

Similar change for 78.1.4, editorial instruction in line 3, page 74 and Table 78-1, editorial instruction in line 9, page 76, and Table 78-4.

Response Response Status **W**

ACCEPT IN PRINCIPLE.

Adopt suggested remedy but also include modification to last row in Table 78-4 for addition of 25GAUI.

Cl **031B** SC **31B.3.7** P**199** L**14** # **29**  
 Hajduczenia, Marek Bright House Networks

Comment Type **ER** Comment Status **A** bucket

incorrect editorial instruction.  
 Change to "Insert the following new paragraph before the paragraph starting with "At operating speeds of 40 Gb/s ...":  
 Add new editorial instruction "Insert the following calculation for 25 Gb/s operation, before the line "40 Gb/s - max\_overrun = 7552 + frame\_length..:""

*SuggestedRemedy*

Remove all unmodified text to avoid comment bait

Response Response Status **W**

ACCEPT.

See also comments 57, 24, and 25.

Cl **045** SC **45.2.1.101.a** P**43** L**23** # **30**  
 Hajduczenia, Marek Bright House Networks

Comment Type **T** Comment Status **A**

"This bit enables the 25GBASE-R Reed-Solomon FEC described in Clause 108" - it is much clearer, when bit number is referenced explicitly rather than implicitly.

*SuggestedRemedy*

Change to "Bit 1.200.2 enables the 25GBASE-R Reed-Solomon FEC described in Clause 108". Similarly, change "When set to a zero, this bit disables the" to "When set to a zero, bit 1.200.2 disables the"

Similar changes to be applied to 45.2.1.101.1, 45.2.1.101.2, and other locations in Clause 45 where reference to "this bit", "this register", etc. is made implicitly. Explicit references are much clearer to reader and leave no need for context based interpretation.

Response Response Status **C**

ACCEPT.

See also comments 74, 75 and 81

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CI 073 SC 73.6.5.1 P57 L23 # 31  
 Hajduczenia, Marek Bright House Networks

Comment Type T Comment Status A  
 New subclause 73.6.5.1 covers 25 Gb/s operation only - no need to list anything for 10Gb/s.

SuggestedRemedy

Remove "while bits F0 and F1 are used for 10 Gb/s per lane operation. Bits F0 and F1 are not used for 25G PHYs"

Renumber existing "73.6.5.1" to "73.6.5.2 FEC capability for 25G PHYs"  
 Add 73.6.5.1 "FEC capability for 10G PHYs" with the following text: "Bits F0 and F1 are used for resolving FEC operation for 10G PHYs. For 10G PHYs if neither PHY requests FEC operation in bits F0 or F1 then FEC is not enabled." - it is not clear whether additional text is needed.

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Move text "Bits F2 and F3 are used for resolving FEC operation for 25G PHYs while bits F0 and F1 are used for 10 Gb/s per lane operation. Bits F0 and F1 are not used for 25G PHYs." from 73.6.5.1 to be the last paragraph of 73.6.5

Rename 73.6.5.1 and 73.6.5.2 sub-clause titles to be "FEC resolution for 25G PHYs" and "FEC resolution for 10 Gb/s per lane PHYs"

CI 107 SC 107.1.4.1 P98 L37 # 32  
 Hajduczenia, Marek Bright House Networks

Comment Type T Comment Status A bucket  
 "The PCS service interface is precisely defined as the 25GMII in Clause 106" - this makes me wonder whether other elements of 25G PHY are defined less precisely than PCS service interface ... quantifiers of this type are meaningless. PCS service interface is the 25GMII. Period.

SuggestedRemedy

Remove the word "precisely" from the selected statement.

Response Response Status C  
 ACCEPT.

CI 107 SC 107.2.1 P99 L35 # 33  
 Hajduczenia, Marek Bright House Networks

Comment Type T Comment Status A bucket  
 "For values shown as binary, the leftmost bit is the first transmitted bit." and "Binary values are shown with the first transmitted bit (the LSB) on the left." are repetitive

SuggestedRemedy

Replace "Binary values are shown with the first transmitted bit (the LSB) on the left." and "For values shown as binary, the leftmost bit is the first transmitted bit." with a single statement: "Values represented in binary are shown with the first transmitted bit (the LSB) on the left."

Response Response Status C  
 ACCEPT.

CI 107 SC 107.4 P101 L24 # 34  
 Hajduczenia, Marek Bright House Networks

Comment Type T Comment Status A bucket  
 "A description of overall system delay constraints can be found in 106.1.4" - but the link points only to Table 106-1, which lists MAC, RS, and MAC Control RTT constraints.

SuggestedRemedy

Change reference to 105.5, where Table 105-3 lists all elements of 25G PHYs. For reference, note that 108.4 specifies this correctly, linking it to 105.5.

Response Response Status C  
 ACCEPT.

## IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 045 SC 45.2.1.4 P36 L12 # 35  
Hajduczenia, Marek Bright House Networks

Comment Type TR Comment Status A

Please align your draft with the latest version of P802.3bx-D3.2. There have been changes to Clause 45 (at least) per comment i-51 ([http://www.ieee802.org/3/bx/comments/P8023-D3p0-Comments\\_Final\\_byCIs.pdf](http://www.ieee802.org/3/bx/comments/P8023-D3p0-Comments_Final_byCIs.pdf)) that have been not reflected in this draft

*SuggestedRemedy*

Per comment. In this particular case, new 1.4.15:12 bit range needs to have name changed to "Reserved" per P802.3bx-D3.2

Similar change needed in Table 45-122 bits 3.4.15:5, Table 45-125 bits 3.20.11:10

Response Response Status W

ACCEPT IN PRINCIPLE.

In Table 45-125 remove crossed out text "for future speeds"

The draft is consistent with P802.3bx D3.2 for Tables 45-6 and 45-122, which both contain the text "Reserved for future speeds"

Cl 045 SC 45.2.7.14 P50 L1 # 36  
Hajduczenia, Marek Bright House Networks

Comment Type TR Comment Status A

Missing description of newly defined bits 7.61:15 and 7.61:14

*SuggestedRemedy*

Insert subclauses 45.2.7.14a and 45.2.7.14b with definition of bits 7.61:15 and 7.61:14

Response Response Status W

ACCEPT IN PRINCIPLE.

Use response to comment 109.

Cl 105 SC 105.2 P81 L10 # 37  
Hajduczenia, Marek Bright House Networks

Comment Type TR Comment Status R backplane FEC options

Perhaps I am reading Table 105-2 wrong, but it seems that 25GBASE-CR-S and 25GBASE-KR-S do not support FEC (see PHY definitions in Table 105-1), e.g., "25 Gb/s PHY equivalent to 25GBASE-CR without support for the RS-FEC sublayer"; yet Table 105-2 lists Clause 74 BASE-R FEC as mandatory for these PHYs  
Subclause 105.3.3 also states:  
The BASE-R FEC (see Clause 74) may be used by some 25GBASE-R PHYs.  
The RS-FEC (see Clause 108) may be used by some 25GBASE-R PHYs.

*SuggestedRemedy*

Please confirm that support for Clause 74 BASE-R FEC is intended for 25GBASE-CR-S and 25GBASE-KR-S. It is also not clear whether PHYs using FEC are supposed to use Clause 74 BASE-R FEC and Clause 108 RS-FEC simultaneously or not.

Response Response Status W

REJECT.

Support for Clause 74 "BASE-R" FEC is mandatory for both 25GBASE-CR-S and 25GBASE-KR-S. The table has an "M" in the column for the the Clause 74 "BASE-R" FEC.

This table lists which features are mandatory to implement in each of the PHY types. The selection of FEC type (including no-FEC) to use while operating is determined either through manual configuration or through auto-negotiation.

The PMD clauses provide full specification of the use of sublayers for a particular PHY type.



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CI 105 SC 105.2 P81 L3 # 38  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status R  
 "This standard specifies a family of Physical Layer implementations. " - once merged into the main standard, the statement will lose its meaning.

SuggestedRemedy  
 Change "This standard specifies a family of Physical Layer implementations. " to "This clause specifies a family of Physical Layer implementations."

Response Response Status C  
 REJECT.

[The commenter did not provide a comment type. The editor set comment type to "E".]

This clause summarizes the family of Physical Layer implementations; it does not specify them. Many clauses in "this standard" (specifically IEEE 802.3) do.

This language is consistent with subclauses summarizing 40G/100G operation (80.1.5) and 10G operation (44.1.4.4).

CI 073 SC 73.6.4 P57 L4 # 39  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket  
 Font size / type issue in line 4 for ":11]" - it seems to be a point smaller than the test of the text

SuggestedRemedy  
 Please apply the proper font type / size

Response Response Status C  
 ACCEPT.

CI 045 SC 45.2.1.94 P41 L36 # 40  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket  
 "The assignment of bits in the Single-lane PHY" - "Single-lane" should likely start with lower caps

SuggestedRemedy  
 Change "The assignment of bits in the Single-lane PHY" to read "The assignment of bits in the single-lane PHY"

Response Response Status C  
 ACCEPT.

See also comment 185

CI 045 SC 45.2.3.1 P45 L16 # 41  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket  
 Extra "." at the end of the sentence "Change the indicated row of Table 45-120 for 25 Gb/s speed selection as follows (unchanged rows not shown)"

SuggestedRemedy  
 Remove extra "."

Response Response Status C  
 ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 074 SC 74.1 P61 L6 # 42  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status R

Editorial instruction should precede the modified subclause and not be within the modified subclause

SuggestedRemedy

Move lines 6-7 to line 4.5 :)

Also, editorial instructions could be simplified: "Change first paragraph in 74.1 as follows. Insert a new paragraph between existing second and third paragraph as follows."

Similar change to editorial instructions in 74.4 (page 62, line 36) - also remove the third and fourth para which are not modified.

Response Response Status C

REJECT.

The commenter has not described why the editing instruction should precede the subclause.

74.1 is a single paragraph in the base document so there are no existing second and third paragraphs.

See also comment 71

Cl 074 SC 74.4.1a P63 L43 # 43  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A bucket

Wrong format of Figure 74-2a caption

SuggestedRemedy

Please apply the correct caption format (missing "-" between number and text, see Figure 74-1 for example of proper format)

Response Response Status C

ACCEPT.

Cl 074 SC 74.5 P64 L13 # 44  
 Hajduczenia, Marek Bright House Networks

Comment Type E Comment Status A

Missing serial comma before "and 100GBASE-R"

SuggestedRemedy

Change " and 100GBASE-R" to ", and 100GBASE-R"

The same issue on page 64, line 18: change " and CAUI-n for 100GBASE-R" to ", and CAUI-n for 100GBASE-R"

The same issue on page 65, line 45: change "40GBASE-R and 100GBASE-R" to "40GBASE-R, and 100GBASE-R"

The same issue on page 67, line 5 and line 24 (in Figure 74-6): change "40GBASE-R and 100GBASE-R" to "40GBASE-R, and 100GBASE-R"

The same issue on page 68, line 5 and line 27 (in Figure 74-8): change "40GBASE-R and 100GBASE-R" to "40GBASE-R, and 100GBASE-R"

The same issue on page 72, line 31: change "40GBASE-R and 100GBASE-R" to "40GBASE-R, and 100GBASE-R" (in FE4 PICS)

Use proper markup in all referenced cases

Response Response Status C

ACCEPT IN PRINCIPLE.

The service primitives are actually the same for 40GBASE-R and 100GBASE-R so on line 13 change to:

"The service primitives are defined differently for 10GBASE-R, for 25GBASE-R, and for 40GBASE-R and 100GBASE-R."

on page 72, line 31: change "40GBASE-R and 100GBASE-R" to "40GBASE-R, and 100GBASE-R" (in FE4 PICS)

The other cases referred to in the suggested remedy refer to legacy text in the base document and it is no appropriate to make editorial changes such as these to text in the base document.

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CI 110 SC 110.10.7 P154 L18 # 45  
Zambell, Andrew FCI

Comment Type T Comment Status D withdrawn

On slide 7 of goergen\_3by\_01\_0715.pdf, the value of the transmitter differential peak output voltage of the alien far-end aggressor is 0.4V, which was the original value. There was no suggestion to change it to 0.6V.

SuggestedRemedy

Change the alien far-end aggressor voltage to 0.4V.

Proposed Response Response Status Z

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

CI 111 SC 111.9 P175 L22 # 46  
Zambell, Andrew FCI

Comment Type T Comment Status A Bucket

The first paragraph in clause 111.9 states, "Channel characteristics for the links that comprise two 25GBASE-KR PHYs shall be the same as those of a single lane of 100GBASE-KR4, as defined in 93.9.1 through 93.8.4." It should state, ..."as defined in 93.9.1 through 93.9.4."

SuggestedRemedy

Change 93.8.4 to 93.9.4.

Response Response Status C

ACCEPT.

See comment #141.

CI 109 SC 109.1.3 P126 L14 # 47  
Marris, Arthur Cadence Design Syste

Comment Type E Comment Status A bucket

Change "The function diagram" to "The functional block diagram"

SuggestedRemedy

Change "The function diagram" to "The functional block diagram"

Response Response Status C

ACCEPT.

CI 109 SC 109.1.4 P127 L3 # 48  
Marris, Arthur Cadence Design Syste

Comment Type E Comment Status A bucket

Remove the comma after "physical"

SuggestedRemedy

Change:

"An implementation may use one or more PMA sublayers to provide an interface with a physical, electrical interface, 25GAUI, between devices"

To:

"An implementation may use one or more PMA sublayers to provide an interface with a physical electrical interface, 25GAUI, between devices"

Response Response Status C

ACCEPT.

CI 109 SC 109.4.4.2 P131 L20 # 49  
Marris, Arthur Cadence Design Syste

Comment Type E Comment Status A bucket

Change "variables" to "variable"

SuggestedRemedy

Change "variables" to "variable"

Response Response Status C

ACCEPT.

CI 030 SC 30.3.2.1.5 P28 L31 # 50  
Marris, Arthur Cadence Design Syste

Comment Type E Comment Status A bucket

There is too much legacy text here.

SuggestedRemedy

Prune the text to include only the text that has been modified and a minimum amount of legacy text to show the context of the modified text.

Also do the same for 30.5.1.1.2, 30.5.1.1.4, 30.5.1.1.17 and 30.5.1.1.18

Response Response Status C

ACCEPT.

See also comments 18 and 208

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CI 030 SC 30.6.1.1.5 P33 L11 # 51  
 Marris, Arthur Cadence Design Syste  
 Comment Type E Comment Status A bucket  
 New text has not been underlined  
 SuggestedRemedy  
 Underline "RS-FEC25G Req" and "BASE-RFEC25G Req"  
 Response Response Status C  
 ACCEPT.

CI 045 SC 45.2.1.7.4 P38 L11 # 52  
 Marris, Arthur Cadence Design Syste  
 Comment Type E Comment Status A bucket  
 In table 45-9 put "25GBASE-KR, 25GBASE-KR-S" on a single line to match the base standard  
 SuggestedRemedy  
 Make formatting of Tables 45-9 and 45-10 match the base standard by removing line feeds in the PMA/PMD column.  
 Response Response Status C  
 ACCEPT.

CI 045 SC 45.2.1.8 P38 L48 # 53  
 Marris, Arthur Cadence Design Syste  
 Comment Type E Comment Status A bucket  
 Make formatting of table 45-12 match the base standard  
 SuggestedRemedy  
 Change "25GBASE-KR,25GBASE-KR-S" to "25GBASE-KR and 25GBASE-KR-S"  
 Change "25GBASE-CR,25GBASE-CR-S" to "25GBASE-CR and 25GBASE-CR-S"  
 Response Response Status C  
 ACCEPT.

CI 045 SC 45.2.1.10.a P39 L23 # 54  
 Marris, Arthur Cadence Design Syste  
 Comment Type E Comment Status A Bucket  
 Renumber 45.2.1.10.a to 45.2.1.10.b as 45.2.1.10.a is being used by 802.3bw  
 SuggestedRemedy  
 Change 45.2.1.10.a to 45.2.1.10.b  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.

The text needs to be inserted before so make it subclause 45.2.1.10.aa  
 Change editing instruction to:  
 "Insert new subclause 45.2.1.10.aa before 45.2.1.10.1a as follows:"

CI 045 SC 45.2.1.94 P41 L41 # 55  
 Marris, Arthur Cadence Design Syste  
 Comment Type E Comment Status A  
 Remove blank table below Table 45-74 so just the table title remains  
 SuggestedRemedy  
 Remove the empty table below the table title so just the table title remains for tables 45-74, 45-75 and 45-76.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Use response to comment 213.

CI 073 SC 73.3 P55 L45 # 56  
 Marris, Arthur Cadence Design Syste  
 Comment Type E Comment Status A bucket  
 Incorrect cross reference  
 SuggestedRemedy  
 Change 73.6 to 73.9  
 Response Response Status C  
 ACCEPT.

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Cl 031B SC 31B.3.7 P199 L14 # 57  
Marris, Arthur Cadence Design Syste  
Comment Type E Comment Status A bucket  
Too much legacy text  
SuggestedRemedy  
Prune the text to include only the text that has been modified and a minimum amount of legacy text to show the context of the modified text. Make similar change in the PICS.  
Response Response Status C  
ACCEPT.  
See also comments 24, 25 and 29.

Cl 107 SC 107.5 P101 L30 # 58  
Marris, Arthur Cadence Design Syste  
Comment Type E Comment Status A bucket  
Missing "a"  
SuggestedRemedy  
Change to:  
"as a 10GBASE-KR PMD"  
Response Response Status C  
ACCEPT IN PRINCIPLE.  
Change to:  
"as a PCS used with a 10GBASE-KR PMD"

Cl 109 SC 109.1.1 P125 L14 # 59  
Marris, Arthur Cadence Design Syste  
Comment Type T Comment Status A bucket  
There is only one PMA service interface for 25G.  
SuggestedRemedy  
Change:  
"PMA service interfaces are defined in an abstract manner and do not imply any particular implementation."  
to:  
"The PMA service interface is defined in an abstract manner and does not imply any particular implementation."  
Response Response Status C  
ACCEPT.

Cl 109 SC 109.6 P134 L19 # 60  
Marris, Arthur Cadence Design Syste  
Comment Type T Comment Status A  
Register name wrong for PIASE and PEASE.  
Also consider adding "C2M and 25GAUI C2M recommended CTLE register (Register 1.179)" to table 109-3 and perhaps "CAUI-4 chip-to-chip transmitter equalization, receive direction, lane 0 register (Register 1.180)" and "CAUI-4 chip-to-chip transmitter equalization, transmit direction, lane 0 register (Register 1.184)" to table 109-4.  
SuggestedRemedy  
Change "PMA ingress AUI stop enable" to "PMA/PMD control 2"  
Change "PMA egress AUI stop enable" to "PMA/PMD control 2"  
Response Response Status C  
ACCEPT IN PRINCIPLE.  
Implement suggested remedy.  
Also, as suggested in the Comment, in Clause 45 include editorial changes to 45.2.1.97 (for register 1.180) and 45.2.1.99 (for register 1.184) and add text for 25GAUI in addition to CAUI-4.  
See comment #60.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 112 SC 112.5.4 P187 L11 # 61  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status R

Single as it is just a single fibre in each direction is it really global? Consider deleting the word global.

SuggestedRemedy

Change:  
"112.5.4 PMD global signal detect function  
The PMD global signal detect function shall report the state of SIGNAL\_DETECT via the PMD service interface."  
To:  
"112.5.4 PMD signal detect function  
The PMD signal detect function shall report the state of SIGNAL\_DETECT via the PMD service interface."

Response Response Status C

REJECT.

The 'PMD global signal detect' was chosen to be the same name as used in clause 52 (a single lane clause), and to match the MDIO PMD status variable name PMD\_global\_signal\_detect as shown on Table 112-3

Cl 078 SC 78.2 P75 L37 # 62  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status A

25GBASE-R sleep times (Ts) are incorrect.

SuggestedRemedy

Change Ts time for the rows on lines 37 and 40 to 4.9 and 5.1 to match the 10GBASE-KR values and the values specified in 107.3

Response Response Status C

ACCEPT IN PRINCIPLE.

Use response to comment 245.

Cl 105 SC 105.3.1 P81 L40 # 63  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status A bucket

Include the word logical in the 25GMII description as was done for XLGMII in 80.2.1. Also change "this" to "the".

SuggestedRemedy

Change:  
"The 25GMII (Clause 106) provides an interconnection between the Media Access Control (MAC) sublayer and Physical Layer entities (PHY). This 25GMII supports 25 Gb/s operation through its 32-bit-wide transmit and receive data paths."  
To:  
"The 25GMII (Clause 106) provides a logical interconnection between the Media Access Control (MAC) sublayer and Physical Layer entities (PHY). The 25GMII supports 25 Gb/s operation through its 32-bit-wide transmit and receive data paths."

Response Response Status C

ACCEPT.

Cl 105 SC 105.4.3.1.2 P84 L35 # 64  
Marris, Arthur Cadence Design Syste

Comment Type T Comment Status A bucket

Isn't the signalling rate always going to be 25.78125 GBd for the PMD, PMA and FEC service interfaces?

SuggestedRemedy

Change:  
The sublayer continuously sends a bit stream IS\_UNITDATA.request(tx\_bit) to the next lower sublayer, at a nominal signaling rate defined by a specific instance of the inter-sublayer service interface.  
To:  
The sublayer continuously sends a bit stream IS\_UNITDATA.request(tx\_bit) to the next lower sublayer, at a nominal signaling rate of 25.78125 GBd.

Make similar change in 105.4.3.2.2

Response Response Status C

ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI 105 SC 105.5 P89 L48 # 65  
 Marris, Arthur Cadence Design Syste  
 Comment Type T Comment Status A  
 Missing subnanosecond bits for 25GBASE-R PMA  
 SuggestedRemedy  
 Change 164 to 163.84 in table 105-3 and make similar change in table 109-1.  
 Response Response Status C  
 ACCEPT.

CI 105 SC 105.4 P82 L52 # 66  
 Marris, Arthur Cadence Design Syste  
 Comment Type TR Comment Status A multiple streams  
 25GBASE-R is single lane so delete the text referring to multiple streams.  
 SuggestedRemedy  
 Delete:  
 "Note that the 25GBASE-R inter-sublayer service interfaces use multiple scalar REQUEST and INDICATION primitives to indicate the transfer of multiple independent streams of data units, as explained in 105.4.1 through 105.4.3."  
 Response Response Status C  
 ACCEPT.

CI 001 SC 1.3 P25 L35 # 67  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status A bucket  
 In Draft 3.2 of 802.3bx the removed footnote is 18 not 16  
 SuggestedRemedy  
 change to 18  
 Response Response Status C  
 ACCEPT.

CI 001 SC 1.5 P26 L35 # 68  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status A bucket  
 If you want these inserted in alphabetical order they should start in alphabetical order  
 SuggestedRemedy  
 Swap 25GMII and 25GAUI  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Swap the order of 25GMII and 25GAUI.

CI 030 SC 30.3.2.1.5 P28 L31 # 69  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status A Bucket  
 For consistency with other sub-clauses of CI 30 it would be better to omitt ATTRIBUTE  
 SuggestedRemedy  
 Remove "ATTRIBUTE"  
 Response Response Status C  
 ACCEPT.

CI 074 SC 74.7.4.5.1 P68 L3 # 70  
 Remein, Duane Huawei Technologies  
 Comment Type E Comment Status A bucket  
 Incorrect formatting of Editing Instruction "Change Figure 74-8 and item b) as follows:"  
 SuggestedRemedy  
 use paragraph style Editing Instruction rather than T, Text  
 Response Response Status C  
 ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 074 SC 74.7.4.8 P70 L1 # 71  
 Remein, Duane Huawei Technologies

Comment Type E Comment Status A

It appears that in most places teh editing instruction is after the header block not before it in this case.

This is also an issue at  
 SCL pg ln  
 74.8.1 71 37  
 74.11.3 72 5  
 74.11.5 72 23

SuggestedRemedy

Move the Editing Instruction "Change the first paragraph of 74.7.4.8 (and split it into multiple paragraphs) as follows:" so it is below the H4 para 74.7.4.8.  
 Make a similar fix at other location noted (and any other you might run across)

Response Response Status C

ACCEPT.

See also comment 42

Cl 074 SC 74.8 P71 L23 # 72  
 Remein, Duane Huawei Technologies

Comment Type E Comment Status A bucket

It is common practice in 802.3 to avoid allowing variable names to cross line brakes. While I understand this is a royal pain, please follow the convention.

SuggestedRemedy

In Table 74-1 adjust the column wsizes so FEC varibales are not broken.  
 For normal text remove the underscore (may want to consider slash also) from the characters that can precede a line break by:  
 Choose Format > Document > Text Options, enter the characters in the Allow Line Breaks After text box, and click Set. For example, you might want to remove the slash character from the list if you use terms such as and/or.  
 Specific word can be made non-breaking (Hyphenation control) by placing the curser in teh work and typeing <Esc> n s (see FM help on "Changing hyphenation and line breaks" )

Response Response Status C

ACCEPT.

Cl 107 SC 107.2 P98 L53 # 73  
 Remein, Duane Huawei Technologies

Comment Type E Comment Status A

In Figure 49-15 I don't see anything labled "125 microsecond timer" only something called "125\_timer"

SuggestedRemedy

Change:  
 "The BER monitor state diagram shown in Figure 49-15 still applies but with a 2 millisecond timer instead of a 125 microsecond timer and ber\_cnt is tested for a value of 97 rather than 16."  
 To:  
 "The BER monitor state diagram shown in Figure 49-15 still applies but the definition of "125\_timer" in 49.2.13.2.5 is replaced with 'Timer that is triggered every 2 us +1%, -25%' and ber\_cnt exit criteria following state BER\_BAD\_SH a value of 97 rather than 16."

Response Response Status C

ACCEPT IN PRINCIPLE.

Change to:  
 "The BER monitor state diagram shown in Figure 49-15 still applies but with a 2 millisecond timer instead of a 125 microsecond timer and ber\_cnt is tested for a value of 97 rather than 16 in the exit conditions from state BER\_BAD\_SH. So the definition of "125us\_timer" in 49.2.13.2.5 is replaced with 'Timer that is triggered every 2 ms +1%, -25%'"

Cl 045 SC 45.2.1.14.4 P40 L5 # 74  
 Remein, Duane Huawei Technologies

Comment Type ER Comment Status A

Which bit is "this bit"? Typical wording is to specifically mention the bit number in the description in the first reference.  
 Same issue in 45.2.1.14.4a, 4b, 4c, adn 4d.

SuggestedRemedy

Change:  
 "25GBASE-CR this bit shall" to  
 "25GBASE-CR bit 1.16.5 shall"  
 Apply a similar fix in 45.2.1.14.4b-4d

Response Response Status W

ACCEPT.

See also comments 30, 75 and 81



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CI 045 SC 45.2.1.102.1 P43 L47 # 75  
 Remein, Duane Huawei Technologies

Comment Type ER Comment Status A

Which bit is "this bit"? Typical wording is to specifically mention the bit number in the description in the first reference as was the case in the removed text.  
 Same issue in 45.2.1.102.2

SuggestedRemedy

Change initial:  
 "This bit indicates ..." to  
 "Bit 1.201.1 indicates ..."  
 Apply a similar fix in 45.2.1.102.2

Response Response Status W

ACCEPT.

See also comments 30, 74 and 81

CI 074 SC 74.7.4.8 P70 L12 # 76  
 Remein, Duane Huawei Technologies

Comment Type ER Comment Status A

It appears that there are two options if "the optional EEE deep sleep capability is supported". On VERY careful reading it appears that The first option (detailed in the new 3rd para is for CI 107 PCS and the second option is for CI 82 PCS. Paragraph order can have a more logical order and wording could be clarified.

SuggestedRemedy

Swap the order of the 3rd & 4th para. and change the first sentence of each so they read as follows:  
 "A Clause 82 PCS sublayer that supports the optional EEE deep sleep capability also encodes // during ..."  
 "A Clause 107 PCS sublayer that supports the optional EEE deep sleep capability also encodes // during ..."

Response Response Status W

ACCEPT IN PRINCIPLE.

There is no need to swap the paragraph order.

Change the first sentence of the third and fourth paragraphs so they read as follows:  
 "A Clause 107 PCS sublayer that supports the optional EEE deep sleep capability also encodes // during ."  
 "A Clause 82 PCS sublayer that supports the optional EEE deep sleep capability also encodes // during ."

CI 001 SC 1.4.64h P26 L21 # 77  
 Remein, Duane Huawei Technologies

Comment Type T Comment Status A duplex definition, BTI

Perhaps this is more of a question but what is a "duplex multimode fiber"? The term could not be found in the standard (D3.2 802.3bx; looked for "duplex multimode fiber", "duplex fiber", "duplex singl mode fiber", "duplex SMF fiber", and "duplex SMF" all to no avail).  
 Is this a special two stranded fiber? Or perhaps it is a single strand of fiber that has special bi-directional capabilities?

SuggestedRemedy

Replace "duplex" with "single"

Response Response Status C

ACCEPT IN PRINCIPLE.

Delete "a duplex".

CI 045 SC 45.2.1.14.4a P40 L5 # 78  
 Remein, Duane Huawei Technologies

Comment Type T Comment Status R

You might want to reconsider the use of the term "shall be" here as I would expect to see a PICS entry for each new shall in the standard.  
 Given there are not proposed additions to CI 45 PICS there is an issue.

Note this is differerent from the shall in 45.2.7.13.a/b which already have a PICS statement (AM58).

SuggestedRemedy

Change  
 "shall be" to  
 "is"

Response Response Status C

REJECT.

It needs to be a shall to be consistant with 45.2.1.14 in the base document

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CI 045 SC 45.2.3.1 P45 L32 # 79  
 Remein, Duane Huawei Technologies

Comment Type T Comment Status A

It strikes me as very odd that in 45.2.1 you modify the entry for register 1.0.5:2 while here you don't.

SuggestedRemedy

Add Editing Instruction and text as follows  
 45.2.3.1.5 Speed selection (3.0.13, 3.0.6, 3.0.5:2)  
 "Add as the last para in 45.2.3.1.5 as follows:  
 When bits 5 through 2 are set to 0010 the use of a 40G PCS is selected; when set to 0011 the use of a 100G PCS is selected; when set to 0100 the use of a 25G PCS is selected."

Response Response Status C

ACCEPT IN PRINCIPLE.

Change the last paragraph to read as follows:

The speed selection bits 3.0.5:2, when set to 0000, select the use of the 10 Gb/s PCS; when set to 0001, select the use of the 10PASS-TS and 2BASE-TL PCS; when set to 0010, select the use of the 10/1 Gb/s PCS; when set to 0011, select the use of the 40 Gb/s PCS; when set to 0100, select the use of the 100 Gb/s PCS; when set to 0101, select the use of the 25 Gb/s PCS.

CI 045 SC 45.2.1 P34 L10 # 80  
 Remein, Duane Huawei Technologies

Comment Type TR Comment Status A

The instructed change indicates that 25 Gb/s interfaces are specified over multiple PMAs in 83.1.4 however in P802.3bx CI 83.1.4 I see no reference to 25 Gb/s, only 40 & 100. P802.3by does not include changes too 83.1.4. I am therefore confused.

SuggestedRemedy

It seems like a reference to 109.1.4 is more appropriate for 25 Gbps interfaces

Response Response Status W

ACCEPT IN PRINCIPLE.

Change text to include 109.1.4:  
 "(see 83.1.4 and 109.1.4 for how MMD addresses are allocated to multiple PMA sublayers)."

CI 045 SC 45.2.1.102.7 P44 L20 # 81  
 Remein, Duane Huawei Technologies

Comment Type TR Comment Status A

Now really Which bit is "this bit"? :-)  
 In this case the error is somewhat more confusing as the only bit referenced in teh text is FEC\_bypass\_indication\_enable which is not the "this" bit you're talking about.

SuggestedRemedy

Change:  
 "When FEC\_bypass\_indication\_enable is set to one, this bit is ..." to  
 "When FEC\_bypass\_indication\_enable is set to one, bit 1.201.2 is ..."

Response Response Status W

ACCEPT.

See also comments 30, 74 and 75

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Cl 000 SC 0 P45 L6 # 82  
 Remein, Duane Huawei Technologies

Comment Type TR Comment Status A two definitions

Here you are defining one register in two places with different definitions. Dual definition is always a bad idea, dual definitions that are different is an even worse idea.

108.6.9 FEC\_symbol\_error\_counter  
 FEC\_symbol\_error\_counter is a 32-bit counter that counts once for each 10-bit symbol corrected when FEC\_align\_status is true. This variable is mapped to the registers defined in 45.2.1.106 (1.210, 1.211).

91.6.11 FEC\_symbol\_error\_counter\_i  
 FEC\_symbol\_error\_counter\_i, where i=0 to 3, is a 32-bit counter that counts once for each 10-bit symbol corrected on FEC lane i when fec\_align\_status is true. These variables are mapped to the registers defined in 45.2.1.106 and 45.2.1.107 (1.210 to 1.217).

*SuggestedRemedy*

In 45.2.1.106 remove the reference to 108.6.9  
 In 108.6.9 change the wording to:  
 "FEC\_symbol\_error\_counter is defined in 91.6.11 for i=0. This variable is mapped to the registers defined in 45.2.1.106 (1.210, 1.211)."

Response Response Status W

ACCEPT IN PRINCIPLE.

Rename FEC\_symbol\_error\_counter to FEC\_symbol\_error\_counter\_0 in 108.6.9 and all other places it occurs in Clause 108.

Replace the text in 108.6.9 with:  
 "FEC\_symbol\_error\_counter\_0, as defined in 91.6.11, is a 32-bit counter that counts once for each 10-bit symbol corrected in lane 0 when FEC\_align\_status is true. This variable is mapped to the registers defined in 45.2.1.106 (1.210, 1.211). For the RS-FEC defined in this clause, all symbols are assigned to lane 0 and all symbol errors are counted by this counter."

Cl 000 SC 0 P28 L48 # 83  
 Remein, Duane Huawei Technologies

Comment Type TR Comment Status A list of speeds, CC

I question the wisdom of changing from a list of speeds to "xx Gb/s or greater speed". Have you enquired if 400 Gb/s will use this same function in each case? Is 400 G even in a position yet to make such a determination? If not it might be a better idea to extend the list of speeds rather than globally assert that the function will be useful from now until the end of time (AEO).

Here are some locations I noticed this issue (search for "Gb/s or greater"):

- Scl pg ln
  - 30.3.2.1.5 28 48
  - 30.5.1.1.4 30 30
  - 45.2.1.2.3 35 39
  - 78.1.3.3.1 73 38 (in this case the issue exist in the original text)
  - 78.1.3.3.1 73 42 (in this case the issue exist in the original text)
  - 78.1.3.3.1 73 47 (in this case the issue exist in the original text)
  - 78.5.2 77 23 (in new title "and greater-speed")
  - 78.5.2 77 26 (here the implication is that 25G can be extend with CAUI-4)
- Other instances of this issue may exist in the draft.

*SuggestedRemedy*

Rather than changing to an "or grater" construct extend these list by adding 25 Gb/s.

Response Response Status W

ACCEPT IN PRINCIPLE.

See comments 179 and 135.

Cl 108 SC 108.5.2.4 P108 L16 # 84  
 Lo, William Marvell Semiconductor

Comment Type T Comment Status D withdrawn

Not sure whether the following is intentional or is a typo.  
 Lane 0 alignment marker is referencing table 82-2 which is from 100GBASE-R  
 Lane 1, 2, 3 alignment marker is referencing 82-3 which is from 40GBASE-R

*SuggestedRemedy*

Fix reference to table 82-2 to 82-3 if this is a typo.  
 Else - I withdrawl this comment if the difference is intentional.

Proposed Response Response Status Z

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

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Cl 030 SC 30.5.1.1.17 P31 L17 # 85  
 Laubach, Mark Broadcom Corporation  
 Comment Type E Comment Status A Bucket  
 Consider making "10 Gb/s" non-breaking. Do same for any similar "value<space>units" or "value<dash>units", etc. in the draft where it makes visual sense.  
 SuggestedRemedy  
 As per comment.  
 Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.7.14 P50 L30 # 86  
 Laubach, Mark Broadcom Corporation  
 Comment Type E Comment Status R  
 Any PICS impact?  
 SuggestedRemedy  
 Provide PICS update if needed.  
 Response Response Status C  
 REJECT.  
 The only new "shalls" occur in 45.2.1.14, 45.2.3.9 and 45.2.7.13.  
 There is no existing entry for 45.2.1.14 in the base standard so there is nothing to update for 45.2.1.14  
 There are already generic PICS entries for 45.2.3.9 and 45.2.7.13 in the base standard which do not need modifying.

Cl 069 SC 69.2.3 P54 L7 # 87  
 Laubach, Mark Broadcom Corporation  
 Comment Type E Comment Status A bucket  
 Table 69.1 and 69.2 clause numbers are horizontal. The Clause numbers on line 9 should probably match by being horizontal. It doesn't look like there is a space issue for requiring vertical. Also consider making them active cross references.  
 SuggestedRemedy  
 As per comment.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Change orientation of clause numbers in Table 69-1A to be horizontal.

Cl 074 SC 74.11.3 P72 L16 # 88  
 Laubach, Mark Broadcom Corporation  
 Comment Type E Comment Status A bucket  
 Suggest "100GBASE-R" should be non-breaking. (or widen column slightly..)  
 SuggestedRemedy  
 As per comment.  
 Response Response Status C  
 ACCEPT.

Cl 110 SC 110.8.4.2 P148 L10 # 89  
 Laubach, Mark Broadcom Corporation  
 Comment Type E Comment Status A Bucket  
 Suggestion: what looks like an odd spurious check mark symbol in front of "GHz" should look a squareroot symbol. Might have to use the equation editor or perhaps use "dB/root-GHz", or do what was done in Table 111-4.  
 Same for line 37. Same Page 149, Line 10.  
 Clause 11.8.3.1, Page 173, Line 29, Table 111-4, Table 111-5, and Table 111-6, be consistent with how the squareroot is specified in the six tables.  
 SuggestedRemedy  
 As per comment.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Delete the radical symbol and add a superscript "1/2" after "GHz" in P148 L10, P148 L37, P149 L10.

Cl 105 SC 105.5 P89 L41 # 90  
 Mellitz, Richard Intel Corporation  
 Comment Type T Comment Status D withdrawn  
 table 105-3. 25G RS, MAC, and MAC Control is 8192 bits time of 40ps (note a). This is not 32.678 ns  
 SuggestedRemedy  
 Change 32.678 to 327.68 ns  
 Proposed Response Response Status Z  
 REJECT.  
 This comment was WITHDRAWN by the commenter.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 112 SC 112.7.1 P189 L 22 # 91  
 Lewis, David Lumentum  
 Comment Type E Comment Status A Bucket  
 The reference for pattern 5 should be to 82.2.10, not 82.2.11.  
 SuggestedRemedy  
 Replace 82.2.11 with 82.2.10.  
 Response Response Status C  
 ACCEPT.

Cl 110 SC 10 P154 L 15 # 92  
 Palkert, Thomas Molex  
 Comment Type T Comment Status A 3 m no FEC  
 Die capacitance is too pessimistic for 25G designs  
 SuggestedRemedy  
 Change 1.8x10-4 to 1.3x10-4  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 10 P154 L 24 # 93  
 Palkert, Thomas Molex  
 Comment Type T Comment Status A 3 m no FEC  
 Modifications of clause 92 COM parameters needed to achieve 3m no FEC operation  
 SuggestedRemedy  
 Add the following lines in Table 110-7:  
 CTLE gain: 16 dB Max  
 Nb (DFE taps) = 16 max  
 Package Z\_c = 85 ohms  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 8 P149 L 19 # 94  
 Palkert, Thomas Molex  
 Comment Type T Comment Status A RITT, 3 m no FEC  
 COM requirement is too stringent  
 SuggestedRemedy  
 Change COM value from 3.0 to 2.8  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 10 P154 L 13 # 95  
 Palkert, Thomas Molex  
 Comment Type T Comment Status A 3 m no FEC  
 Package capacitance is pessimistic for packages that will be used for 25G designs  
 SuggestedRemedy  
 Change 2.5x10-4 to 2.0x10-4  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 10 P154 L 24 # 96  
 Palkert, Thomas Molex  
 Comment Type TR Comment Status A 3 m no FEC  
 Need to modify clause 92 COM parameters to correct errors. The recommended changes are required to meet TP2 specifications in 100G CR4.  
 SuggestedRemedy  
 Add lines for SNR\_tx = 28.4, Afe = .43, Av = .43, Ane = .645  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 110 SC 10 P152 L32 # 97  
 Palkert, Thomas Molex  
 Comment Type TR Comment Status A 3 m no FEC  
 2m no FEC is insufficient reach for data center applications  
 SuggestedRemedy  
 Change no FEC (CA-N) distance from 2m to 3m  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of  
[http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 10 P153 L5 # 98  
 Palkert, Thomas Molex  
 Comment Type TR Comment Status A 3 m no FEC  
 Insertion loss of 12.98 dB for CA-N is insufficient to achieve 3m  
 SuggestedRemedy  
 Change 12.98 dB to 16.0 dB  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of  
[http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl FM SC 0 P7 L18 # 99  
 Booth, Brad Microsoft  
 Comment Type E Comment Status A bucket  
 Add the working group voters list.  
 SuggestedRemedy  
 Per comment.  
 Response Response Status C  
 ACCEPT.  
 [Editor changed Clause from 000 to FM.]

Cl FM SC 0 P11 L1 # 100  
 Booth, Brad Microsoft  
 Comment Type E Comment Status A bucket  
 IEEE-SA style guide only requires a maximum of three levels need to be shown in the table of contents.  
 SuggestedRemedy  
 Change to match IEEE-SA style guide to simplify readability.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 [Editor changed Clause from 000 to FM.]

2014 IEEE-SA Standards Style Manual states:  
 "A table of contents listing the main clauses (identified by one digit) and the first series of subclauses under each clause (identified by two digits) should be supplied. The next series of subclauses (identified by three digits) may be included when deemed appropriate by the IEEE-SA content publishing staff and the working group."

In Table of Contents limit headings to 1, 2, and 3 level headings.

Cl 045 SC 45.2.1.102.1 P43 L51 # 101  
 Booth, Brad Microsoft  
 Comment Type E Comment Status A Bucket  
 missing an "a"  
 Same error occurs in 45.2.1.102.2 on page 44, line 12.  
 SuggestedRemedy  
 Change to read:  
 "When read as a one, this bit..."  
 Response Response Status C  
 ACCEPT.

Cl 105 SC 105.2 P81 L34 # 102  
 Booth, Brad Microsoft  
 Comment Type E Comment Status A bucket  
 Table 105-2 is missing a key to define what M and O mean.  
 SuggestedRemedy  
 Add a footnote to indicate the meaning of M and O.  
 Response Response Status C  
 ACCEPT.

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Cl 105 SC 105.3.7 P82 L40 # 103  
 Booth, Brad Microsoft  
 Comment Type E Comment Status R acronym usage  
 Declaration of acronyms are not required as they're not used in this clause.  
 SuggestedRemedy  
 Remove "(MMD)" and "(STA)".  
 Response Response Status C  
 REJECT.  
 The "2014 IEEE-SA Standards Style Manual" provides the following guidance WRT to inclusion of acronyms in text.  
 "Within text, the acronym or abbreviation should follow the first use of the full term (the first time in the introduction, then the first time in the body of the document, and then the first time in any annexes in which the acronym appears). The abbreviation or acronym should be placed in parentheses when following the full term."  
 The style guide does not preclude the use of acronyms if they are used only once within a clause.  
 These acronyms are commonly used in other Clauses and it is helpful to include the acronyms here for reference.

Cl 107 SC 107.1.1 P97 L9 # 104  
 Booth, Brad Microsoft  
 Comment Type E Comment Status A bucket  
 Extra comma not required.  
 SuggestedRemedy  
 Change to read as: "... Physical Layer implementations known as 25GBASE-R."  
 Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.1.6 P37 L3 # 105  
 Booth, Brad Microsoft  
 Comment Type ER Comment Status A bucket  
 Considering there is a huge bank of register bits (1 1 0 x x x) shown as reserved, it might be good to provide an editor's note (to be removed prior to publication) to explain the gap to prevent sponsor ballot reviewers from suggesting changes to optimize.  
 SuggestedRemedy  
 Add an Editor's note stating something along the lines of:  
 "1 1 0 x x x is reserved for other IEEE 802.3 amendments that are planning to use these bits but will be published after this amendment."  
 Response Response Status W  
 ACCEPT.

Cl 045 SC 45.2.3.6 P46 L10 # 106  
 Booth, Brad Microsoft  
 Comment Type ER Comment Status D withdrawn  
 The editing instruction doesn't read correctly as it references .3bq.  
 Same applies to editing instructions for 45.2.3.7.  
 SuggestedRemedy  
 Strike "(as modified by IEEE Std. 802.3bq-201x)"  
 Proposed Response Response Status Z  
 PROPOSED REJECT.  
 This comment was WITHDRAWN by the commenter.

Cl 106 SC 106.4 P94 L13 # 107  
 Booth, Brad Microsoft  
 Comment Type ER Comment Status A  
 Sentence is ambiguous. All the 25G PHYs may support EEE. Also, reference to the table in Clause 105 would be helpful.  
 SuggestedRemedy  
 Change sentence to read:  
 "25 Gb/s PHYs may support Clause 78 Energy-Efficient Ethernet (see Table 105-2)."  
 Response Response Status W  
 ACCEPT.

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Cl 045 SC 45.2.3.6 P46 L18 # 108  
 Booth, Brad Microsoft  
 Comment Type T Comment Status A bucket  
 Bit range in first column of Table 45-123 is wrong.  
 SuggestedRemedy  
 Change to read "3.7.2:0".  
 Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.7.13 P49 L13 # 109  
 Booth, Brad Microsoft  
 Comment Type T Comment Status A  
 Advertising deep sleep ability for KR/CR and KR-S/CR-S in two separate bits is overkill.  
 Same applies to the link partner ability.  
 SuggestedRemedy  
 Change Table 45-210 and 45-211 to leave bit 15 as reserved and bit 14 to be 25G EEE support. Update register descriptions.  
 Delete 42.3.7.13a and change 45.2.7.13b to read:  
 If set to a one, it indicates that the technologies advertised in bits A9 and A10 of Table 73-4 are capable of supporting EEE deep sleep operation. If set to a zero, EEE deep sleep operation is not supported for 25G.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 The commenter is correct to say these two bits should be combined.  
 Bit 14 should be renamed to "25GBASE-R EEE" rather than "25G EEE" as Table 73-4 would not be relevant to a future 25GBASE-T PHY.  
 Also "Table 45-17 EEE capability register bit definitions" needs to be updated to have a single capability bit in addition to updating Tables 45-210 and 45-211.  
 Also comment 221 needs to be taken into consideration and Table 45-210 modified to include the column titled 'Clause reference; Next Page bit number' with bit U14 for 25GBASE-R EEE advertisement.  
 With editorial license update Tables 45-17, 45-210, 45-211 and associated text to have a single bit for 25GBASE-R EEE ability. Text for Table 45-211 is currently missing and needs to be added.

Cl 107 SC 107.2 P98 L49 # 110  
 Booth, Brad Microsoft  
 Comment Type TR Comment Status A  
 The conformance requirements for this clause are very light and poorly captured in the PICS.  
 SuggestedRemedy  
 Change the paragraph to read:  
 "The 25GBASE-R PCS shall support all the functionality of the 10GBASE-R PCS specified in Clause 49. In addition, the PCS shall support the scrambled idle test pattern generator specified in 82.2.11."  
 In 107.6.3, for the MD entry, add 49.2.14 to the subclause list.  
 Change 107.6.4 to be 25G PCS and delete table in 107.6.4.  
 Change 107.6.4.1 to be Clause 49 Functionality  
 Use the following entries into the table:  
 PCS1; Supports Clause 49 functionality; 107.2; ; M; Yes[] No[]  
 Add 107.6.4.2 Test Pattern Generator  
 Use the following entries in the table:  
 TP1; Scrambled idle test pattern; 107.2, 82.2.11; ; M; Yes[] No[]  
 TP2; Scrambled idle ability; 107.2.3; ; M; Yes[] No[]  
 Change 107.6.4.2 LPI to be 107.6.4.3 LPI  
 Change LP1 in table to be LP2 and change LPI:M to be LPI:O (deep sleep is optional) and add N/A[] to Support  
 Insert LP1 with the following entries in the table:  
 LP1; EEE deep sleep; 107.3, 49; PHY configured for deep sleep operation; LPI:O; Yes[] No[] N/A[]  
 Add LP3 with the following entries:  
 LP3; EEE fast wake; 107.3; Fast wake operation; LPI:M; Yes[] No[]  
 Response Response Status W  
 ACCEPT.



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Cl 108 SC 108.7.4.2 P123 L10 # 111  
Booth, Brad Microsoft

Comment Type TR Comment Status A PICS, BEC/BEI

The wording in the PICS entry for RF3 and RF4 does not match the text in 108.5.3.2.  
Bypass is an optional mode of operation, and does not impact the requirement of RS-FEC.

SuggestedRemedy

Combine RF3 and RF4 into one PICS entry that has the following entries:  
RF3; Reed-Solomon decoder; 108.5.3.2; Corrects any combination of up to 7 symbol errors in a codeword; M; Yes[]

Response Response Status C

ACCEPT IN PRINCIPLE.

Combine RF3 and RF4 into one PICS entry that has the following entries:  
RF3; Reed-Solomon decoder; 108.5.3.2; Capable of correcting any combination of up to 7 symbol errors in a codeword; M; Yes[]

Cl 108 SC 108.7.4.2 P123 L17 # 112  
Booth, Brad Microsoft

Comment Type TR Comment Status A PICS, BEC/BEI

RF5 is confusing. Error correction bypass is optional, but it's mandatory that SR not support it. I'm concerned that this could be incorrectly interpreted.

SuggestedRemedy

Change RF5 to read:  
RF5; Error correction bypass; 108.5.3.2; Error correction bypass not supported by 25GBASE-SR; BEC\*!SR:M; Yes[] No[] N/A[]

Response Response Status C

ACCEPT IN PRINCIPLE.

For PICS item RF5  
Change feature to "Error correction not bypassed for 25GBASE-SR"  
Change status to "BEC\*SR:M".

Cl 108 SC 108.5.3.2 P111 L1 # 113  
Booth, Brad Microsoft

Comment Type TR Comment Status A PICS

RF7 in the PICS table talks about the corruption of the header. The text in 108.5.3.2 actually has two shall statements associated with it which have different requirements. This could be greatly simplified by editing the text to result in one shall statement to cover the operation.

SuggestedRemedy

Change the first sentence of the paragraph to read:  
"The Reed-Solomon decoder shall indicate errors to the PCS sublayer by intentionally corrupting 66-bit block synchronization headers."  
Change the next two occurrences of "it shall ensure" to be "it ensures".

Response Response Status C

ACCEPT.

Cl 108 SC 108.5.3.2 P110 L42 # 114  
Booth, Brad Microsoft

Comment Type TR Comment Status R PICS

The shall statement talks more about capability than a requirement. The requirements are handled by other shalls.

SuggestedRemedy

Change the second sentence of the paragraph to read:  
The 25GBASE-R RS-FEC sublayer is also capable of indicating when a codeword contains errors that were not corrected.  
Delete RF6 from 108.7.4.2.

Response Response Status U

REJECT.

See comment #153.

There is no consensus to make the change.

Straw poll:  
Support the response: "Implement suggested remedy and merge RF6 and RF7 with editorial license."

Y: 2  
N: 4  
A: 23

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Cl 108 SC 108.7.4.2 P123 L 22 # 115  
Booth, Brad Microsoft

Comment Type TR Comment Status A PICS, BEC/BEI

RF7and RF8 are really confusing and incorrect. Need to make this better match the entries to the capabilities to prevent misinterpretation.

SuggestedRemedy

Change RF7 to read:  
RF7; Error indication function; 108.5.3.2; ; BEC:M or !BEI:M; Yes[] No[]  
Change RF8 to read:  
RF8; Error indication bypass; 108.5.3.2; ; !BEC\*BEI:M; Yes[] N/A[]

Response Response Status C

ACCEPT IN PRINCIPLE.

For PICS item RF7 change the "value/comment" to "Corrupts 66-bit block synchronization headers as specified"

For PICS item RF8 change the "status" to "BEC\*BEI:M".

Cl 108 SC 108.5.3.2 P111 L 32 # 116  
Booth, Brad Microsoft

Comment Type TR Comment Status A PICS, EEE

There are two shalls associated with deep sleep that don't have PICS entries.

SuggestedRemedy

Add EEE capability to the major capabilities/options table.

Add two new PICS entries for error monitor while entering and exiting deep sleep. Use the Status BEI\*EEE:M for each entry.

Response Response Status C

ACCEPT IN PRINCIPLE.

The second "shall" does not constitute any additional requirement.

Change "shall begin" to "begins" (line 34).

Add EEE capability to the major capabilities/options table.

Add a new PICS entry for error monitor while in deep sleep, with the status BEI\*EEE:M.

Cl FM SC FM P1 L5 # 117  
Booth, Brad Microsoft

Comment Type E Comment Status A bucket

Redundant uses of trademarks

SuggestedRemedy

Remove TM from:  
page 1, line 5: IEEE P802.3by  
page 2, line 10: IEEE P802.3by  
Page 9, line 7: IEEE Std. 802.3

Response Response Status C

ACCEPT.

[Editor changed Clause from 000 to FM.]

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 110 SC 10 P152 L24 # 118  
 Joel Goergen Cisco Systems, Inc.

Comment Type TR Comment Status A 3 m no FEC

The current solution does not support 3m with no fec. The 2m no fec solution set is not long enough for top of rack applications as demonstrated in presentations by goergen and andrewartha. The 3m solution only supports single rack switching applications. The 5m solution uses RS FEC with a penalty of almost 400ns.

SuggestedRemedy

Suggest two possible remedies.

One:

remove the 2m solution; make the 3m solution KR FEC optional.

Modify the following:

Table 110-10 Av- 0.43V / Afe- 0.43V / Ane- 0.63V [ Afe cannot exceed Av since they are coming from the same source on the cable ]

Table 110-7 Com change for nofec from 3dB to 2.70

SNDR change to 28.4dB

CTLE from 12dB to 16dB

Two

Clause 110.10 line 25 thru line 33

Change the 3m KR FEC solution to 4m KR FEC

Change the 2m no FEC solution to 3m no FEC

Table 110-9 modify the loss table to 22.48 / 18.?? / 15.48 - (RS / KR / noFEC)

Modify the following:

Table 110-10 Av- 0.43V / Afe- 0.43V / Ane- 0.63V [ Afe cannot exceed Av since they are coming from the same source on the cable ]

Table 110-7 Com change for nofec from 3dB to 2.70

SNDR change to 28.4dB

CTLE from 12dB to 16dB

Response Response Status C

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of

[http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 10 P152 L24 # 119  
 Vineet Salunke Cisco Systems, Inc.

Comment Type TR Comment Status A 3 m no FEC

Same as submitted by Joel Goergen on supporting 3m with No FEC.

SuggestedRemedy

Same as submitted by Joel Goergen on supporting 3m with No FEC.

Response Response Status C

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of

[http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 073 SC 73.6.5.1 P57 L23 # 120  
 Slavick, Jeff Avago Technologies

Comment Type E Comment Status A

The First sentence of 73.6.5.1 is overview and belongs as part of the introduction section 73.6.5.

SuggestedRemedy

Move "Bits F2 and F3 are used for resolving FEC operation for 25G PHYs while bits F0 and F1 are used for 10 Gb/s per lane operation. Bits F0 and F1 are not used for 25G PHYs." to be the last paragraph of 73.6.5

Response Response Status C

ACCEPT IN PRINCIPLE.

Response to comment 31

Cl 108 SC 108.5.2.4 P108 L3 # 121  
 Slavick, Jeff Avago Technologies

Comment Type E Comment Status A Bucket

Extra words "at predefined locations," make the sentence a little confusing.

SuggestedRemedy

Remove the words "at predefined locations," so the sentence reads

In order to support codeword alignment in the receive direction, the 25GBASE-R RS-FEC shall periodically insert codeword markers into the stream of transcoded blocks as the first 257 bits of every 1024th RS-FEC codeword.

Response Response Status C

ACCEPT.

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Cl 108 SC 108.5.2.2 P106 L33 # 122  
 Slavick, Jeff Avago Technologies

Comment Type ER Comment Status A

The // means Idle control character so it's unnecessary to include the word character in b). However this is also the first usage of // and /LI/ in clause 108 so.

SuggestedRemedy

Delete "characters," from 108.5.3.6 item b)

In 108.5.2.2 change b) to read:

b) Delete //, /LI/ and ordered sets, according to the rules in 49.2.4.7 and 49.2.4.10, to create room as necessary for the periodically occurring codeword markers

or

b) Delete Idle control characters (//), Low Power Idle control characters (/LI/) and ordered sets, according to the rules in 49.2.4.7 and 49.2.4.10, to create room as necessary for the periodically occurring codeword markers

Response Response Status C

ACCEPT IN PRINCIPLE.

(Use the second option in the suggested remedy)

In 108.5.2.2 item b, change "Delete // and /LI/ characters and ordered sets" to "Delete Idle control characters (//), Low Power Idle control characters (/LI/) and ordered sets".

In 108.5.3.6 item b), change "Delete // and /LI/ characters and ordered sets" to "Delete //, /LI/, and ordered sets".

Cl 108 SC 108.5.4.5 P116 L15 # 123  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A EEE, BTI

With a Clause 49 LPI state diagram you can exit LPI state without ever going to sleep (path from SLEEP -> ACTIVE exists).

lpi\_rapid\_align is set to true whenever rx\_lpi\_active is set to true, which occurs when /LI/ are seen. So if the Tx sends some /LI/ but doesn't actually go to sleep lpi\_rapid\_align could be set. The only way to clear lpi\_rapid\_align is to successfully achieve alignment with rapid CWMs.

Additionally while in the 2\_GOOD state you would reset the lpi\_rapid\_align setting baed on rx\_lpi\_active being TRUE, if it changes to FALSE (transition from // to /LI/ during WAKE) then you'd also end up stuck trying to frame to rapid CWMs

SuggestedRemedy

Add the assignment of lpi\_rapid\_align <= rx\_lpi\_active in the 2\_GOOD state of Figure 108-6

Change the definition for lpi\_rapid\_align to be:

Boolean variable that is set according to the FEC synchronization state diagram in Figure 108 6.

Add a WAKE\_FAIL state to Figure 108-6 which is entered if the hold-off timer defined in 108.5.3.7 expires and sets lpi\_rapid\_align <= false and transitions to the LOCK\_INIT state via a UCT transition

Create a definition for the Rx EEE hold\_timer in 108.5.4 to be referenced by Figure 108-6 and 108.5.3.7

Response Response Status C

ACCEPT IN PRINCIPLE.

[Editor changed subclause from the original "180.5.4.5"]

Implement the changes in slides 11-13 of:

[http://www.ieee802.org/3/by/public/Sept15/slavick\\_3by\\_01a\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/slavick_3by_01a_0915.pdf)

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 045 SC 45.2.1.80 P0 L0 # 124  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A  
 PMD Training control and status registers sections need to be brought in and have 110 and 111 added the list of clauses.

SuggestedRemedy  
 Add clause 110 and 111 to the list of clauses supported in subsections  
 45.2.1.80  
 45.2.1.81  
 45.2.1.82  
 45.2.1.83  
 45.2.1.84  
 45.2.1.85

Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.3.17.2 P0 L0 # 125  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A  
 Clause 107 is Clause 49, so test patterns are defined for 25G as well

SuggestedRemedy  
 Retitle sections 45.2.3.17.2, 45.2.3.17.3, 45.2.3.17.4 to be Single Lane PHY BASE-R instead of 10GBASE-R

Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.3.13.1 P0 L0 # 126  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A bucket  
 25G missing from list of MAC rates in several places

SuggestedRemedy  
 Change 10/40/100 BASE-R to 10/25/40/100 BASE-R in sections  
 45.2.3.2.7  
 45.2.3.14.1  
 45.2.3.14.2  
 45.2.3.14.3

Response Response Status W  
 ACCEPT.

See also comment 219

Cl 045 SC 45.2.3.13.4 P0 L0 # 127  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A  
 clause 107 missing from several PCS status registers

SuggestedRemedy  
 Add ", and in 107.2 for 25GBASE-R" into the lists valid clauses in sections  
 45.2.3.13.1  
 45.2.3.13.4  
 45.2.3.13.5

Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.7.12 P48 L4 # 128  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A  
 RS-FEC negotiated bit was added but no definition for the bit

SuggestedRemedy  
 Create new subsection to define 7.48.7

When the Auto-Negotiation process has completed as indicated by the AN complete bit (7.1.5), bit 7.48.7 indicates that RS-FEC operation has been negotiated. This bit is set only if RS-FEC operation has been negotiated for a BASE-R PHY supporting negotiation of RS-FEC operation.

Response Response Status C  
 ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 074 SC 74.9 P0 L0 # 129  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A  
 Text of 74.9 talks about 10GBASE-R test pattern abilities, 107 also has these abilities for 25G.

SuggestedRemedy

The 10GBASE-R and 25GBASE-R PCS provides test-pattern functionality and the PCS transmit channel and receive channel can each operate in normal mode or test-pattern mode (see 49.2.2). When the 10GBASE-R or 25GBASE-R PHY is configured for test-pattern mode, the FEC function may be disabled by setting the FEC Enable variable to zero, so the test-pattern from the PCS can be sent to the PMA service interface, bypassing the FEC Encode and Decode functions.

The Clause 82 and 107 PCS can also operate in test pattern mode (see 82.2.11 and 107.2.3); however, the scrambled idle test pattern does not require bypassing FEC encode and decode.

Response Response Status C  
 ACCEPT.

Cl 108 SC 108.5.2.4 P108 L11 # 130  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A CWM  
 Paragraph describing how tx\_cwm is built is a little cryptic

SuggestedRemedy

Change the paragraph  
 The transmitted codeword marker is a 257-bit block, tx\_cwm, constructed from the eight octets M0, M1, M2, BIP3, M4, M5, M6, and BIP7 (bits 65 to 2) of the alignment markers with the bit order shown in Figure 82 9, with BIP3 set to the constant value 0x33 and BIP7 set to the constant value 0xCC, as follows:

to read

The transmitted codeword marker is a 257-bit block, tx\_cwm, constructed of four alignment markers. Each alignment marker is built from eight octets M0, M1, M2, BIP3, M4, M5, M6, and BIP7 with the bit order shown in Figure 82 9. Since 25GBASE-R does not perform Bit Interleaved Parity (BIP) monitoring the BIP3 field is set to the constant value 0x33 and BIP7 set to the constant value 0xCC.

tx\_cwm is constructed as follows:

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Change the third paragraph to :  
 "The transmitted codeword marker is a 257-bit block, tx\_cwm, constructed of four alignment markers. Each alignment marker is built from eight octets M0, M1, M2, BIP3, M4, M5, M6, and BIP7 with the bit order shown in Figure 82-9. The BIP3 field is set to the constant value 0x33 and BIP7 set to the constant value 0xCC.  
 Tx\_cwm is constructed as follow:"

Cl 108 SC 108.5.4.5 P116 L30 # 131  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A EEE  
 States required only for EEE support are traditionally marked as such.

SuggestedRemedy

Add a dotted box around the WAKE\_NEXT\_COUNT and WAKE\_GOOD states in Figure 108-6  
 Add a Note indicating that these state are optional states only required to support EEE capability

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Use response to comment #123.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 108 SC 108.5.4.2 P113 L34 # 132  
 Slavick, Jeff Avago Technologies

Comment Type TR Comment Status A CWM

No definition for how many bits are part of nibble exists in the cwm\_valid definition.

SuggestedRemedy

After "on a nibble wide basis" add "(12 comparisons)". Since 2 sets of 24b are compared and we do 12 comparisons each nibble is 4b in size.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change:  
 "on a nibble wide basis"  
 To:  
 "on a nibble-wise basis (12 comparisons)"

Cl 110 SC 110.10 P152 L31 # 133  
 Andrewartha, Mike Microsoft

Comment Type TR Comment Status A 3 m no FEC

The specification does not define a method of achieving no-FEC operation at lengths up to 3m.

SuggestedRemedy

Adopt one of the proposals for achieving 3m no-FEC operation that are being developed by Goergen, et al.

OR

If no acceptable solution for achieving 3m no-FEC operation exists, create an informative annex that provides guidance on relaxations of other spec parameters that can be made to achieve 3m no-FEC operation.

Response Response Status C

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 073 SC 73.6.5.1 P57 L33 # 134  
 Trowbridge, Steve Alcatel-Lucent

Comment Type E Comment Status A

Clause title starting with a preposition seems odd. Same ussye with 73.6.5.2.

SuggestedRemedy

Either just use "25G PHYs" and "10 Gb/s per lane PHYs", or spell it out "FEC capability for 25G PHYs" or "FEC capability for 10 Gb/s per lane PHYs".

Response Response Status C

ACCEPT IN PRINCIPLE.

Use response to comment 31.

Cl 078 SC 78.5.2 P77 L23 # 135  
 Trowbridge, Steve Alcatel-Lucent

Comment Type ER Comment Status A list of speeds, CC

This won't be generically true for 25 Gb/s and greater PHYs since 400GBASE-R based on currently adopted baselines will implement "Fast Wake" only. So CDAUI-8 and CDAUI-16 will not specify deep sleep capability, nor will there be a 400G PMA Egress AUI stop enable or 400G PMA Ingress AUI Stop Enable.

SuggestedRemedy

Spell out 25 Gb/s, 40 Gb/s and 100 Gb/s PHY extension using 25GAUI, XLAUI, or CAUI-n in the title of 78.5.2

Response Response Status C

ACCEPT IN PRINCIPLE.

Change title to:  
 "25Gb/s, 40 Gb/s, and 100 Gb/s PHY extension using 25GAUI, XLAUI, or CAUI-n"

Change first sentence to:  
 "25GAUI, XLAUI, CAUI-10, and CAUI-4 may be used as a physical instantiation of the inter-sublayer service interface to separate functions between devices."

See comments 83 and 179.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 108 SC 108.5.2.2 P106 L 25 # 136  
 Trowbridge, Steve Alcatel-Lucent  
 Comment Type TR Comment Status R OTN, BTI  
 Doing rate compensation below the PCS precludes developing an OTN mapping for 25GbE which is PCS codeword transparent.  
 SuggestedRemedy  
 See trowbridge\_3by\_01\_0915.pdf for proposed remedy. The problem can be solved if all of the PMDs have CWMs, none of the PMDs have CWMs, or if no rate compensation is done to insert CWMs (i.e., overclock to insert CWM). Propose to move the rate compensation to the PCS. Rate compensation should similarly be removed from Figure 108-2.  
 Response Response Status U  
 REJECT.  
 The task force reviewed the cited presentation.  
 There is no consensus to make the proposed changes. See Motion #4.  
 See comments 137, 138, 139 and 190.

Cl 108 SC 108.5.2.4 P108 L 1 # 137  
 Trowbridge, Steve Alcatel-Lucent  
 Comment Type TR Comment Status R OTN, BTI  
 Some PMDs having CWMs and others not prevents creating a PCS codeword transparent mapping for 25GbE into OTN which can interconnect any pair of 25GbE PMDs.  
 SuggestedRemedy  
 Propose to move CWM insertion to the PCS. See trowbridge\_3by\_01\_0915.pdf for details. If CWM insertion is moved to the PCS, Figure 108-3 needs to transcode the CWM from four 66B blocks to the 257B format.  
 Response Response Status U  
 REJECT.  
 The task force reviewed the cited presentation.  
 There is no consensus to make the proposed changes. See Motion #4.  
 See comments 136, 138, 139, and 190.

Cl 108 SC 108.5.3.3 P111 L 47 # 138  
 Trowbridge, Steve Alcatel-Lucent  
 Comment Type TR Comment Status R OTN, BTI  
 Some PMDs having CWMs and others not prevents developing a PCS codeword transparent mapping into OTN which can interconnect any pair of 25GbE PMDs.  
 SuggestedRemedy  
 See trowbridge\_3by\_01\_0915.pdf for details. Move CWM removal to the PCS, and replace this text with how to transcode CWM from the 257B format back to four 66B blocks.  
 Response Response Status U  
 REJECT.  
 The task force reviewed the cited presentation.  
 There is no consensus to make the proposed changes. See Motion #4.  
 See comments 136, 137, 139 and 190.

Cl 108 SC 108.5.3.6 P112 L 15 # 139  
 Trowbridge, Steve Alcatel-Lucent  
 Comment Type TR Comment Status R OTN, BTI  
 Having rate compensation below the PCS prevents creating a PCS codeword transparent mapping into OTN which can interconnect any pair of 25GbE PMDs.  
 SuggestedRemedy  
 Move this rate compensation to the PCS and add CWM to all PMDs. See trowbridge\_3by\_01\_0915.pdf.  
 Response Response Status U  
 REJECT.  
 The task force reviewed the cited presentation.  
 There is no consensus to make the proposed changes. See Motion #4.  
 See comments 136, 137, 138, and 190.



## IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI 105 SC 105.5 P89 L31 # 140  
Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type E Comment Status A

There is a pointer to clause 80.4, but clause 80.4 does not have the description of the calculation of bit term per meter of fiber or electrical cable.  
Clause 80.4 has just a pointer to clause 44.3.  
Clause 44.3 has the description.  
Indirect pointer is not good.

SuggestedRemedy

Change the pointer to clause 80.4 with a pointer to clause 44.3.

Response Response Status C

ACCEPT IN PRINCIPLE.

P802.3bx D3.2 44.3 provides a calculation of cable delay in bit times (BT) specifically for 10 Gb/s operation.

Replace:  
"See 80.4 for the calculation of bit time per meter of fiber or electrical cable."

With:  
Equation (<TBD>) specifies the calculation of bit time per meter of fiber or electrical cable based upon the parameter  $n$ , which represents the ratio of the speed of electromagnetic propagation in the fiber or electrical cable to the speed of light in a vacuum. The value of  $n$  should be available from the fiber or electrical cable manufacturer, but if no value is known then a conservative delay estimate can be calculated using a default value of  $n = 0.66$ . The speed of light in a vacuum is  $c = 3 \times 10^8$  m/s. Table 44-3 can be used to convert fiber or electrical cable delay values specified relative to the speed of light or in nanoseconds per meter."

Add the following equation to 105.5:  
cable delay =  $25 \times 10^9 / (n \times c)$  BT/m

CI 111 SC 111.9 P175 L22 # 141  
Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type E Comment Status A Bucket

It is written as 93.9.1 through 93.8.4.

Clause 93.8.4 is prior to 93.9.1.

SuggestedRemedy

Change the pointer to "93.9.1 through 93.8.4" to "93.9.1 through 93.9.4".

Response Response Status C

ACCEPT.

See comment #46.

CI 110C SC 110C.3.3 P233 L1 # 142  
Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type E Comment Status A bucket

"an QSFP28 plug" should be "a QSFP28 plug".

SuggestedRemedy

Change "an QSFP28 plug" with "a QSFP28 plug".

Response Response Status C

ACCEPT.

CI 073 SC 73.5.3 P55 L54 # 143  
Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type T Comment Status R

In Table 73-2, DME page timing summary, T1 is specified as 3.2ns +/- 0.01%.  
3.2ns is 82.5 UI at 25.78125 Gbaud.  
It is not an integer multiple of bit time, and it is not easy to satisfy the tolerance of +/-0.01%.  
The tolerance of +/-0.01% is unnecessarily tight in comparison to the tolerance of T2 that is +/-3.125% and T3 that is +/-6.25%.

SuggestedRemedy

Relax the tolerance of T1 to +/-0.7% so that implementing T1 by 82UI or 83UI becomes acceptable.

Response Response Status C

REJECT.

The DME parameters are common to all PHYs that use Clause 73 AN, which includes many that are part of 802.3-2015 (currently 802.3bx Draft 3.2) including 1000BASE-KX, 10GBASE-KR/KX4, 40GBASE-KR4/CR4, and 100GBASE-KR4/KP4/CR4/CR10. Changing the T1 parameter in P802.3by may adversely affect many currently deployed implementations.

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Cl 073 SC 73.6.4 P56 L51 # 144  
 Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type T Comment Status A  
 It is not clear if 25GBASE-KR or 25GBASE-CR advertise both of A9 and A10 or only A10. Since they have all the capabilities of 25GBASE-KR-S or 25GBASE-CR-S, I suppose they should always advertise A9 and A10.

SuggestedRemedy

State clearly like this:

A device that supports 25GBASE-KR or 25GBASE-CR always advertises both of A9 and A10, because all the abilities of 25GBASE-KR-S or 25GBASE-CR-S are covered by 25GBASE-KR and 25GBASE-CR as well.

Response Response Status C

ACCEPT IN PRINCIPLE.

Add the following text:

25GBASE-KR-S abilities are a subset of 25GBASE-KR abilities, likewise 25GBASE-CR-S abilities are a subset of 25GBASE-CR abilities. To allow inter-operation between 25GBASE-KR-S and 25GBASE-KR PHY types, and between 25GBASE-CR-S and 25GBASE-CR PHY types, a device that supports 25GBASE-KR or 25GBASE-CR should advertise both A9 and A10 ability bits during auto-negotiation.

Cl 108 SC 108.5.2.4 P108 L3 # 145  
 Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type T Comment Status A Bucket

A brief description of what is an RS-FEC codeword is helpful to read this paragraph. It is not clearly described until 108.5.4.4.

SuggestedRemedy

Add the following sentence in the paragraph:

An RS-FEC codeword for 25GBASE-R is 528 10-bit symbols or 5280 bits.

Response Response Status C

ACCEPT IN PRINCIPLE.

The RS-FEC encoder is fully specified (by reference to clause 91) in 108.5.2.5.

Insert "(See 108.5.2.5)" after "RS-FEC codeword".

Cl 110 SC 110.10.7 P154 L5 # 146  
 Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type TR Comment Status A COM parameters

The current COM parameter does not include Low-Frequency CTLE (LF-CTLE) which is a state-of-the-art analog equalizer. LF-CTLE has a pair of pole and zero in much lower frequency than the CTLE of the current COM parameter. The LF-CTLE significantly reduces BER, and is already in some implementations in the market. The LF-CTLE is also known as a long-tail equalizer. The LF-CTLE is particularly effective for skin effect, and hence for cable applications. With LF-CTLE, we can easily support 3m cable without FEC with solid high confidence, still maintaining 3dB COM margin in the same way as before without any compromise.

However, since the current COM parameter does not include LF-CTLE, there are no 3m cable assembly that passes 3dB COM test, although there are many good-enough 3m cable assembly, unless we make some compromise such as lowering 3dB COM criteria.

SuggestedRemedy

Add the following changes to COM parameter values in Table 110-10:

Continuous time filter, DC gain gDC  
 Minimum value -6 dB  
 Maximum value 0 dB  
 Step size 0.5 dB

Continuous time filter, zero frequency  
 fz fb / 60 GHz

Continuous time filter, pole frequencies  
 fp1 fb / 60 GHz  
 fp2 fb

I have a plan to submit a supporting presentation.

Response Response Status C

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

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CI 110 SC 110.10.7 P154 L21 # 147  
 Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type TR Comment Status R COM parameters

bmax(n) is specified as 0.5 for CA-N.  
 This is to prevent error propagation caused by DFE.

However, a burst error does not matter for CA-N, because FEC is not used. Once there is an error, no matter whether a single-bit error or a burst error, the entire frame is dropped by a check sum error.

SuggestedRemedy

Change bmax(n) value for CA-N to 1.

Response Response Status C

REJECT.

Channels which meet the COM requirements but require a strong DFE (as suggested) may create excessive error propagation.

Past and recent presentations (such as [http://www.ieee802.org/3/by/public/May15/sun\\_3by\\_01\\_0515.pdf](http://www.ieee802.org/3/by/public/May15/sun_3by_01_0515.pdf)) suggest that error propagation may decrease MTTFFPA significantly when FEC is not used.

There is no consensus to make the requested change.

See also comment #169.

Straw poll:

I support the following COM bmax value for CA-N cables.

0.5 (current value): 0

0.35: 14

1: 2

No opinion: 17

Pick

CI 069 SC 69.2 P54 L20 # 148  
 Dudek, Mike QLogic

Comment Type E Comment Status A bucket

The superscript note "a" applies to all the items in the table. Why is it placed just on the items in the middle of the row rather than on the first two items (top left) as is done for table 69-1 and 69-2.

SuggestedRemedy

Move the superscript to the first M and first O in the top left of the table.

Response Response Status C

ACCEPT.

CI 109 SC 109.4.5 P133 L18 # 149  
 Dudek, Mike QLogic

Comment Type E Comment Status A

The sentence reads poorly.

SuggestedRemedy

Replace "PMA EEE operation for 25GAUI is specified in 83.5.11 with respect to lane 0 only and except for considerations related to multiple lanes." with "PMA EEE operation for 25GAUI is specified in 83.5.11 with respect to lane 0 only. Considerations related to multiple lanes do not apply."

Response Response Status C

ACCEPT.

CI 111 SC 111.8.3.2 P173 L46 # 150  
 Dudek, Mike QLogic

Comment Type E Comment Status R page layout

Tables 111-5 and 111-6 are breaking up the flow of sub-clause 111.8.3.2

SuggestedRemedy

Force 111.8.3.2 to start after table 111-6

Response Response Status C

REJECT.

In order to prevent large unused spaces, tables are permitted to float to subsequent pages.

CI 110C SC 110C.3.1 P231 L32 # 151  
 Dudek, Mike QLogic

Comment Type E Comment Status A bucket

Poor grammar.

SuggestedRemedy

Change "characteristics a cable assembly" to "characteristics of a cable assembly"

Make the equivalent changes in 110C.3.2 and 110C.3.3

Response Response Status C

ACCEPT IN PRINCIPLE.

Change:

"The electrical characteristics a cable assembly of this form factor"

To:

"The electrical characteristics of a cable assembly for this form factor..."

Make the equivalent changes in 110C.3.2 and 110C.3.3

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Cl 001 SC 1.1.3.2 P25 L 21 # 152  
 Dudek, Mike QLogic

Comment Type T Comment Status R 25GAUI definition

25GAUI is different for chip to module and chip to chip. Calling it a single interface that can be used for chip-to-chip or chip-to-module is not helpful

SuggestedRemedy

Replace "The 25GAUI is intended for use as a chip-to-chip or a chip-to-module interface". with "Two versions of 25GAUI are specified one intended for use as a chip-to-chip interface and one intended for use as a chip-to-module interface."

Response Response Status C

REJECT.

The text is consistent with what is used to describe similar interfaces, e.g., CAUI-4, and is adequate for this introductory text.

Cl 108 SC 108.5.3.2 P110 L 46 # 153  
 Dudek, Mike QLogic

Comment Type T Comment Status R BEC/BEI, BTI

With the options to turn off the RS-FEC encoding that are included in this project (no FEC and base-R FEC modes of operation) the additional option to turn off the error correction or error indication is not necessary. My understanding is that the performance for false packet acceptance and latency with error correction bypassed is worse than when the RS-FEC encoding is turned off (no FEC option) and there is therefore no advantage to this mode. (Negotiating to RS-FEC and then not correcting). This mode should be removed from the standard.

SuggestedRemedy

Delete the paragraph starting at line 46 and the NOTE below it. On page 111 line 2 replace "contains errors (when the bypass correction feature is enabled) or contains errors that were not corrected (when the bypass correction feature is not supported or not enabled)" with "contains errors that were not corrected "

Delete the paragraphs on page 111 starting at lines 13 to the end of 108.5.3.2.

Delete the two rows in Table 108-1 on page 118 lines 6 and 7. and the two rows in table 108-2 on lines 17 and 18

Delete sections 108.6.1, 108.6.2, 108.6.4 and 108.6.5

On page 119 line 42 replace the paragraph "An uncorrected FEC codeword is a codeword that contains errors (when the bypass correction feature is supported and enabled) or contains errors that were not corrected (when the bypass orrection feature is not supported or not enabled)." with "An uncorrected FEC codeword is a codeword that contains errors"

Remove BEC and BEI from the PICS table in 108.7.3. and RF6, RF8 and RF( in 108.7.4.2

Also delete Sections 45.2.1.101.1, 45.2.1.101.2, 45.2.1.102.8, 45.2.1.102.9

Also delete "and the RS-FEC decoder does not bypass error correction (see 108.5.3.2)" on page 139 line 49 and "or in the RS-FEC mode with error correction bypassed," on page 140 line 1. and similarly on page 166 lines 42 and 47.

Response Response Status C

REJECT.

There is not sufficient consensus to make the proposed change.

These operation modes are based on the ones defined in clause 91 and are optional to implement and to use. They may be considered beneficial in some usage models.

Straw poll: I support removal of the RS-FEC correction bypass capability per dudek\_3by\_02\_0915.

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Y: 13  
N: 8  
A: 15

Cl 109 SC 109.1.3 P126 L6 # 154  
Dudek, Mike QLogic

Comment Type T Comment Status A

This PMA is serial in to serial out there so clock generation is never required.

SuggestedRemedy

Delete item b (Provide Clock Generation).

Response Response Status C

ACCEPT.

Cl 110 SC 110.7.5 P145 L36 # 155  
Dudek, Mike QLogic

Comment Type T Comment Status A Bucket

There is a line in Table 92-6 labeled "differential peak-to-peak voltage" that does not apply here. We should be more precise.

SuggestedRemedy

Change "the maximum differential peak-to-peak output voltage in Table 92-6." to "the differential peak-to-peak output voltage (max) with Tx disabled in Table 92-6."

Response Response Status C

ACCEPT.

Cl 110 SC 110.8.4.2 P147 L47 # 156  
Dudek, Mike QLogic

Comment Type T Comment Status A RITT

The standard should be more precise about which cable assembly COM is used for which test.

SuggestedRemedy

Add to the end of the sentence. "with CA-L COM being used for RS FEC mode, CA-S COM being used for Base-R FEC mode and CA-N COM being used for no-FEC mode"

Response Response Status C

ACCEPT IN PRINCIPLE.

At the end of the sentence "The cable assembly used in the test channel (see 110.8.4.2.2) shall meet the cable assembly Channel Operating Margin (COM) as specified in 110.10.7", add: "with CA-L COM being used for RS-FEC mode test, CA-S COM being used for BASE-R FEC mode test, and CA-N COM being used for no-FEC mode test".

Cl 110 SC 110.10.7 P153 L39 # 157  
Dudek, Mike QLogic

Comment Type T Comment Status A

COM for a cable is not really related to a receive lane it is the complete path in the cable.

SuggestedRemedy

Delete "receive". ie Change "(COM) for each receive lane is derived from" to "(COM) for each lane is derived from"

Response Response Status C

ACCEPT.

Cl 110 SC 110.11.1 P154 L9 # 158  
Dudek, Mike QLogic

Comment Type T Comment Status A

Incorrect cross references. The signal quality and electrical requirements of the connector (which is mounted on the host board) need to be adequate to meet the host electrical characteristics and the cable characteristics.

SuggestedRemedy

Change from "110.9 and 110.10" to "110.8 and 110.9"

Response Response Status C

ACCEPT IN PRINCIPLE.

[Editor changed page number from 157 to 154]

Subclause 110.10 contains requirements for copper cable assemblies.

Insert "110.8, " before "110.9 and 110.10".

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 112 SC 112.7.1 P189 L 25 # 159  
 Dudek, Mike QLogic

Comment Type T Comment Status A  
 Table 95-10 includes the valid 100GBASE-SR4 pattern which isn't applicable to 25GBASE-SR. It also references the pattern 5 with clause 91 RS-FEC.

SuggestedRemedy  
 Create a table in this clause which is identical to table 95-10 except that "valid 100GBASE-SR4 signal" is replaced by valid 25GBASE-SR signal" Replace all references to table 95-10 in this clause with references to this new table. Place the table immediately above 112.7.2

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Implement suggested remedy with editorial license.

Cl 112 SC 112.6.1 P188 L 53 # 160  
 Dudek, Mike QLogic

Comment Type T Comment Status A  
 The sentence as stated implies the use of the 100GBASE-SR4 test patterns as these are references in 95.7.1

SuggestedRemedy  
 Add to the sentence. "with the exception that the test patterns are modified as stated in 112.7.1"

Response Response Status C  
 ACCEPT.

Cl 112 SC 112.6.2 P189 L 4 # 161  
 Dudek, Mike QLogic

Comment Type T Comment Status A  
 The sentence as stated implies the use of the 100GBASE-SR4 test patterns as these are references in 95.7.2

SuggestedRemedy  
 Change "exception" to "exceptions" and add to the end of the sentence "and the test patterns are modified as stated in 112.7.1"

Response Response Status C  
 ACCEPT.

Cl 093A SC 93A.1 P203 L 23 # 162  
 Dudek, Mike QLogic

Comment Type T Comment Status A COM PMD table, CC  
 The Parameter values used for 25GBASE-KR-S are modified by the clause.

SuggestedRemedy  
 Add a footnote to Table 93-8 on the KR-S row only. Footnote to say "As modified by 111.9

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Implement the following with editorial license..

In 111.9, add a table listing all COM parameters for 25GBASE-KR and 25GBASE-KR-S.

In Table 93A-2 on the rows for 25GBASE-KR and 25GBASE-KR-S, replace "Table 93-8" with a reference to the new table in 111.9.

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Cl 109A SC 109A.3.1 P205 L35 # 163  
 Dudek, Mike QLogic

Comment Type T Comment Status A

This is a single lane specification and parts of 83D.3.1 refer to 4 lanes (including references to 4 sets of MDIO registers).

SuggestedRemedy

Add "with the exception that this is a single lane and lanes 1 through 3 are not used".

Add this also to the end of the sentence on line 40.

Response Response Status C

ACCEPT IN PRINCIPLE.

On page 205 line 34...

Change:

"A 25GAUI C2C transmitter shall meet all specifications in 83D.3.1."

To:

"A 25GAUI C2C transmitter shall meet all specifications of a single CAUI-4 lane as specified in 83D.3.1."

On page 205, line 40...

Change:

"A 25GAUI C2C receiver shall meet all specifications in Table 83D-4 and, if it supports the optional transmitter equalization feedback, it shall meet all requirements in 83D.3.3.2."

To:

"A 25GAUI C2C receiver shall meet all specifications in Table 83D-4 for a single CAUI-4 lane. If the receiver supports the optional transmitter equalization feedback, it shall meet all specifications in 83D.3.3.2."

Also, see comment #60, which adds descriptions for the registers used for transmitter equalization control for 25GAUI C2C.

Cl 109C SC 109C P220 L36 # 164  
 Dudek, Mike QLogic

Comment Type T Comment Status A

An example is not shown of what will probably be the most common implementation of the system. ie With FEC co-located with the PCS.

SuggestedRemedy

Take figures 109C-4 and 109C-3 and insert a box between PCS and PMA labeled FEC. Add a footnote to that box. NOTE- FEC is conditional based on PHY type.

Response Response Status C

ACCEPT IN PRINCIPLE.

Create two new figures, one based on 109C-4 and and second based on 109C-3, with the addition of an FEC sublayer between the PCS and PMA sublayers.

These diagrams are examples, not specifications, so it is not necessary to include notes about FEC inclusion. See the first paragraph in Annex 109C which advises the reader that these are examples and to refer to "the appropriate normative

Cl 110B SC 110B.1.3.6 P226 L45 # 165  
 Dudek, Mike QLogic

Comment Type T Comment Status A

The integrated crosstalk noise specified here for the mated test fixture is more stringent than is needed. All the budgets have been set up to enable QSFP to QSFP operation using the QSFP test fixture allowed NEXT of 1.8mV. Note also that the NEXT aggressor is physically closer to the victim in an SFP connector than in the QSFP connector.

SuggestedRemedy

Relax the value of the integrated NEXT from 1.2mV to 1.8mV in Table 110B-1 (matching the QSFP NEXT value).

Response Response Status C

ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI **110B** SC **110B.1.3.6** P**226** L**48** # **166**  
 Dudek, Mike QLogic

Comment Type **T** Comment Status **A**

There aren't any FEXT aggressors in the SFP test fixture, and therefore discussing ICN isn't very helpful and in fact in this subclause how to calculate it is not defined and a specification for it isn't provided.

*SuggestedRemedy*

Delete "ICN is calculated from NEXT" On page 227 line 24 change "The total integrated crosstalk noise for the mated" to "The near end crosstalk noise for the mated"

Consider changing the title of this section and the titles of tables 110B-1 and 110B-2, and the PICS TF6 feature by inserting "near end" between "integrated" and "crosstalk"

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change the title of this section and the titles of tables 110B-1 and 110B-2, and the PICS TF6 feature by inserting "near-end" between "integrated" and "crosstalk".

Change: The near-end integrated crosstalk noise....L15, P227

To: The integrated near-end crosstalk noise.....

Change: The total integrated crosstalk noise..... L23, P227

To: The total integrated near-end crosstalk noise.....

Delete "ICN is calculated from NEXT" On page 227 line 24

CI **110B** SC **110B.2.4** P**229** L**32** # **167**  
 Dudek, Mike QLogic

Comment Type **T** Comment Status **A**

The TF6 PICS for crosstalk is incorrectly pointing to the QSFP test fixture specifications which include FEXT and currently a different value for NEXT.

*SuggestedRemedy*

Change the PICS TF6 to refer to 11B.1.3.6 instead of 92.11.3.6

Response Response Status **C**

ACCEPT IN PRINCIPLE.

Change the PICS TF6 to refer to 110B.1.3.6 instead of 92.11.3.

CI **110C** SC **110C.3.1** P**231** L**29** # **168**  
 Dudek, Mike QLogic

Comment Type **T** Comment Status **A**

The usage of the cable is not illustrated in Figure 110C-1, and it's structure isn't explicit in the figure either.

*SuggestedRemedy*

Change "The structure and usage of this cable assembly are illustrated in Figure 110C-1" to "This cable assembly is illustrated in Figure 110C-1"

Make the equivalent changes in 110C.3.2 and 110C.3.3

Response Response Status **C**

ACCEPT.

CI **110** SC **110.10.7** P**154** L**21** # **169**  
 Dudek, Mike QLogic

Comment Type **TR** Comment Status **A** COM parameters

It has been shown in sun\_061015\_25GE\_adhoc that with the existing COM parameters and coding the mean time to false packet acceptance in the no-fec case can be shorter than the age of the universe. It has also been shown that changing bmax to 0.35 will solve this issue and will not significantly alter the worst case COM (test case 2)

*SuggestedRemedy*

Change bmax to 0.35 in the CA-N column of table 110-10  
 Also change bmax to 0.35 in table 110-7.

Response Response Status **C**

ACCEPT.

See straw poll result in response to comment #147.

CI SC **111.8.3.1** P**173** L**46** # **170**  
 Dudek, Mike QLogic

Comment Type **TR** Comment Status **A** COM parameters

It has been shown in sun\_061015\_25GE\_adhoc that with the existing COM parameters and coding the mean time to false packet acceptance in the no-fec case can be shorter than the age of the universe. It has also been shown that changing bmax to 0.35 will solve this issue and will not significantly alter the worst case COM (test case 2).

*SuggestedRemedy*

change bmax to 0.35 in table 111-6.

Response Response Status **C**

ACCEPT.



IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl **045** SC **45.2.7.13** P**49** L**7** # **171**  
 Jones, Peter Cisco Systems

Comment Type **TR** Comment Status **A**  
 In "Table 45-210-EEE advertisement register (Register 7.60) bit definitions", two bits are being used to signal EEE for KR/CR and KR-S/CR-S.

SuggestedRemedy  
 Combine the two bits(7.60:15 and 7.60:14), only use one bit to advertise deep sleep for both KR/CR and KR-S/CR-S

Response Response Status **W**  
 ACCEPT IN PRINCIPLE.

Use response to comment 109.

Cl **045** SC **45.2.7.14** P**50** L**7** # **172**  
 Jones, Peter Cisco Systems

Comment Type **TR** Comment Status **A**  
 In "Table 45-211-EEE link partner ability (Register 7.61) bit definitions", two bits are being used to signal EEE for KR/CR and KR-S/CR-S.

SuggestedRemedy  
 Combine the two bits(7.60:15 and 7.60:14), only use one bit to advertise deep sleep for both KR/CR and KR-S/CR-S.

Response Response Status **W**  
 ACCEPT IN PRINCIPLE.

Use response to comment 109

Cl **110** SC **110.10** P**152** L**29** # **173**  
 Jones, Peter Cisco Systems

Comment Type **TR** Comment Status **A** 3 m no FEC  
 As per goergen\_3by\_01\_0715.pdf, goergen\_3by\_02a\_0715.pdf, tracy\_3by\_01\_0715.pdf and andrewartha\_3by\_adhoc\_081215-v2.pdf, there is significant consensus to support an option for 3M no-FEC to address a number of Top Of Rack applications

SuggestedRemedy  
 Evaluate proposals and select one.

Response Response Status **W**  
 ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl **110** SC **110.10.7** P**154** L**5** # **174**  
 Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type **TR** Comment Status **A** COM parameters  
 This is a follow-up comment to my prior comment regarding to Low-Frequency CTLE of COM parameter.

I revised my suggested remedy.

SuggestedRemedy  
 Add the following changes to COM parameter values in Table 110-10:

Continuous time filter, DC gain gDC  
 Minimum value -12 dB  
 Maximum value 0 dB  
 Step size 1 dB

Continuous time filter, zero frequency  
 fz fb / 15 GHz

Continuous time filter, pole frequencies  
 fp1 fb / 15 GHz  
 fp2 fb

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

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 110 SC 10 P152 L24 # 175  
 Amrik Bains Cisco Systems, Inc.

Comment Type TR Comment Status A 3 m no FEC

The current solution does not support 3m with no fec. The 2m no fec solution set is not long enough for top of rack applications as demonstrated in presentations by goergen and andrewartha. The 3m solution only supports single rack switching applications. The 5m solution uses RS FEC with a penalty of almost 400ns.

*SuggestedRemedy*

Suggest possible remedies.

remove the 2m solution; make the 3m solution KR FEC optional.

Modify the following:

Table 110-10 Av- 0.43V / Afe- 0.43V / Ane- 0.63V [ Afe cannot exceed Av since they are coming from the same source on the cable ]

Table 110-7 Com change for nofec from 3dB to 2.70

SNDR change to 28.4dB

CTLE from 12dB to 16dB

Response Response Status W

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 110 SC 10 P152 L24 # 176  
 Gary Nicholl Cisco Systems, Inc.

Comment Type TR Comment Status A 3 m no FEC

The current solution does not support 3m with no fec. The 2m no fec solution set is not long enough for top of rack applications as demonstrated in presentations by goergen and andrewartha. The 3m solution only supports single rack switching applications. The 5m solution uses RS FEC with a penalty of almost 400ns.

*SuggestedRemedy*

Suggest two possible remedies.

One:

remove the 2m solution; make the 3m solution KR FEC optional.

Modify the following:

Table 110-10 Av- 0.43V / Afe- 0.43V / Ane- 0.63V [ Afe cannot exceed Av since they are coming from the same source on the cable ]

Table 110-7 Com change for nofec from 3dB to 2.70

SNDR change to 28.4dB

CTLE from 12dB to 16dB

Two

Clause 110.10 line 25 thru line 33

Change the 3m KR FEC solution to 4m KR FEC

Change the 2m no FEC solution to 3m no FEC

Table 110-9 modify the loss table to 22.48 / 18.?? / 15.48 - (RS / KR / noFEC)

Modify the following:

Table 110-10 Av- 0.43V / Afe- 0.43V / Ane- 0.63V [ Afe cannot exceed Av since they are coming from the same source on the cable ]

Table 110-7 Com change for nofec from 3dB to 2.70

SNDR change to 28.4dB

CTLE from 12dB to 16dB

Response Response Status W

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 030 SC 30.5.1.1.2 P29 L17 # 177  
 Zimmerman, George CME Consulting, Inc.

Comment Type E Comment Status A bucket

"shielded copper balanced cabling" is usually "shielded balanced copper cabling" (see 40GBASE-CR4 for example).  
 Additionally, this description "shielded balanced copper cabling" is nowhere in clause 110 which defines the PMDs.

SuggestedRemedy

Replace "shielded copper balanced cabling" with "shielded balanced copper cabling" (2 instances, lines 17 & 20)

Response Response Status C

ACCEPT.

Cl 078 SC 78.1.3.3.1 P73 L37 # 178  
 Zimmerman, George CME Consulting, Inc.

Comment Type E Comment Status A

"For PHYs with an operating speed of 25 Gb/s or greater that implement the optional EEE capability, two modes of LPI operation may be supported: deep sleep and fast wake."  
 802.3bq is also modifying this text, exempting BASE-T PHYs, to read "Except for BASE-T PHYs, for PHYs...".

[Same issue on line 46]

SuggestedRemedy

Align text with 802.3bq draft 2.2, adding editor's note.

Response Response Status C

ACCEPT IN PRINCIPLE.

Make editing instruction:

"Change the last paragraph of 78.1.3.3.1 as modified by IEEE Std 802.3bq-201x as follows:"

Add "Except for BASE-T," at the start of the paragraph.

Cl 030 SC 30.2.1.5 P28 L48 # 179  
 Zimmerman, George CME Consulting, Inc.

Comment Type ER Comment Status A list of speeds, CC

"For operation at 10 Gb/s (insert 'or greater speed') (strikeout '40 Gb/s, and 100 Gb/s') presumes choices made at other speeds under development or yet to be balloted (400Gb/s, possible 50 Gb/s, 200 Gb/s, etc.). adding in 25Gb/s speed only remains within the scope of this project.  
 (note that edits on line 52 to genericize the media independent interface are still OK if the change below is made)

[also: page 30 line 30, page 35, line 39, ]

SuggestedRemedy

Delete inserted 'or greater speed', reverse strikeout, and add in 25 Gb/s speed to read as a specific list:

"For operation at 10 Gb/s, (insert 25 Gb/s), 40 Gb/s, and 100 Gb/s, ..."

Editor to search for similar instances of "or greater speed" and correct the same.

Response Response Status W

ACCEPT IN PRINCIPLE.

Make suggested change with editorial license at following places:

Page 28 line 48

Page 30 line 30

Page 35 line 40

Page 77 line 24 (see also response to comment 135)

See comments 135 and 83.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 105 SC 105.1.3 P80 L40 # 180  
 Zimmerman, George CME Consulting, Inc.

Comment Type ER Comment Status R PHY nomenclature

Table 105-1 doesn't call out PCS and PMA clauses in PHY descriptions, only the PMD clauses. descriptions should reference the PCS 107 and PMA 109 clauses on each BASE-R PHY type, not just the PMD, for example:  
 "25 Gb/s PHY using 25GBASE-R encoding over one lane of twinaxial copper cable (see 1.4.407 and Clause 110)." should read:  
 "25 Gb/s PHY using 25GBASE-R (Clause 107 PCS and Clause 109 PMA) encoding over one lane of twinaxial copper cable (see 1.4.407 and Clause 110)."

SuggestedRemedy

See comment, modify all entries in Table as shown.

Response Response Status W

REJECT.

The content is consistent with Table 80-1 (40G/100G) in Clause 80.

Each PMD clause provides a subclause and table which normatively lists all sublayers (including the PCS), which are mandatory or optional for a complete PHY. It would be incomplete and redundant to add this information here as suggested by the commenter.

Cl FM SC 0 P24 L46 # 181  
 Zimmerman, George CME Consulting, Inc.

Comment Type ER Comment Status A bucket

802.3bq already modifies some of the same text and precedes this document in WG ballot. needs to be added to the identified standards in progress to avoid confusion.

SuggestedRemedy

Add IEEE 802.3bq to IEEE 802.3bn and IEEE 802.3 in the note.

Response Response Status W

ACCEPT IN PRINCIPLE.

[Editor changed Clause from 000 to FM.]

This list is based on what is published or expected to be published before P802.3by, not based on what is in ballot before or at the same time as P802.3by.

Change:  
 "(e.g., IEEE P802.3bn and IEEE P802.3bw)"  
 To:  
 "(e.g., IEEE P802.3bw)"

Cl 030 SC 30.5.1.1.2 P29 L17 # 182  
 Zimmerman, George CME Consulting, Inc.

Comment Type TR Comment Status A

The PMA for 25GBASE-R is not "unspecified", but is the 25GBASE-R PMA in clause 109. 25GBASE-CR, 25GBASE-CR-S, 25GBASE-KR, and 25GBASE-KR-S are not "PMA/PMD" but are "PMD" per their describing clauses (110, 111, 112), paired with a 25GBASE-R PMA (Clause 109). Text in lines 17 through 25 incorrectly identifies these as "PMA/PMD" types. (note line 26, 25GBASE-SR is written correctly)

(there is also a potential naming problem that both the PCS and the PMA are called "25GBASE-R")

SuggestedRemedy

Change "unspecified PMA" to be "25GBASE-R PMA specified in clause 109 with undefined PMD" in line 16  
 Change "PMA/PMD" to read "PCS/PMA" and insert "PMD" before "as specified" in lines 17, 19, 21, 23, and 25 to make them read as, for example:  
 "25GBASE-R PCS/PMA over shielded copper balanced cable PMD as specified in Clause 110" (similar to entry for 25GBASE-SR)

Response Response Status W

ACCEPT IN PRINCIPLE.

See also comment 215

Change to:

25GBASE-R PCS as specified in Clause 107 with PMA as specified in Clause 109 over undefined PMD

25GBASE-CR 25GBASE-R PCS/PMA over shielded copper balanced cable PMD as specified in Clause 110

25GBASE-CR-S 25GBASE-R PCS/PMA over shielded copper balanced cable PMD as specified in Clause 110 without support for RS-FEC

25GBASE-KR 25GBASE-R PCS/PMA over an electrical backplane PMD as specified in Clause 111

25GBASE-KR-S 25GBASE-R PCS/PMA over an electrical backplane PMD as specified in Clause 111 without support for RS-FEC

25GBASE-SR 25GBASE-R PCS/PMA over multimode fiber PMD as specified in Clause 112

## IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 109B SC 109B.1 P211 L4 # 183  
Maki, Jeffery Juniper Networks

Comment Type T Comment Status A adaptive RX, BTI

No mention is made in the text that an adaptive receiver can be used. Note that Clause 109A.1 does include the use of adaptive: "The adaptive or adjustable receiver performs the remainder of the equalization."

## SuggestedRemedy

Add text: "The adaptive or adjustable receiver performs the equalization."

Response Response Status C

ACCEPT IN PRINCIPLE.

Add the following sentence to the end of the first paragraph in 109B.3.4:  
"The required channel equalization is provided by the module receiver using either an equalizer which uses the setting provided by the host or an adaptive equalizer which does not use the setting provided by the host."

Cl 045 SC 45.2.1.94 P41 L31 # 184  
Anslow, Pete Ciena

Comment Type E Comment Status A

Only the first sentence of 45.2.1.94 is being changed, so the editing instruction should say "in the first sentence of 45.2.1.94".  
Only the title of Table 45-74 is being changed, so the editing instruction should say "and the title of Table 45-74".  
Same issues for 45.2.1.95.

## SuggestedRemedy

Change "in 45.2.1.94 and Table 45-74 as follows:" to "in the first sentence of 45.2.1.94 and the title of Table 45-74 as follows:"

For the editing instruction for 45.2.1.95 change "in 45.2.1.95 and Table 45-75 as follows:" to "in the first sentence of 45.2.1.95 and the title of Table 45-75 as follows:"

Response Response Status C

ACCEPT IN PRINCIPLE.

Use the response to comment 213.

Cl 045 SC 45.2.1.94 P41 L36 # 185  
Anslow, Pete Ciena

Comment Type E Comment Status A bucket

There is no need for a capital S in "bits in the Single-lane PHY"

## SuggestedRemedy

Change "bits in the Single-lane PHY" to "bits in the single-lane PHY"

Response Response Status C

ACCEPT.

See also comment 40

Cl 045 SC 45.2.1.94 P41 L37 # 186  
Anslow, Pete Ciena

Comment Type E Comment Status A bucket

The first sentence of 45.2.1.94 is shown as ending with an italic colon rather than the "." that it actually ends with.  
Same issue in 45.2.1.95

## SuggestedRemedy

Replace the italic colon with "." at the end of the first sentence of 45.2.1.94 and 45.2.1.95

Response Response Status C

ACCEPT.

Cl 045 SC 45.2.1.94 P41 L40 # 187  
Anslow, Pete Ciena

Comment Type E Comment Status A bucket

The title of Table 45-74 in the base standard is: "10GBASE-R FEC corrected blocks counter register bit definitions". However, the word "register" is not there in the draft. Same issue in Table 45-75.

## SuggestedRemedy

insert the word "register" in normal font in the titles of Table 45-74 and Table 45-75.

Response Response Status C

ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 108 SC 108.5.4.1 P113 L17 # 188  
 Anslow, Pete Ciena  
 Comment Type E Comment Status A Bucket  
 "is comprised of" is considered poor English and has been replaced with "is composed of" in the frontmatter.  
 SuggestedRemedy  
 Change "is comprised of" to "is composed of"  
 Response Response Status C  
 ACCEPT.

Cl 045 SC 45.2.1.96.1 P42 L44 # 189  
 Anslow, Pete Ciena  
 Comment Type T Comment Status A bucket  
 The modified text reads: "the optional CAUI-4 C2M and 25GAUI C2M interface defined in Annex 83E (see 83E.3.1.6).", but the 25GAUI C2M interface is not defined in Annex 83E.  
 SuggestedRemedy  
 Change: "the optional CAUI-4 C2M and 25GAUI C2M interface defined in Annex 83E (see 83E.3.1.6)." to "the optional CAUI-4 C2M and 25GAUI C2M interface defined in Annex 83E and Annex 109B, respectively (see 83E.3.1.6)."  
 Response Response Status C  
 ACCEPT.

Cl 000 SC 0 P L # 190  
 Anslow, Pete Ciena  
 Comment Type TR Comment Status R OTN, BTI  
 The current draft contains two different variants of 25 Gb/s Ethernet where idle insertion/deletion has to be performed in order to convert from one type to the other (at the OTN will have to do) due to one containing CWMs and the other not.  
 While the exact requirements of the objective: "Provide appropriate support for OTN" are somewhat vague, I do not consider that this has been met.

SuggestedRemedy  
 Add CWMs to all 25 Gb/s Ethernet PHYs as per the proposal in  
[http://www.ieee802.org/3/by/public/Sep15/trowbridge\\_3by\\_01\\_0915.pdf](http://www.ieee802.org/3/by/public/Sep15/trowbridge_3by_01_0915.pdf)  
 Response Response Status U  
 REJECT.  
 The task force reviewed the cited presentation.  
 There is no consensus to make the proposed changes. See Motion #4.  
 See comments 136, 137, 138, and 139.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI 107 SC 107.2 P98 L54 # 191  
 Ran, Adee Intel

Comment Type T Comment Status D

A PHY operating in no-FEC mode can have unexpected bad performance and higher than desired BER. The BER of an active no-FEC link is not readily observable, so this situation may be difficult to detect and handle.

When a PHY operates in either BASE-R FEC or RS-FEC mode, performance of an active link can be reliably monitored by periodically reading information available within the PHY - either directly using the uncorrectable codeword counters, or indirectly reading the corrected block/symbol error counters, and estimating the underlying PMD BER.

In contrast, in no-FEC mode, the only error information available in the PHY is the PCS errored block counter (49.2.14.2). This counter advances only for errors that occur on control blocks (corrupted start or end of frame or IPG), and does not advance when errors occur in data blocks (these errors are expected to be detected in the MAC by corrupted CRC).

Therefore, in no-FEC mode, the BER cannot be calculated from PHY information without knowing the link utilization level (relative portion of data blocks out of the total received blocks). Similarly, it cannot be precisely calculated by counting the MAC CRC error counters, since these counters count frames and the frame lengths are missing from the calculation. Also, the MAC error counting functionality or even the MAC itself may not exist.

In order to enable more accurate performance estimation, a counter of PCS control blocks is required. Given such a counter, the PCS block error ratio can be calculated simply by reading and dividing the values of the errored block counter and the control block counter.

Such a counter should be wide enough to enable infrequent monitoring without clipping. At 25 Gb/s, a 48-bit counter of PCS blocks can count for more than 8 days; its least significant 16-bit part would wrap around in less than 1 second, so reading only its most significant 32 bits provides sufficient information.

Implementation of this counter can be optional.

*SuggestedRemedy*

Add a counter definition (in a new subclause as necessary) with definition:

control\_block\_count - 48-bit counter. When the receiver is in normal mode, control\_block\_count counts once for each time either RX\_C or RX\_T states are entered. Implementation of this counter is optional.

Insert new subclause 45.2.3.51, and define two new MDIO registers 3.1809, 3.1810 (or other addresses) for accessing the most significant 32 bits of the counter (multi-word, self-clear).

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 073 SC 73.3 P55 L50 # 192  
 Ran, Adee Intel

Comment Type T Comment Status D

The base document includes the following requirement, which may cause incorrect AN functionality with break-out cables or when multiple single-lanes are desired by the partner: "When the MDI supports multiple lanes, then lane 0 of the MDI shall be used for Auto-Negotiation and for connection of any single-lane PHYs (e.g., 1000BASE-KX or 10GBASE-KR)."

With a break-out cable, and in some cases with QSFP-QSFP too, four separate links should be created. If AN is not programmed specifically to create this configuration, AN would only be used (transmitted and received) in lane 0, and other lanes would have to be forced to the desired mode, which defeats the purpose of AN. Requiring AN to be re-programmed according to the detected cable type also defeats the purpose of AN, and furthermore, this won't help for the case of creating four single-lane links over a quad-lane cable.

A simple solution would be to allow AN to look for incoming AN communication on every lane that can create a single-lane link. When AN is detected on a lane other than lane 0, this could create a single-lane link using that lane. Behavior following this event can ensure that multiple single-lane links are created, without a need to program the AN registers.

*SuggestedRemedy*

The sentence quoted should be changed. A detailed presentation will be supplied.

Proposed Response Response Status Z

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI 073 SC 73.6.5.1 P57 L 26 # 193  
 Ran, Adee Intel

Comment Type T Comment Status D

The 25G FEC operation as specified here and in clauses 110, 111 is symmetric. This forces the link to have FEC in both directions when one PHY requests FEC even if the other PHY does not.

There are cases where this symmetry is a burden:

- Some applications may prefer low BER in one direction and low latency in another direction.
- It is possible that one of the PHYs has a better receiver or a better channel quality for its receiver, and can operate without FEC, but is forced to use FEC because of the other PHY which has a minimally compliant receiver or worse channel quality.

In these cases the symmetry requirement doubles the round-trip latency and possibly imposes a larger performance impact than using FEC only in the direction where it's needed.

Technically there is no problem in having a link with one direction operating with one FEC mode, and the other direction operating in another, since the TX and TX data paths are independent. Asymmetrical FEC can be accomplished with the existing AN FEC request bits, and the existing FEC mode definitions in clauses 110 and 111, by separating the FEC modes to transmit and receive directions.

*SuggestedRemedy*

Detailed presentation to be supplied.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

CI 073 SC 73.6.4 P56 L 52 # 194  
 Ran, Adee Intel

Comment Type T Comment Status D

We should allow advertisement of 10GBASE-KR along with copper cable assemblies such as 40GBASE-CR4 and 100GBASE-CR4.

Although 802.3 has no specification of a 10 Gb/s PHY for copper cable assembly, in practice, 10GBASE-KR can be advertised and can operate over this medium as well.

This project has removed the distinction between 25G for backplane and for copper cable assemblies in AN. As a result, a 4-lane device that supports 25G and 10G on each lane could practically advertise 100GBASE-CR4 (A8), 40GBASE-CR4 (A4), 25GBASE-CR/KR (A10) and 10GBASE-KR (A2) so that it could link with various partners over various cable types, enabling wider interoperability and applicability (e.g. 4 to 1 breakout at either 25G and 10G on each lane).

However the current text in 73.6.4 specifically prohibits this kind of advertisement, since 10GBASE-KR is specified for backplanes while 100GBASE-CR4 and 40GBASE-CR4 are specified for copper cable assemblies.

There seems to be no reason for this limitation. Removing it as suggested below would enable using 10GBASE-KR over copper cable assemblies with full AN support, and partly rectify the unfortunate lack of an 802.3 standard for 10G Ethernet over this medium.

A minimal change that would have the desired effect is to limit the restriction to apply only for backplane and CCA PHYs of the same data rate. If that is done, then 10G PHYs and below, which have no copper cable assembly counterparts, should not be listed.

The two lists of PHYs are comprehensive and should not be preceded by "e.g."

*SuggestedRemedy*

Change "with a PHY for operation over a copper cable assembly"  
 To "with a PHY for operation over a copper cable assembly of the same data rate".

Delete "e.g., 1000BASE-KX, 10GBASE-KX4, 10GBASE-KR" from the first parentheses.

Delete "e.g., " from the list of copper cable assembly PHYs.

Alternatively, completely delete the third paragraph.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.



IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 110 SC 110.1 P139 L42 # 195  
 Dawe, Piers Mellanox

Comment Type E Comment Status A nomenclature

Calling the cable types just CA-N, CA-S and CA-L will cause trouble when we want to have named cable types at another rate e.g. 50G, and will probably cause confusion anyway: which CA type do I use with a 40GBASE-CR4 port??

SuggestedRemedy

Indicate in the name that these are 25GE cable types, e.g. 25GCA-N, 25GCA-S, 25GCA-L.

Response Response Status C

ACCEPT IN PRINCIPLE.

Rename cable assemblies to CA-25G-N, CA-25G-S, and CA-25G-L throughout clause 110 and associated annexes with editorial license.

A straw poll of the task force was taken.

Do you support renaming cable assemblies to CA-25G-N, CA-25G-S, and CA-25G-L?

Y: 27

N: 0

A: 11

Cl 110 SC 110.1 P139 L49 # 196  
 Dawe, Piers Mellanox

Comment Type E Comment Status R nomenclature

There is a mapping between three cable types, given in 110.10: CA-N, CA-S and CA-L and three FEC modes: no-FEC mode, BASE-R FEC mode, RS-FEC mode which is obscured by the very different names. Harder to understand, more to learn and remember.

SuggestedRemedy

Would it help to call the FEC modes:

FEC mode 25G-N, FEC mode 25G-S, FEC mode 25G-L?

Response Response Status C

REJECT.

FEC modes are not mapped 1 to 1 to CA types. For example, all cable types are compatible with RS-FEC.

The suggested remedy might add confusion.

Cl 109B SC 109B.3.2.1.1 P212 L17 # 197  
 Dawe, Piers Mellanox

Comment Type E Comment Status A bucket

This and the next subclause would be easier to follow if re-ordered.

SuggestedRemedy

Move the third paragraphs before the second in each case. Then, the three paragraphs could be combined into two or one.

Response Response Status C

ACCEPT IN PRINCIPLE.

In 109B.2.3.1.1, swap the order of the second (line 19) and third (line 22) paragraph.

Similarly, in 109B.3.2.1.2, swap the order of the second (line 33) and third (line 29) paragraph.

Cl 110 SC 110.1 P139 L42 # 198  
 Dawe, Piers Mellanox

Comment Type E Comment Status D nomenclature

It's hard to remember how CA-N compares with the others. Is it normal? nominal? It can't be the shortest, because another one is called S, right?

SuggestedRemedy

Consider changing N to XS (like OIF names).

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

Cl 110 SC 110 P139 L2 # 199  
 Dawe, Piers Mellanox

Comment Type E Comment Status D nomenclature

10GBASE-LRM  
 40GBASE-CR4  
 25GBASE-CR-S  
 Why the hyphen before the S?

SuggestedRemedy

Consider changing to 25GBASE-CRS.

Proposed Response Response Status Z

REJECT.

This comment was WITHDRAWN by the commenter.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

Cl 110 SC 110.1 P139 L43 # 200  
 Dawe, Piers Mellanox

Comment Type T Comment Status R nomenclature

Two PHY types, three cable types, and three FEC modes, as well as singles/quads/splitters - this needs clear exposition. Table 110C-1, Host and cable assembly combinations, does a good job for cables, but it's right at the back of the document, in an annex that's only informative. Also, the overview says "with a single lane" but the clause includes 4-lane (QSFP) specifications.

*SuggestedRemedy*

Add a table in the style of Table 105-2, Nomenclature and clause correlation, 25GBASE-R, but addressing just copper PHY types, cable types, FEC modes and, if it fits in the table, 1/4/split options. At the end of the first paragraph, add e.g. "Specifications are provided for single and four-port host and cable form factors, including four-to-one cables." (There may be a preferred term for four-to-one cables.)

Response Response Status C

REJECT.

There is value to clarify the relationship between the various PHY types/modes and cable assembly types. However, a complete proposal is not available for review.

Cl 110C SC 110C.1 P230 L36 # 201  
 Dawe, Piers Mellanox

Comment Type T Comment Status A

Table 110C lists a "reach" for each cable type as if it were normative, but it isn't, so we need softer wording. In P802.3by, only this annex uses "reach": e.g. 110.10 says "cable length up to 5 m"

*SuggestedRemedy*

In the table, change "Reach" to "Example length" or "Indicative length". Consider similar changes for "reach" in text above.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change column title "reach" to "length".

Add a footnote on "length" with the following text...

"Indicates the achievable length of compliant cable assemblies. It may be possible to construct compliant cable assemblies longer than indicated. Length of the cable assembly by itself does not imply compliance to specifications."

Also, change "reach" to "length" on page 230 lines 23, 24, and 26.

Cl 110 SC 110.8.4.2.1 P149 L44 # 202  
 Dawe, Piers Mellanox

Comment Type TR Comment Status R RITT

This shows an interference tolerance test for a one-lane scenario. I understand that it is intended to be equivalent to the test in 92.8.4.4.1 - this means that a dual mode 100GBASE-CR4/25GBASE-CR port would have to be tested in two different tests for the same purpose, which is a waste of money.

*SuggestedRemedy*

Decide which is the preferable method for testing 4-lane hosts: applying crosstalk to the other lanes/directions or adding noise to the victim. If the former, use it for 4-lane hosts in this clause. If the latter, change Clause 92 to make it the preferred method there. If we can't decide, allow both for both.

Response Response Status C

REJECT.

Clause 92.8.4.4 is only applicable for RS-FEC mode.

There was consensus that the method in 110.8.4.2.1 is preferable over the method in 92.8.4.4, therefore no change to the draft is required.

See comment #240.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

CI 105 SC 105.3.3 P82 L2 # 203  
 D'Ambrosia, John Dell

Comment Type TR Comment Status A backplane FEC options

Text notes  
 An FEC sublayer is available for all 25GBASE-R PHYs. The FEC sublayer can be placed in between the PCS and PMA sublayers or between two PMA sublayers.  
 The BASE-R FEC (see Clause 74) may be used by some 25GBASE-R PHYs.  
 The RS-FEC (see Clause 108) may be used by some 25GBASE-R PHYs.

This can be confusing.  
 Plus text does not reflect what is in Table 105-2.

SuggestedRemedy

Suggested rewording.  
 An FEC sublayer is available for all 25GBASE-R PHYs. The FEC sublayer can be placed in between the PCS and PMA sublayers or between two PMA sublayers. There are two types of FEC that may be implemented, dependent upon the PHY being implemented.  
 See Table 105-2.

The BASE-R FEC (see Clause 74) SHALL be used by some 25GBASE-R PHYs.  
 The RS-FEC (see Clause 108) SHALL be used by ALL 25GBASE-R PHYs.

Response Response Status C

ACCEPT IN PRINCIPLE.

The 25GBASE-CR-S and 25GBASE-KR-S PHYs do not include an RS-FEC. It is therefore incorrect to specify that it shall be used by all 25GBASE-R PHYs.

The normative requirements are in the PMD Clause that defines each PHY. It is not necessary and may be inconsistent with future PHYs to include blanket requirements as suggested.

However, it would be helpful to make reference to where the normative requirements may be found.

Add the following sentence to 105.3.3:  
 "The requirement to implement FEC for each Physical Layer implementation is summarized in 105.2."

CI 110c SC 110c.1 P230 L13 # 204  
 D'Ambrosia, John Dell

Comment Type TR Comment Status A 3 m no FEC

Hyperscale data centers have driven the need for this proejct. and therefore, we need to address 3m no FEC.

SuggestedRemedy

Presentation to be submitted with relevant data.

Response Response Status C

ACCEPT IN PRINCIPLE.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of  
[http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

CI 030 SC 30.3.2.1.2 P28 L10 # 205  
 Law, David HP

Comment Type E Comment Status A Bucket

The IEEE P802.3bw amendment, which is likely to publish before this draft, is also modifying this subclause which should be noted in the editing instructions.

SuggestedRemedy

Suggest the editing instruction for 30.3.2.1.2 'aPhyType' and 30.3.2.1.3 'aPhyTypeList' be changed to read 'Insert the following new entry in "APPROPRIATE SYNTAX" (as modified by IEEE Std 802.3bw-201X) before the entry for 40GBASE-R:.'

Response Response Status C

ACCEPT.

CI 030 SC 30.5.1.1.2 P29 L11 # 206  
 Law, David HP

Comment Type E Comment Status A Bucket

The IEEE P802.3bw amendment, which is likely to publish before this draft, is also modifying the "APPROPRIATE SYNTAX" section of this attribute which should be noted in the editing instructions.

SuggestedRemedy

Suggest the editing instruction for aMAUType "APPROPRIATE SYNTAX" section be changed to read 'Insert the following new entries in "APPROPRIATE SYNTAX" (as modified by IEEE Std 802.3bw-201X) before the entry for 40GBASE-R:.'

Response Response Status C

ACCEPT.

IEEE 802.3by D2.0 25 Gb/s Ethernet Initial Working Group ballot comments

**Cl 001** SC **1.4.64a** P**25** L**46** # **207**  
 Law, David HP  
**Comment Type E** **Comment Status A** *bucket*  
 Should this item be placed after 1.4.77 '10 Gigabit Sixteen-Bit Interface (XSBI)' rather than 1.4.64 '10/10G-EPON'.  
**SuggestedRemedy**  
 Change subclause number 1.4.64a to read 1.4.77a and 1.4.64b to read 1.4.77b. Change 1.4.64c to read 1.4.64a and 1.4.64d to read 1.4.64b.  
**Response** **Response Status C**  
 ACCEPT IN PRINCIPLE.  
 Change subclause numbers and reorder as follows:  
 1.4.64a to 1.4.77a  
 1.4.64b to 1.4.77b  
 1.4.64c to 1.4.64a  
 1.4.64d to 1.4.64b  
 1.4.64e to 1.4.64c  
 1.4.64f to 1.4.64d  
 1.4.64g to 1.4.64e  
 1.4.64h to 1.4.64f  
 1.4.64i to 1.4.64g

**Cl 030** SC **30.5.1.1.4** P**29** L**52** # **208**  
 Law, David HP  
**Comment Type E** **Comment Status A** *bucket*  
 The IEEE P802.3bw amendment, which is likely to publish before this draft, is also modifying the "BEHAVIOUR DEFINED AS" section of this attribute which should be noted in the editing instructions. In addition to avoid the potential misunderstanding that this change undoes the IEEE P802.3bw change, suggest that only the changed text of the "BEHAVIOUR DEFINED AS" section be included in the draft.  
**SuggestedRemedy**  
 [1] Change the editing instructions to read 'Change the first sentence of the sixth paragraph in the "BEHAVIOUR DEFINED AS" section of 30.5.1.1.4 as follows:'  
 [2] Delete all the text shown for the 'BEHAVIOUR DEFINED AS' section with the exception of the first sentence of the sixth paragraph.  
**Response** **Response Status C**  
 ACCEPT.  
 See comment 18 and 50.

**Cl 109** SC **109.2** P**128** L**31** # **209**  
 Law, David HP  
**Comment Type E** **Comment Status A** *bucket*  
 Being pernickety, since '25GAUI' is defined as '25 Gigabit Attachment Unit Interface' (see 1.4.64a) the text '... over a 25GAUI interface, clock and data ...' expands to '... over a 25 Gigabit Attachment Unit Interface interface, clock and data ...'.  
**SuggestedRemedy**  
 Suggest that '... over a 25GAUI interface, clock and data ...' be changed to read '... over a 25GAUI, clock and data ...'.  
**Response** **Response Status C**  
 ACCEPT.

**Cl 045** SC **45.2.7.13** P**49** L**13** # **210**  
 Law, David HP  
**Comment Type E** **Comment Status A** *bucket*  
 Typo.  
**SuggestedRemedy**  
 Suggest that '7.60:15' and '7.60:14' should read '7.60.15' and '7.60.14'.  
**Response** **Response Status C**  
 ACCEPT.

**Cl 111** SC **111.5** P**169** L**12** # **211**  
 Law, David HP  
**Comment Type E** **Comment Status A** *Bucket*  
 Register 1.1450 is called 'PMD training pattern lane 0' based on subclause 45.2.1.122 of IEEE P802.3 (IEEE 802.3bx) draft D3.2.  
**SuggestedRemedy**  
 Suggest that 'PMD training pattern 0' should read 'PMD training pattern lane 0' for 'Polynomial identifier 0' and 'Seed 0' entries of Table 111-2.  
**Response** **Response Status C**  
 ACCEPT IN PRINCIPLE.  
 Apply the change in the suggested remedy.  
 Apply a similar change in Table 110-2.

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Cl **FM** SC **FM** P7 L17 # 212  
 Law, David HP  
 Comment Type **E** Comment Status **A** bucket  
 Now that the IEEE P802.3by balloting group has been established, please complete the list of officers and members of the IEEE 802.3 working group.  
*SuggestedRemedy*  
 Please include the list of officers and members of the IEEE 802.3 working group.  
 Response Response Status **C**  
 ACCEPT.  
 [Editor changed Clause number from 99 to FM]

Cl **045** SC **45.2.1.94** P41 L34 # 213  
 Law, David HP  
 Comment Type **ER** Comment Status **A**  
 The editing instructions for this subclause be updated to be more similar to normal instructions, making it clear for example that only the first sentence of the first paragraph is shown. In addition the empty table should be deleted, and only the changed title shown.  
*SuggestedRemedy*  
 Suggest that:  
 [1] The editing instructions be changed to read 'Change the subclause title, and the first sentences of 45.2.1.94, and the title of Table 45-74, as follows:'.  
 [2] Remove the blank table.  
 [3] Make similar changes to subclauses 45.2.1.95 and 45.2.1.96.  
 Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Use suggested remedy except use the following for item [1].  
 "Change the subclause title, and the first sentence of 45.2.1.94, and the title of Table 45-74, as follows:"  
 See also comments 184 and 20

Cl **030** SC **30.3.2.1.5** P28 L52 # 214  
 Law, David HP  
 Comment Type **T** Comment Status **A** Bucket  
 Not sure why the references to the encoding for "Receive Error" in Table 46-4 and Table 81-3 is been removed by this draft.  
*SuggestedRemedy*  
 Suggest that '... to indicate "Receive Error" on the media independent interface.' be changed to read '... to indicate "Receive Error" on the media independent interface (see Table 46-4 and Table 81-3).'  
 Response Response Status **C**  
 ACCEPT.

Cl **030** SC **30.5.1.1.2** P29 L17 # 215  
 Law, David HP  
 Comment Type **T** Comment Status **A**  
 I believe the idea behind this attribute is to report the enumeration '25GBASE-R' when the PMD type is unknown, for example when there is no pluggable module inserted, and then one of the other enumerations when a pluggable module inserted and the PDM type can be identified. Based on this the enumeration '25GBASE-SR' is described as '25GBASE-R PCS/PMA over multimode fiber PMD as specified in Clause 112'. Other enumerations however, such as '25GBASE-KR', are described as a '25GBASE-R PMA/PMD' over a media with the PMD Clause referenced. Suggest that these be reworded to match the enumeration '25GBASE-SR', which would also match existing enumeration such as '40GBASE-R', and its associated PMDs.  
*SuggestedRemedy*  
 Change the enumeration '25GBASE-CR' to read '25GBASE-R PCS/PMA over shielded copper balanced cable PMD as specified in Clause 110'.  
 Change the enumeration '25GBASE-CR-S' to read '25GBASE-R PCS/PMA over shielded copper balanced cable PMD as specified in Clause 110 without support for RS-FEC'.  
 Change the enumeration '25GBASE-KR' to read '25GBASE-R PCS/PMA over an electrical backplane PMD as specified in Clause 111'.  
 Change the enumeration '25GBASE-KR-S' to read '25GBASE-R PCS/PMA over an electrical backplane PMD as specified in Clause 111 without support for RS-FEC'.  
 Response Response Status **C**  
 ACCEPT IN PRINCIPLE.  
 Use response to comment 182.

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Cl 030 SC 30.5.1.1.2 P29 L39 # 216  
 Law, David HP

Comment Type T Comment Status A Bucket

To support the enumerations '25GBASE-CR', '25GBASE-CR-S', '25GBASE-KR' and '25GBASE-KR-S' when a Clause 45 MDIO interface is present, the new RS-FEC control register defined in subclause 45.2.1.101 needs to be accessed to determine if RS-FEC is enabled or not. Based on this a reference to subclause 45.2.1.101 'RS-FEC control register' should be added to the list of register.

*SuggestedRemedy*

Change the text '... the PMA/PMD control 1 register specified in 45.2.1.1, and the PCS control 1 register ...' to read '... the PMA/PMD control 1 register specified in 45.2.1.1, the 25G RS-FEC Enable bit in the RS-FEC control register, and the PCS control 1 register ...'.

Response Response Status C

ACCEPT.

Cl 030 SC 30.5.1.1.4 P30 L30 # 217  
 Law, David HP

Comment Type T Comment Status A

Since IEEE P802.3by uses the 10Gb/s RS (see subclause 106.1 'Overview') suggest it would be better to modify the 10Gb/s text to add 25Gb/s rather than the 40Gb/s and 100Gb/s text. As an aside, I think the reference to Figure 46-11 in the currently 40Gb/s and 100Gb/s text should be to Figure 81-9 since Clause 81 is the 'Reconciliation Sublayer (RS) and Media Independent Interface for 40 Gb/s and 100 Gb/s operation (XLGMII and CGMII)' and since subclause 81.3.4, which is also referenced, states 'The RS shall implement the link fault signaling state diagram (see Figure 81-9)'.

*SuggestedRemedy*

Suggest that:

[1] The change on line 30 is removed so the text reads 'For 40 Gb/s and 100 Gb/s the enumerations ...'.

[2] The text on line 42 is changed to read 'For 10 Gb/s the enumerations ...' to read 'For 10 Gb/s and 25 Gb/s the enumerations ...'.

Response Response Status C

ACCEPT.

Cl 045 SC 45.2.3.14.1 P47 L33 # 218  
 Law, David HP

Comment Type T Comment Status A bucket

Subclause 45.2.3.14.1 'Latched block lock (3.33.15)' states that 'When read as a one, bit 3.33.15 indicates that the 10/40/100GBASE-R or the 10GBASE-T PCS has achieved block lock.'. Subclause 45.2.3.14.2 'Latched high BER (3.33.14)' states that 'When read as a one, bit 3.33.14 indicates that the 10/40/100GBASE-R or the 10GBASE-T PCS has detected a high BER.'. Subclause 45.2.3.14.3 'BER(3.33.13:8)' states that 'The BER counter is a six bit count as defined by the ber\_count variable in 49.2.14.2 and 82.2.19.2.4 for 10/40/100GBASE-R ...'.

Since the 25GBASE-R PCS uses the 10GBASE-R PCS (see subclause 107.1.2) it would seem that these bits should also support 25GBASE-R, and hence the description of these bits updated to reflect this.

*SuggestedRemedy*

Suggest instances of the text '10/40/100GBASE-R' be changed to read '10/25/40/100GBASE-R' or simply 'BASE-R'.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change to '10/25/40/100GBASE-R'

See comment 126

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Cl 045 SC 45.2.3.13.1 P41 L34 # 219  
 Law, David HP

Comment Type T Comment Status A bucket

Subclause 45.2.3.13.1 'BASE-R and 10GBASE-T receive link status (3.32.12)' states that 'This bit is a reflection of the PCS\_status variable defined in 49.2.14.1 for 10GBASE-R ...'. Subclause 45.2.3.13.4 'BASE-R and 10GBASE-T PCS high BER (3.32.1)' states that 'This bit is a direct reflection of the state of the hi\_ber variable in the 64B/66B state diagram and is defined in 49.2.13.2.2 for 10GBASE-R'. Subclause 45.2.3.13.5 'BASE-R and 10GBASE-T PCS block lock (3.32.0)' states ' This bit is a direct reflection of the state of the block\_lock variable in the 64B/66B state diagram and is defined in 49.2.13.2.2 for 10GBASE-R ...'. Subclause 45.2.3.14.4 'Errored blocks (3.33.7:0)' states 'The errored blocks counter is an eight bit count defined by the errored\_block\_count counter specified in 49.2.14.2 for 10GBASE-R ...'.

Since the 25GBASE-R PCS uses the 10GBASE-R PCS (see subclause 107.1.2) it would seem that these bits should also support 25GBASE-R, and hence the description of these bits updated to reflect this.

*SuggestedRemedy*

Suggest '... for 10GBASE-R ...' be change to read '... for 10GBASE-R and 25GBASE-R ...'.

Response Response Status C

ACCEPT.

See also comment 126

Cl 111 SC 111.1 P166 L41 # 220  
 Law, David HP

Comment Type T Comment Status A Bucket

Since this overview is for 25GBASE-KR and 25GBASE-KR-S shouldn't the FEC mode cross reference be to 111.6 rather than 110.6.

*SuggestedRemedy*

Suggest that '(see 110.6)' should read '(see 111.6)'.

Response Response Status C

ACCEPT.

Apply the change in the suggested remedy.

Cl 045 SC 45.2.7.13 P49 L9 # 221  
 Law, David HP

Comment Type T Comment Status A

IEEE P802.3 (IEEE 802.3bx) draft D3.2 Table 45-210 'EEE advertisement register (Register 7.60) bit definitions' includes an additional column titled 'Clause reference; Next Page bit number' which is not shown in this draft.

*SuggestedRemedy*

Add the column titled 'Clause reference; Next Page bit number' to table 45-210. For bit 7.60.14 suggest the entry reads '73.7.7.1; U14', for bit 7.60.15 suggest the entry reads '73.7.7.1; U15'.

Response Response Status C

ACCEPT IN PRINCIPLE.

Use response to comment 109

Cl 110 SC 110.7.4 P145 L20 # 222  
 Law, David HP

Comment Type T Comment Status A CC

Suggest that for clarity it should be indicated in its first use that rx\_mode discussed in this subclause is the rx\_mode parameter of the PMD:IS\_RX\_MODE.request primitive.

*SuggestedRemedy*

Suggest that '... when rx\_mode is first set to QUIET.' be changed to read '... when the rx\_mode parameter of the PMD:IS\_RX\_MODE.request primitive is first set to QUIET.'.

Suggest that the same change be made to subclause 111.7.4 (page 171, line 12).

Response Response Status C

ACCEPT IN PRINCIPLE.

To align with the existing wording in previous subclauses, change "when rx\_mode is first set to QUIET" to "when the PMD service interface message PMD:IS\_RX\_MODE.request(rx\_mode) is initially received with rx\_mode = QUIET".

Apply the same change in 111.7.4.

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Cl 110 SC 110.7.2 P144 L51 # 223  
 Law, David HP  
 Comment Type T Comment Status A CC  
 Suggest that for clarity it should be indicated in its first use that tx\_mode discussed in this subclause is the rx\_mode parameter of the PMD:IS\_TX\_MODE.request primitive.  
*SuggestedRemedy*  
 Suggest that 'When tx\_mode is set to ALERT ...' be changed to read 'When the tx\_mode parameter of the PMD:IS\_TX\_MODE.request primitive is set to ALERT ...'.  
 Suggest that the same change be made to subclause 111.7.2 (page 170, line 43).  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 To align with the existing wording in this subclause, change "When tx\_mode is set to ALERT" to "When the PMD service interface message PMD:IS\_TX\_MODE.request(tx\_mode) is received with tx\_mode = ALERT".  
 Apply the same change in 111.7.2.

Cl 074 SC 74.1 P61 L21 # 224  
 Law, David HP  
 Comment Type T Comment Status A  
 Subclause 74.1 'Overview' states that 'This clause specifies an optional Forward Error Correction (FEC) sublayer for 10GBASE-R and other BASE-R PHYs.' however the same subclause then states 'The 25GBASE-CR, 25GBASE-CR-S, 25GBASE-KR, and 25GBASE-KR-S PHYs described in Clause 110 and Clause 111 are required to implement the FEC sublayer ...'.  
*SuggestedRemedy*  
 Suggest that '... an optional Forward Error Correction (FEC) ...' be changed to read '... a Forward Error Correction (FEC) ...' as the following paragraphs describe where the this subclause is optional or not. Suggest also that in Figure 74-1 (page 62, line 17) the text 'FEC (OPTIONAL)' be changed to read 'FEC' with a footnote attached that reads 'NOTE 1- OPTIONAL OR CONDITIONAL BASED ON PHY TYPE'.  
 Response Response Status C  
 ACCEPT.

Cl 111 SC 111.1 P166 L39 # 225  
 Law, David HP  
 Comment Type TR Comment Status A  
 Suggest that the 25GBASE-KR and 25GBASE-KR-S overview provide similar text to the third paragraph of the 25GBASE-CR and 25GBASE-CR-S overview (see 110.1), that is a summary of which channels 25GBASE-KR and 25GBASE-KR-S operate over, as well as a statement that a 25GBASE-KR PHY can interoperate with a 25GBASE-KR-S PHY. The latter is implied, but not stated, in the second paragraph of subclause 111.9 'Channel characteristics' since it discusses links that comprise of one 25GBASE-KR-S PHY.  
*SuggestedRemedy*  
 Suggest that:  
 [1] A new subclause heading of 111.9.1 'Two 25GBASE-KR PHY channel' be added above the first paragraph of 111.9 (page 175, line 21).  
 [2] A new subclause heading of 111.9.2 '25GBASE-KR-S PHY channel' be added above the second paragraph of 111.9 (page 175, line 25).  
 [3] A new third paragraph be inserted in 111.1 'Overview' below the table (page 166, line 39) that reads 'A 25GBASE-KR PHY supports operation over a channel meeting the requirements of 111.9.1 or 111.9.2. A 25GBASE-KR-S PHY only supports operation over a channel meeting the requirements of 111.9.2. A 25GBASE-KR-S PHY interoperates with a 25GBASE-KR PHY'.  
 [4] Change the text '... the requirements of 111.9.' to read '... the requirements of 111.9.1 or 111.9.2.' in subclause 111.1 (page 166, line 51).  
 [5] Change the subclause entry for PICS item CC1 (page 181, line 41) from 111.9 to 111.9.1.  
 [6] Change the subclause entry for PICS item CC2 (page 181, line 44) from 111.9 to 111.9.2.  
 Response Response Status W  
 ACCEPT.  
 Apply the changes in the suggested remedy.



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Cl 073 SC 73.6.4 P56 L44 # 226  
 Law, David HP

Comment Type TR Comment Status A

The third paragraph of subclause 110.1 'Overview' states that 'A 25GBASE-CR-S PHY interoperates with a 25GBASE-CR PHY'. Further, subclause 111.9 'Channel characteristics' implies that a 25GBASE-KR PHY can interoperate with a 25GBASE-KR-S PHY since it discusses links that comprise of one 25GBASE-KR-S PHY. The changes to Table 73-4 'Technology Ability Field encoding' however defines separate bits for 25GBASE-KR-S or 25GBASE-CR-S (bit A9) and 25GBASE-KR or 25GBASE-CR (A10).

IEEE P802.3 (IEEE 802.3bx) draft D3.2 subclause 73.7.6 'Priority Resolution function' states that 'The single PHY enabled to connect to the MDI by Auto-Negotiation shall be the technology corresponding to the bit in the Technology Ability Field common to the local device and link partner that has the highest priority as defined in Table 73-5 (listed from highest priority to lowest priority).' and that 'In the event that there is no common technology, HCD shall have a value of "NULL", indicating that no PHY receives link\_control=ENABLE and link\_status[HCD]=FAIL.'

Based on above, if the local device is a 25GBASE-CR-S PHY, and its link partner is a 25GBASE-CR PHY, there will be no bit in the Technology Ability Field common to the local device and link partner, and as there is no common technology I don't believe the link will come up.

*SuggestedRemedy*

Either add text to subclause 73.7.6 'Priority Resolution function' to cover the cases of 25GBASE-KR/25GBASE-KR-S and 25GBASE-CR/25GBASE-CR-S interoperability. Alternatively, define a single bit for 25GBASE-KR-S, 25GBASE-CR-S, 25GBASE-KR and 25GBASE-CR since there is only one variable defined for all four in the subclause 73.10.1 'State diagram variables' changes (page 59, line 39).

Response Response Status W

ACCEPT IN PRINCIPLE.

Use the response to comment 144.

Cl 030 SC 30.5.1.1.15 P31 L7 # 227  
 Law, David HP

Comment Type TR Comment Status A

Subclause 110.6 'FEC mode' and 111.6 'FEC mode' both list three FEC modes, 'RS-FEC Mode', 'BASE-R FEC mode' and 'no-FEC mode' and then state 'Each FEC sublayer can be either enabled or disabled, according to AN resolution or management control.'. Based on this it would seem that the 'aFECAbility' attribute defined in subclause 30.5.1.1.15 and the 'aFECmode' attribute define in subclause 30.5.1.1.16 need to be updated.

*SuggestedRemedy*

[1] Suggest that the aFECAbility behaviour be updated to read:

A read-only value that indicates if the PHY supports an optional (see 65.2 and Clause 74) or mandatory (see Clause 74, 91 and 108) FEC sublayer for forward error correction.

[2] Suggest that the aFECmode enumerations be updated to read:

unknown initializing, true state not yet known  
 disabled FEC disabled  
 BASE-R enabled BASE-R FEC enabled  
 RS-FEC enabled RS-FEC enabled  
 enabled FEC enabled

[3] Suggest that the aFECmode behaviour be updated to read:

A read-write value that indicates the mode of operation of the FEC sublayer for forward error correction (see 65.2 and Clause 74, 91 and 108).

A GET operation returns the current mode of operation of the PHY. A SET operation changes the mode of operation of the PHY to the indicated value. The enumerations 'BASE-R enabled' and 'RS-FEC enabled' are only used for 25GBASE-CR, 25GBASE-CR-S, 25GBASE-KR and 25GBASE-KR-S PHYs where operation in the no-FEC mode maps to the enumerations 'disabled', operation in the BASE-R FEC mode maps to the enumerations 'BASE-R enabled', and operation in the RS-FEC mode maps to the enumerations 'RS-FEC enabled' (see 110.6 and 111.6).

When Clause 73 Auto-Negotiation is enabled for a 25GBASE-R PHY, a SET operation is not allowed and a GET operation maps to the variables FEC\_enable in Clause 74 and FEC\_enable in Clause 108. When Clause 73 Auto-Negotiation is enabled for a non-25GBASE-R PHY supporting Clause 74 FEC a SET operation is not allowed and a GET operation maps to the variable FEC\_enable in Clause 74.

If a Clause 45 MDIO Interface is present, then this attribute maps to the FEC control register (see 45.2.8.3) for 1000BASE-PX, to the BASE-R FEC control register (see 45.2.1.93) and the 25G RS-FEC Enable bit in the RS-FEC control register (see 45.2.1.101) for 25GBASE-R, or the FEC enable bit in the BASE-R FEC control register (see 45.2.1.93).;

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*Response*                      *Response Status* **C**  
ACCEPT.

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*Cl* **110C**    *SC* **1**                      *P***230**                      *L***52**                      # **228**  
Donahue, Curtis                      UNH-IOL  
*Comment Type* **E**                      *Comment Status* **A**                      *bucket*  
"n" in "Auto-negotiation" should be capitalized.

*SuggestedRemedy*  
Change "Auto-negotiation" to "Auto-Negotiation"

*Response*                      *Response Status* **C**  
ACCEPT.

---

*Cl* **112**        *SC* **10.2.1**                      *P***192**                      *L***52**                      # **229**  
Donahue, Curtis                      UNH-IOL  
*Comment Type* **E**                      *Comment Status* **A**                      *Bucket*  
Should "3" be "three"? Style guide states numbers less than 11 should be spelt... or something like that.

*SuggestedRemedy*  
See comment.

*Response*                      *Response Status* **C**  
ACCEPT IN PRINCIPLE.  
  
Change "3 connections" to "three connections".

---

*Cl* **112**        *SC* **5.1**                      *P***186**                      *L***6**                      # **230**  
Donahue, Curtis                      UNH-IOL  
*Comment Type* **E**                      *Comment Status* **R**  
Clauses 110 and 111 have a "Link block diagram", but 112 has "PMD block diagram". Is this difference intentional?

*SuggestedRemedy*  
Change "PMD block diagram" to "Link block diagram".

*Response*                      *Response Status* **C**  
REJECT.

The title 'PMD block diagram' has been used in the equivalent sections for previous clauses (95, 88, 87, 86, 52).

Changing a previously used term for a single clause might be confusing.

The commenter is invited to submit a maintenance request which covers all clauses.

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*Cl* **112**        *SC* **5.4**                      *P***187**                      *L***11**                      # **231**  
Donahue, Curtis                      UNH-IOL

*Comment Type* **E**                      *Comment Status* **R**  
Clauses 110 and 111 have a "Global PMD signal detect function", but 112 has "PMD global signal detect function". Is this difference intentional?

*SuggestedRemedy*  
Change "PMD global signal detect function" to "Global PMD signal detect function".

*Response*                      *Response Status* **C**  
REJECT.

'PMD global signal detect function' is the same name convention as used in Clause 95, which Clause 112 substantially follows for content and format; it also matches Clause 52 (a single lane clause), and matches the name of the PMD status variable as shown in Table 112-3

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*Cl* **112**        *SC* **5.2**                      *P***186**                      *L***49**                      # **232**  
Donahue, Curtis                      UNH-IOL

*Comment Type* **E**                      *Comment Status* **A**                      *bucket*  
Clauses 110 and 111 have a "PMD Transmit function", but 112 has "PMD transmit function".

*SuggestedRemedy*  
Make consistent throughout draft. Either capitalize the "t" or make "T" lowercase.

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

See comment #233.

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Cl 000 SC 0 P L # 233  
 Donahue, Curtis UNH-IOL

Comment Type E Comment Status A bucket

There are only two instances (that I found) in text (not including subclause title or in PICS) of "PMD Transmit function" (note the captial "T").

112.5, pg 185, ln 50  
 112.5.2, pg 186, ln 51

Same goes for "PMD Receive function"

112.5, pg 185, ln 50  
 112.5.3, pg 187, ln 6

All other instances are lowercase.

*SuggestedRemedy*

Make consistent throughtout draft. Either capitalize the "t"/"r" or make "T"/"R" lowercase.

Response Response Status C

ACCEPT IN PRINCIPLE.

Use "PMD transmit function" throughout in place of "PMD Transmit function".

Also, use "PMD receive function" throughout in place of "PMD Receive function".

Cl 030 SC 30.3.2.1.5 P29 L1 # 234  
 Geoff Thompson GraCaSI S.A.

Comment Type E Comment Status R legacy text

This line discusses "collisions" unconditionally whereas collisions are only present in half-duplex mode.

*SuggestedRemedy*

CHANGE THE TEXT THAT READS: "At all speeds this counter shall be incremented only once per valid CarrierEvent and if a collision is present this counter shall not increment.;"

TO READ:"At all speeds this counter shall be incremented only once per valid CarrierEvent and if a collision is present in half-duplex mode, this counter shall not increment.;"

Response Response Status C

REJECT.

The suggested change is to legacy text in the base document and so it is out of scope for P802.3by.

As the commenter notes, collisions can only occur in half-duplex mode; so the suggested modification is redundant.

Cl 030 SC 30.6.1.1.5 P32 L22 # 235  
 Geoff Thompson GraCaSI S.A.

Comment Type E Comment Status R format

In this clause the coding/appearance of the reference links is not consistent. Not all of them are shown in green.

*SuggestedRemedy*

Modify to be in accordance with 802.3 practice for drafts.

Response Response Status C

REJECT.

Only links outside of the P802.3by document need to be shown in green. Links that point to within the P802.3by document are hyperlinks and are not to be shown in green.

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Cl 112 SC 112.9 P191 L34 # 236

Geoff Thompson GraCaSI S.A.

Comment Type **TR** Comment Status **R**

The term "channel" used to specify the media is an undefined term within the 802.3 standard.

*SuggestedRemedy*

Please rewrite using the term "link segment" which is precisely defined within 802.3 for precisely this use. (also all other uses within the draft)

Response Response Status **W**

REJECT.

'Channel' is the term used in the equivalent sections for previous clauses (95, 88, 87, 86, 52).

Consistent with the previously listed clauses, 112.9 says "the term channel is used here for consistency with generic cabling standards".

Changing a previously used term for a single clause might be confusing.

Cl 112 SC 112.10.3 P193 L5 # 237

Geoff Thompson GraCaSI S.A.

Comment Type **TR** Comment Status **R**

This sub-clause purports to define the MDI but does not do that. It defines the MDI device or MDI connector but not the INTERFACE. It is the interface, not the interface connector which is the MDI.

*SuggestedRemedy*

Change either the title of the sub-clause or the contents so that the title and contents match.

Response Response Status **W**

REJECT.

The nomenclature and text is consistent with equivalent sections in many other clauses including 95, 88, 87, 86, and 52.

Changing a single clause as suggested might be confusing.

Cl 110 SC 110.10.7 P151 L6 # 238

Omer Sella Mellanox

Comment Type **E** Comment Status **A**

This comment refers to table 110-10. While there is no conflict here, some of the parameters in table 110-10 are the same as in Table 93-8. It may be confusing for a reader trying to find a change in these parameters when there is none. Only the "Alien far-end aggressor", "Near-end aggressor:", "Normalized DFE coefficient ." and "Target detector error ratio" are different.

*SuggestedRemedy*

Leave only the differences from table 93-8, delete the rest. We may still want to leave in remark 'a' just below the table, maybe incorporate it into the body of the text.

Response Response Status **C**

ACCEPT IN PRINCIPLE.

[Editor changed page/line from 154/9 to 151/6]

To reduce confusion and have all parameters defined in one place do the following...

Expand Table 110-10 to include all missing parameters from Table 93-8.

Add a footnote to the column title "CA-L" with the following text... "The parameters for CA-L are the same as those for 100GBASE-CR4 (Table 93-8), except for A\_fe."

Delete the sentence "Parameters that do not appear in Table 110-10 use the values in Table 93-8 for all cable assembly types."

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Cl **109B** SC **109B.3.2.1.1** P**212** L**13** # **239**  
 Omer Sella Mellanox

Comment Type **E** Comment Status **R**

Both measurement types A and B rely on definition and explanations listed on: "83E.4.2 Eye width and eye .", but there is no reference to that section. While it is true that you could find the origin of these if you travel through pointers, but that's quite

*SuggestedRemedy*

Prior to both methods, add a reference to 83.E.4.2 and preferably some words, for example: "Measurement methods A and B rely on definitions and explanations given in 83E.4.2. The reader is advised to consult 83E.4.2 for more details."

Response Response Status **C**

REJECT.

"109B.3.2.1.1 Eye opening using measurement method A" refers explicitly to "the methodology described in 83E.4.2."

"109B.3.2.1.2 Eye opening using measurement method B" refers explicitly to "methodology described in 109B.4.1.". Although, 109B.4.1 refers to 83E.4.2, it also specifies modifications to that procedure. It would be misleading to point to 83E.4.2 without also indicating the

Cl **110** SC **110.8.4.2** P**147** L**37** # **240**  
 Omer Sella Mellanox

Comment Type **T** Comment Status **R** RITT

The receiver test does not seem to address the QSFP form factor case (or at least separately from SFP). Figure 110-3 depicts the setup for what seems to be only the SFP-SFP case, but I don't see in either words or figures a test setup for the QSFP-QSFP case.

*SuggestedRemedy*

I think it should at least say in words that a host with a QSFP port should be tested as stated in 100GBASE-CR-4 (clause 92.8.4.4 and the test setup at 92.8.4.4.1).

Response Response Status **C**

REJECT.

The following text from 110.8.4.2.1 addresses the QSFP case. "The cable assembly unused single-ended paths are terminated in 50 Ω to provide 100 Ω differential termination."

The figure does not directly refer to any particular form factor.

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Cl 110 SC 110.10.7 P154 L2 # 241  
 Hidaka, Yasuo Fujitsu Lab. of Americ

Comment Type T Comment Status A :OM parameters, 3 m no FEC

The criteria of COM value to be 3dB reserves too high margin.

Simulation result indicates the following:  
 When COM is 3dB with DER0=1E-12, BER is < 1E-66.  
 When COM is 3dB with DER0=1E-6, BER is < 1E-18.  
 When COM is 3dB with DER0=1E-5, BER is < 1E-13.  
 When COM is 3dB with DER0=3E-4, BER is < 1E-8.

We should not reserve so high margin for COM.

*SuggestedRemedy*

Change the COM criteria for the channel as "greater than or equal to 1dB".

Response Response Status C

ACCEPT IN PRINCIPLE.

This comment was received after the close of ballot.

Per motion #5, to enable a no-FEC cable reach of 2.75 m, implement with editorial license the changes on slide 5 of [http://www.ieee802.org/3/by/public/Sept15/goergen\\_3by\\_02b\\_0915.pdf](http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf).

Cl 109 SC 109.4.5 P133 L14 # 242  
 Butter, Adrian IBM

Comment Type E Comment Status A bucket

In 109.4.5 Energy Efficient Ethernet for 25GAUI, the first sentence states: "When the optional Energy Efficient Ethernet (EEE) deep sleep capability is supported and the PMA service interface is physically instantiated as 25GAUI, the additional functions listed in this subclause are required."

It is noted that since the "additional functions" do not directly appear in subclause 109.4.5, the current wording lacks clarity.

*SuggestedRemedy*

Update the sentence to directly reference these additional functions:

"When the optional Energy Efficient Ethernet (EEE) deep sleep capability is supported and the PMA service interface is physically instantiated as 25GAUI, the additional functions listed in 83.5.11 are required."

Response Response Status C

ACCEPT.

Cl 107 SC 107.2.3 P99 L49 # 243  
 Butter, Adrian IBM

Comment Type E Comment Status A

According to Clause 107.2, the scope of test pattern support includes those specified in Clause 49 (for generation and checking), plus scrambled idle (for generation only). In 107.2.3, the following sentence appears:  
 "The PCS shall have the ability to generate a scrambled idle test pattern."

To reinforce inclusion of the generated test patterns specified in Clause 49, it is suggested to broaden the scope of the current statement in Clause 107.2.3.

*SuggestedRemedy*

The following editorial update is suggested:  
 "In addition to those patterns specified in 49.2.8, the PCS shall have the ability to generate a scrambled idle test pattern."

Response Response Status C

ACCEPT.

Cl 107 SC New P100 L34 # 244  
 Butter, Adrian IBM

Comment Type E Comment Status R

According to Clause 107.2, the scope of test pattern support includes those specified in Clause 49 (for generation and checking), plus scrambled idle (for generation only). To reinforce inclusion of the checked test patterns specified in Clause 49, it is suggested to include a test pattern checking subclause.

*SuggestedRemedy*

Add the following subclause and associated text:

"107.2.4 Test-pattern checker

The PCS shall provide test pattern checking abilities in accordance with 49.2.12."

Response Response Status C

REJECT.

This text would be redundant as the document already states that all Clause 49 functionality is supported.

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CI 078 SC 78.2 P75 L3741 # 245  
 Butter, Adrian IBM

Comment Type T Comment Status A

For EEE mode, in Table 78-2, while the Tq and Tr timing parameters match the values for 10GBASE-KR (listed on lines 34 to 35), the Ts timing parameter does not currently match the values for 10GBASE-KR. Instead, Ts matches the 40BASE and 100GBASE values. Furthermore, the Table 78-2 Ts value does not match that contained in Section 107.3, p. 100, Table 107-1 for the Tsl (Tx side Local Sleep Time parameter).

*SuggestedRemedy*

To resolve both discrepancies, the Table 78-2 Ts value must be changed from 0.9-1.1 us to 4.9-5.1 us (to match the 10GBASE-KR values).

Response Response Status C

ACCEPT.

CI 110c SC 110c.1 P230 L35 # 246  
 Mellitz, Richard Intel Corporation

Comment Type T Comment Status A late

Table 110c-1 uses the term "reach". The description in the lines 12 through 30 are clear. The term reach in the table 100c-1 could be construed in a number of different ways. Clarify the term reach.

*SuggestedRemedy*

Replace the term "Reach" with "Potential reach up to at least"

Response Response Status C

ACCEPT IN PRINCIPLE.

[editor changes commentType from TR to T]

This comment was received after the close of ballot.

Use response to comment #201.