

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

CI **FM** SC **FM** P **11** L **17** # **88**
Dawe, Piers Mellanox

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

One would reasonably assume that "the existing base standard and its amendments" mentioned on p21 is IEEE Std 802.3-2015 and IEEE Std 802.3bw, as listed on pp10-11. Yet e.g. 45.2.1 mentions IEEE Std 802.3bn and 45.2.3.6 mentions IEEE Std 802.3bq.

SuggestedRemedy

List all the documents that this builds on. If this project completes before one of them, the staff editor can remove that paragraph.

Proposed Response Response Status **W**

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

This section lists amendments that are expected to complete prior to P802.3by as instructed by the 802.3 chair.

The references to other concurrent projects in this draft is a result of where the changes were made first. These references will be corrected as necessary during sponsor ballot when the order of publication becomes more certain.

CI **FM** SC **FM** P **12** L **28** # **79**
Dawe, Piers Mellanox

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

IEEE-SA style guide only requires a maximum of three levels need to be shown in the table of contents. However:

IEEE Std 802.3-2012 has all five levels, so does P802.3bx;

This amendment is less than 250 pages long vs. e.g. Section Six at 700 pages, so the full table of contents (13 pages vs. 9 if truncated) is not too onerous;

It helps the reviewer who wants to see what's in the draft;

It helps editor and reviewer check that the structure and nesting of subclauses is OK;

The pdf bookmarks are not a complete substitute - try getting all the bookmarks for Clause 45 in this draft on one screen;

We can do the right thing in a draft, just as we don't use the separate Roman numbering of the front matter - the staff editor can change these things for publication very quickly.

It would be a bad thing if early drafts in a project did not reveal the full contents and structure in the printable, zoomable draft. It's a disservice to anyone who reviews a draft for the first time at Sponsor ballot to miss out this information.

SuggestedRemedy

For preference, reinstate all the table of contents in D2.2 and leave it to the staff editor to do any pruning.

Definitely, for future projects, don't prune before the first recirculation at WG ballot.

Proposed Response Response Status **W**

PROPOSED REJECT.

As the commenter notes, the draft meets the requirements of the style guide.

The TOC was changed to include heading levels 1, 2, and 3 only, based on the accepted response to Draft 2.0 Comment #100.

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Cl 000 SC 0 P 1 L 1 # 13
Laubach, Mark Broadcom Corporation

Comment Type TR Comment Status D definitions, CC

This comment follows on an unsatisfied R comment #236 against Draft 2.0. Technically 802.3-2015 and almost all prior versions of the 802.3 Ethernet standard defines "channel" in Clause 1 as "In 10BROAD36, a band of frequencies dedicated to a certain service transmitted on the broadband medium". This definition holds true for Clause 11 as well as updated for use in upcoming P802.3bn EPoC Clauses 100, 101, 102, and 100A. (This definition may even hold true for future definitions for optical channels on fiber - however, we'll leave that for their future to determine.). Other clauses including .by, have used "channel" without (errantly) updating the 802.3 definition, creating a technical incorrectness. I think now is the time and opportunity to correct this. The existing definition needs to be maintained (not altered) as the original (for example an "1.") definition, however it is likely prudent to add an addition (for example a "2.") definition as part of the .by draft process, with cross references to the .by clauses of interest. Through maintenance, existing clauses can be added to the additional definition list of cross references, as appropriate.

SuggestedRemedy

Coordinate with the IEEE Editor(s) for best approach, and also coordinate with the P802.3bn Chief Editor to avoid editorial instruction collisions. Suggestion: take the existing Clause 1 definition for "channel" and prepending with an "1. " then adding a "2. " definition and a suitable definition for the use of "channel" in .by with cross reference(s) to the necessary .by clause(s).

Proposed Response Response Status W
PROPOSED REJECT.

See proposed response for comment #107.

Cl 000 SC 0 P 87 L 54 # 44
Remein, Duane Huawei

Comment Type TR Comment Status D definitions, CC

The 802.3by use of the word "channel" is not in alignment with the definition used in STD 802.3 (see definition as being ammended by 802.3bn below).
"1.4.134 channel: In 10BROAD36 and 10GPASS-XR, a band of frequencies dedicated to a certain service transmitted on the broadband medium. (See IEEE Std 802.3, Clause 11, Clause 100, and Clause 101.)"

SuggestedRemedy

Recommend 802.3by further ammend (or otherwise work with 802.3bn) the definition of channel to provide a 2nd definition expressing it's use within 802.3by.

For example:

Change the definition of 1.4.134 as ammended by P802.3bn as follows:
1.4.134 channel: >>1)<< In 10BROAD36 and 10GPASS-XR, a band of frequencies dedicated to a certain service transmitted on the broadband medium. (See IEEE Std 802.3, Clause 11, Clause 100, and Clause 101.)>>, 2) a data path or link.<<
Text within ">>" & "<<" underlined per ammendment mark-up practices.

Proposed Response Response Status W
PROPOSED REJECT.

See proposed response for comment #107.

Cl 001 SC 1.3 P 22 L 35 # 62
Dudek, Mike QLogic

Comment Type T Comment Status D normative references

The document SFF 8436 has been revised for some time and revisions 4.1 is no longer readily available.

SuggestedRemedy

Change Revision 4.1, August 24, 2011, to Rev 4.8, October 31, 2013.

Proposed Response Response Status W
PROPOSED REJECT.

The reference to SFF-8436 is included in P802.3by only to show that the footnote must be deleted in the based document. This reference is a specification for 10 Gb/s operation, which is outside the scope of the P802.3by project. Changing the version number may impact 10 Gb/s implementations that are based on this document.

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CI 030 **SC 30.5.1.1.15** **P 26** **L 2** # **63**
Dudek, Mike QLogic

Comment Type T **Comment Status D**

Having Clause 74 referred to in both the optional and mandatory sections is clumsy and Clause 30 isn't the place to be saying whether this feature is optional or mandatory.

SuggestedRemedy

Reword the paragraph to say. "A read-only value that indicates if the PHY supports an FEC sublayer for forward error correction (see 65.2, Clause 74 Clause 91, and Clause 108) FEC sublayer for forward error correction."

Proposed Response **Response Status W**

PROPOSED ACCEPT IN PRINCIPLE.

Reword the first sentence of the paragraph to say:
"A read-only value that indicates if the PHY supports an FEC sublayer for forward error correction (see 65.2, Clause 74, Clause 91, and Clause 108)."

CI 045 **SC 45.2.1.2.3** **P 30** **L 42** # **26**
Anslow, Pete Ciena

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

The references in "45.2.1.19, 45.2.1.42, 45.2.1.43, and 45.2.1.58." should be in forest green.

SuggestedRemedy

Re-number Table 45-17c to Table 45-17b

Proposed Response **Response Status W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The suggested remedy was probably intended for comment #25.

Make references "45.2.1.19, 45.2.1.42, 45.2.1.43, and 45.2.1.58" be in forest green.

CI 045 **SC 45.2.1.4** **P 31** **L 20** # **29**
Marris, Arthur Cadence Design Syste

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

Editing instruction needs to be updated to reference 802.3bn

SuggestedRemedy

Change:
"Insert new subclause 45.2.1.4.a before 45.2.1.4.1 as follows:"

To:
"Insert new subclause 45.2.1.4.a before 45.2.1.4.b (as inserted by IEEE Std 802.3bn-201x) as follows:"

Proposed Response **Response Status Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

CI 045 **SC 45.2.1.6** **P 33** **L 5** # **19**
Anslow, Pete Ciena

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

The entries in Table 45-7 do not reflect the changes that IEEE Std 802.3bw-201x (which has completed Sponsor Ballot) is making to bits 1.7.5:0

SuggestedRemedy

Change the editing instruction to:
"Change the indicated row of Table 45-7 (as modified by IEEE Std 802.3bw-201x) for 25G PMA/PMD selection as follows (unchanged rows not shown):"
Replace the row "1 1 x x x = reserved" (in strikethrough font) with "1 1 0 x x = reserved for future use" (in strikethrough font)
Remove the row "1 1 0 x x x = reserved"

Proposed Response **Response Status W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy and also delete editor's note on line 6 page 32 as the row "1 1 0 x x x = reserved" will be removed.

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CI **045** SC **45.2.1.14c** P **36** L **1** # **25**
 Anslow, Pete Ciena

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

The editing instruction says "Insert 45.2.1.14c and 45.2.1.14c.1 through 45.2.1.14c.5 after 45.2.1.14b as inserted by IEEE Std 802.3bw-201x as follows:" but the subclause inserted by the P802.3bw draft has been changed to be 45.2.1.14a.

Also, the Table inserted by the P802.3bw draft is now Table 45-17a.

SuggestedRemedy

Change the editing instruction to: "Insert 45.2.1.14b and 45.2.1.14b.1 through 45.2.1.14b.5 after 45.2.1.14a as inserted by IEEE Std 802.3bw-201x as follows:" and re-number the new subclauses accordingly.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy and also change table number to Table 45-17b from Table 45-17c

CI **045** SC **45.2.1.97** P **38** L **48** # **20**
 Anslow, Pete Ciena

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

In the editing instruction on line 48, "45.2.1.95" should be "45.2.1.97"

SuggestedRemedy

Change "45.2.1.95" to "45.2.1.97"

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI **045** SC **45.2.1.97** P **38** L **50** # **21**
 Anslow, Pete Ciena

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

The title of Register 1.180 is being changed in the subclause title and the first sentence of 45.2.1.97 and in the title of Table 45-77, but not in Table 45-3 which has a row:

Register address = 1.180 through 1.183

Register name = CAUI-4 chip-to-chip transmitter equalization, receive direction, lane 0 through lane 3

Subclause = 45.2.1.97, 45.2.1.98

Also, there are many references to "CAUI-4" in the subclauses of 45.2.1.97 which don't make sense when this register is used for 25GAUI.

There are the same issues with the change of name for register 1.184

SuggestedRemedy

In Table 45-3, change the existing row into two rows:

Register address = 1.180

Register name = CAUI-4 C2C and 25GAUI C2C transmitter equalization, receive direction, lane 0

Subclause = 45.2.1.97

Register address = 1.181 through 1.183

Register name = CAUI-4 chip-to-chip transmitter equalization, receive direction, lane 1 through lane 3

Subclause = 45.2.1.98

Fix the issues with the references to "CAUI-4" in the subclauses of 45.2.1.97

Make equivalent changes for Register 1.184

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI **045** SC **45.2.1.102** P **40** L **12** # **6**
 Ran, Adeo Intel

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

The style manual specifically says (18.2.2) "Replace shall be used only for figures and equations" and "Change shall be used when text and tables are being modified (...)

(deletions and instructions) should be indicated".

SuggestedRemedy

Change editing instructions in 45.2.1.102.1 and 45.2.1.102.2 from "Replace" back to "Change". Bring back the original text in strikethrough and underline the new text, as in D2.0.

Proposed Response Response Status **W**

PROPOSED ACCEPT.

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CI **045** SC **45.2.3.1.5** P **41** L **52** # **7**
 Ran, Adeel Intel

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

The text in the base document refers to a PCS of specific port types (10PASS-TS and 2BASE-TL) which is defined in clause 61. This PCS seems to be an exception - PCS and port types for all other Ethernet speeds are not mentioned.

The text added in this draft (per comment 79 on D2.0) adds several non-specific port types, e.g. "the 10 Gb/s PCS" - but there are several PCS sublayers for 10 Gb/s operation, so "the" is not well defined. Also the register is named "Speed selection" but the text suggests the bits actually select the PCS... which doesn't seem to be correct - this is done using "PCS control 2 register". Compared to the PMA/PMD control register, where the text in 45.2.1.1.3 is explicit about specific selection "performed using the PMA/PMD control 2 register".

If we do add text here, since this subclause elaborates the information in Table 45-120, it would also help to include clause references to the PCSs in question.

The changes in this subclause seem to add more confusion than clarity, and most of them is arguably out of scope for this project. We should consider leaving it as it was.

SuggestedRemedy

If we maintain the new text:

1. Change "The 10 Gb/s PCS" to "A 10 Gb/s PCS".
[1.1 consider adding (10GBASE-W, 10GBASE-X, 10GBASE-R, 10GBASE-T or 10GBASE-PR; See Clause 44 and Clause 76)."]
2. Change similarly for 40G, 100G, and 25G.
3. Add after "The 10/1 Gb/s PCS": "(10GBASE-PRX, see Clause 76)".
4. Add a new paragraph at the end: "More specific selection is performed using the PCS control 2 register (Register 3.7) (see 45.2.3.6)."

Alternatively, delete all editing instructions, to avoid any change to this subclause.

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

The commenter is correct. The change made by comment 79 on D2.0 should not have been made. The last paragraph of 45.2.3.1.5 in the base standard should remain unchanged:

"The speed selection bits 3.0.5:2, when set to 0001, select the use of the 10PASS-TS and 2BASE-TL PCS."

So undo this change made to draft 2.0.

CI **045** SC **45.2.3.2.7** P **42** L **8** # **27**
 Anslow, Pete Ciena

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

"Change second sentence of 45.2.3.2.7 as follows:" should be "Change the third sentence of 45.2.3.2.7 as follows:"

SuggestedRemedy

Change "Change second sentence of 45.2.3.2.7 as follows:" to "Change the third sentence of 45.2.3.2.7 as follows:"

Proposed Response Response Status **W**
 PROPOSED ACCEPT.

CI **045** SC **45.2.3.6.1** P **0** L **0** # **15**
 Slavick, Jeff Avago Technologies

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

In the description of PCS type selection a reference to MDIO register 3.8 bits 5:0 is made, but 25G is at index 7

SuggestedRemedy

Change the index from 5:0 to 7:0

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

Add the following editorial instruction with editorial license...

Change the second sentence of 45.2.3.6.1 PCS type selection (3.7.2:0) so it reads:

"The PCS type abilities of the PCS are advertised in bits 3.8.7:0."

CI **045** SC **45.2.3.13.1** P **44** L **36** # **22**
 Anslow, Pete Ciena

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

Missing "of" in "Change last sentence 45.2.3.13.1 as follows:"

SuggestedRemedy

Change to "Change last sentence of 45.2.3.13.1 as follows:"

Proposed Response Response Status **W**
 PROPOSED ACCEPT.

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CI **045** SC **45.2.3.15** P **45** L **46** # **23**
 Anslow, Pete Ciena

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

The title of registers 3.34 through 3.37 are being changed in the subclause title of 45.2.3.15, but not in Table 45-119, the title of Table 45-130 or the first sentence of 45.2.3.15.

Same issue for the name of registers 3.38 through 3.41.

SuggestedRemedy

Also show the register name change in Table 45-119, the title of Table 45-130 and the first sentence of 45.2.3.15.

Make equivalent changes for registers 3.38 through 3.41.

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI **045** SC **45.2.3.17.2** P **46** L **9** # **24**
 Anslow, Pete Ciena

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

The titles of subclauses 45.2.3.17.2, 45.2.3.17.3, and 45.2.3.17.4 have been changed, but the matching entries in Table 45-132 have not been changed.

SuggestedRemedy

Change the Name column in Table 45-132 to match the name changes in the titles of subclauses 45.2.3.17.2, 45.2.3.17.3, and 45.2.3.17.4.

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI **069** SC **69.2.3** P **52** L **7** # **85**
 Dawe, Piers Mellanox

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

This Table 69-1a has a header "Clause" while Table 105-2 has "Clause/Annex". While the latter seems more correct, the base document and P802.3bs/D1.0 use the former.

SuggestedRemedy

Change this one to Clause/Annex, and log a maintenance request or remember to submit a comment on the next revision. Or change the other to Clause.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

For consistency with similar tables in the base document, in Table 105-2 change "Clause/Annex" to "Clause".

CI **069** SC **69.2.3** P **52** L **8** # **84**
 Dawe, Piers Mellanox

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

"74" should be a hot link, like the others.

SuggestedRemedy

Per comment.

Proposed Response Response Status **W**

PROPOSED ACCEPT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

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CI **069** SC **69.2.3** P **52** L **10** # **10**
 Ran, Adee Intel

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

Clause 108 RS-FEC is specific for 25GBASE-R, just like the PCS and PMA clauses, while the generic label "RS-FEC" applies to several other clauses.

SuggestedRemedy

Change column heading "RS-FEC" to "25GBASE-R RS-FEC".

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

Change "RS-FEC" to "25GBASE-R RS-FEC" where appropriate with editorial license.

CI **073** SC **73.6.4** P **55** L **5** # **11**
 Ran, Adee Intel

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

"interoperation" as one word is commonly used in 802.3.

Also, "likewise" in the previous sentence seems odd, should it be "and likewise", or just "and"?

SuggestedRemedy

Delete the hyphen in "inter-operation".

Consider rewording "likewise".

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the hyphen in "inter-operation".

Change "likewise" to "and likewise".

CI **073** SC **73.6.5** P **55** L **20** # **12**
 Hidaka, Yasuo Fujitsu Labs of Americ

Comment Type **T** Comment Status **D** one PMD type, BTI

Three cables types (CA-L, CA-S, CA-N) and two PMD types (CR and CR-S) are very confusing. Besides, there is no need to define two PMD types.

Since the difference between CR and CR-S is merely availability of RS-FEC, and SerDes analog frontend of PMD is most likely same, a single PMD (CR) with an optional RS-FEC (and a mandatory BASE-R FEC) should be sufficient. It significantly simplifies the entire specification.

It also helps to avoid confusion in the market, because a general user does not have to be concerned about PMD types, and can focus on a cable type.

In addition, the FEC resolution scheme is unnecessarily complicated, because the arbitration is split between priority-based resolution using two PMD types and logic-based resolution using F2 and F3 bits.

A unified logic-based FEC resolution using three F bits (F2-F4) without priority-based resolution is much simpler and easier to use than the current FEC resolution scheme. Since the proposed scheme is logically equivalent to the current scheme, it keeps the same flexibility for users as the current scheme.

SuggestedRemedy

P55/L20: Change definition of F2 and F3 as follows:

- c) F2 is 25G RS-FEC ability
- d) F3 is 25G RS-FEC requested
- e) F4 is 25G BASE-R FEC requested

The following is a list of related changes:

P54/L6: Change D[43:21] with D[42:21], and D[47:44] with D[47:43].

P54/L22/Figure 73-6: Assign D42 to A21, D43 to F2, D44 to F3, D45 to F4.

P55/L9: Change A[22:11] with A[21:11].

P55/L16: Change the line with "FEC (F2:F3:F4:F0:F1) is encoded in bits D43:D47 of the base link codeword. The five FEC bits are used as follows:".

P55/L24: Change "F2 and F3" with "F2 through F4".

P55/L32: Change all paragraphs of 73.6.5.1 as follows:

FEC operation for 25G PHYs is resolved according to Table <reference to a new table below>.

If neither 25G PHY requests FEC operation in bits F3 or 4 then FEC is not enabled.

If either 25G PHY requests RS-FEC and both 25G PHYs have RS-FEC ability then RS-FEC operation is enabled.

Otherwise, BASE-R FEC operation is enabled.

P55/L31/cl73.6.5.1: insert the following new table:

F2(Local)	F3(Local)	F4(Local)	
and	or	or	FEC mode
F2(Remote)	F3(Remote)	F4(Remote)	

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general

COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn

SORT ORDER: Clause, Subclause, page, line

CI **073**

SC **73.6.5**

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2015-10-15 11:04:50 A

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0	0	0	no FEC
0	0	1	BASE-R FEC
0	1	X	BASE-R FEC
1	0	0	no FEC
1	0	1	BASE-R FEC
1	1	X	RS-FEC

From the entire document, remove 25GBASE-CR-S and 25GBASE-KR-S, and change RS-FEC for 25GBASE-CR and 25GBASE-KR optional.

The following is a list of changes to texts:

P36/L9, Table 45-17c: Remove bits 1.19.0 and 1.19.2, reassign 1.19.1/3/4 to 1.19.0/1/2, and remove clause 45.2.1.14c.3 and 45.2.1.14c.5, update bit number in descriptions in clause 45.2.1.14c.1-4, renumber clause 45.2.1.14c.4.

P46/L23, Table 45-209: Remove bit 7.48.12, reassign 7.48.13 to 7.48.12, and remove 7.48.13 from title of 45.2.7.12.2, P47/L3.

P52/L4, Table 69-1a: Remove row of 25GBASE-KR-S. Remove column of 25GBASE-KR-S PMD. Change RS-FEC for 25GBASE-KR from M to O.

P54/L29, Table 73-4: Remove row of "25GBASE-KR-S or 25GBASE-CR-S". Reassign A9 to "25GBASE-KR or 25GBASE-CR" and A10 through A22 to "Reserved for future technology".

P55/L4: Remove the whole paragraph starting "25GBASE-KR-S abilities".

P57/L1, Table 73-5: Remove row of "25GBASE-KR-S or 25GBASE-CR-S". Reassign priority 8, 9, and 10 to 10GBASE-KR, 10GBASE-KX4, and 1000BASE-KX, respectively.

P73/L6, Table 78-1: Remove rows of "25GBASE-KR-S" and "25GBASE-CR-S".

P73/L29, Table 78-2: Remove row of "25GBASE-KR-S" "25GBASE-CR-S".

P77/L36, Table 105-1: Remove rows of "25GBASE-CR-S" and "25GBASE-KR-S".

P78/L10, Table 105-2: Remove rows of 25GBASE-CR-S and 25GBASE-KR-S and columns of 25GBASE-CR-S PMD and 25GBASE-KR-S PMD. Change RS-FEC for 25GBASE-CR and 25GBASE-KR from M (Mandatory) to O (Optional).

P87/L1, Table 105-3: Remove rows of "25GBASE-CR-S PMD" and "25GBASE-KR-S PMD".

P138/L18, Table 110-1: Remove column of 25GBASE-CR-S. Change RS-FEC from "Required" to "Optional".

P140/L4: Change "these PMD" with "this PMD".

P141/L46: Change "and" with "and may implement".

P146/L48: Change the paragraph with the following: "A 25GBASE-CR PHY shall comply with the receiver interference tolerance test requirements for the BASE-R FEC and no-FEC modes. A 25GBASE-CR PHY with the optional RS-FEC sublayer shall comply with the receiver interference tolerance test requirements for the RS-FEC mode."

P150/L35: Change the paragraph with the following: "For a 25GBASE-CR PHY, the receiver under test shall meet the error requirements specified for the tests in Table 110-6 and Table 110-7. For a 25GBASE-CR PHY with the optional RS-FEC sublayer, the receiver under test shall also meet the error requirement specified for the test in Table 110-5."

P150/L52: Change the paragraph with the following: "For a 25GBASE-CR PHY, the receiver under test shall meet the error requirements specified for the tests in Table 110-6 and Table 110-7, for each case listed in Table 110-8. For a 25GBASE-CR PHY with the optional RS-FEC sublayer, the receiver under test shall also meet the error requirements specified for the test in Table 110-5 for each case listed in Table 110-8."

P151/L28: Change the paragraph with the following: "Channel definitions apply for links between two 25GBASE-CR PHYs."

P160/L6: Change "CR" with "CR". Change "O" with "M". Remove "No []".

P160/L8: Remove row of "CR-S".

P160/L16: Change "RS-FEC" with "RS-FEC". Change "CR:M" with "O". Change "N/A []" with "No []".

P164/L35, RC5: Change "CR:M" with "RS-FEC:M".

P164/L45, RC9: Change "CR:M" with "RS-FEC:M".

P167/L16, Table 111-1: Remove column of 25GBASE-KR-S. Change RS-FEC for 25GBASE-KR from "Required" to "Optional".

P168/L52: Change "these PMDs" with "this PMD".

P170/L38: Change "and" with "and may implement".

P174/L20: Change the paragraph with the following: "A 25GBASE-KR PHY shall comply with the receiver interference tolerance test requirements for the BASE-R FEC mode and no-FEC mode. A 25GBASE-CR PHY with the optional RS-FEC sublayer shall comply with the receiver interference tolerance test requirements for the RS-FEC mode."

P176/L10: Change the paragraph with the following: "For a 25GBASE-KR PHY, the receiver under test shall meet the error requirement specified for the tests in Table 111-5 and Table 111-6, for each case listed in Table 111-7. For a 25GBASE-KR PHY with the optional RS-FEC sublayer, the receiver under test shall also meet the error requirement specified for the test in Table 111-4 for each case listed in Table 111-7."

P176/L27: Change the paragraph with the following: "Channel Characteristics are defined by Channel Operating Margin (COM), computed using the procedure in 93A.1. The parameters used for calculation of COM are different for channels used to connect two 25GBASE-KR PHYs both with the RS-FEC sublayer and for channels used to connect two 25GBASE-KR PHYs either without the RS-FEC sublayer."

P176/L33: Change title of 111.9.1 with "Channel for 25GBASE-KR PHYs with RS-FEC sublayer".

P176/L34: Change "two 25GBASE-KR PHYs" with "two 25GBASE-KR PHYs both with the RS-FEC sublayer".

P176/L41: Change title of 111.9.2 with "Channel for 25GBASE-KR PHYs without RS-FEC sublayer".

P176/L43: Change "one or two 25GBASE-KR-S PHYs" with "two 25GBASE-KR PHYs either without the RS-FEC sublayer".

P177/L4, Table 111-8: Change title of third column and fourth column with "25GBASE-KR with RS-FEC" and "25GBASE-KR without RS-FEC", respectively.

P178/L1, Table 111-8: Change title of third column and fourth column with "25GBASE-KR with RS-FEC" and "25GBASE-KR without RS-FEC", respectively.

P180/L6: Change "KR" with "KR". Change "O" with "M". Remove "No []".

P180/L8: Remove row of "KR-S".

P180/L16: Change "RS-FEC" with "RS-FEC". Change "KR:M" with "O". Change "N/A []" with "No []".

P184/L22, RC8: Change "KR:M" with "RS-FEC:M".

P184/L27, RC10: Change "KR:M" with "RS-FEC:M".

P184/L41, CC1: Change "CHNL*KR:M" with "CHNL*RS-FEC:M".

P184/L44, CC2: Change "CHNL*!KR:M" with "CHNL*!RS-FEC:M".

P204/L14, Table 93A-2: Remove rows of "25GBASE-CR-S" and "25GBASE-KR-S".

The following is a list of locations where simple removal of entire paragraph about "25GBASE-CR-S" or "25GBASE-KR-S" is required:

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P23/L1,P23/L7
P26/L8,P26/L12
P28/L32
P51/L28: The 25GBASE-KR-S embodiment employs ...
P138/L43: A 25GBASE-KR-S PHY supports ...
P141/L47: A 25GBASE-CR-S PHY implements ... (Clause 74).
P142/L5: A 25GBASE-CR-S PHY can operate ...
P167/L40: A 25GBASE-KR-S PHY only supports ... with a 25GBASE-KR-S PHY.
P170/L39: A 25GBASE-KR-S PHY implements ... (Clause 74).
P170/L50: A 25GBASE-KR-S PHY can operate ...

The following is a list of locations where simple removal of "25GBASE-CR-S" and "25GBASE-KR-S" and associated local grammatical changes such as "and", "or", ",(comma)", "s(plural)" are required:

P2/L2,P2/L3,P2/L7,P2/L8
P27/L27,P27/L28
P33/L8,P33/L9
P34/L13,P34/L14,P34/L29,P34/L30,P34/L45,P34/L46
P46/L20
P49/L16
P50/L25 (in Figure 69-1a)
P51/L7, P51/L25
P53/L46 (two locations)
P56/L27 (two locations)
P56/L34
P57/L39, P57/L40
P59/L21 (two locations)
P73/L49 (two locations)
P74/L16, P74/L18 (in Table 78-4)
P76/L12, P76/L13, P76/L35 (two locations), P76/L45 (two locations)
P79/L44 (two locations)
P98/L35 (two locations)
P129/L18 (two locations)
P136/L23, P136/L25 (in the feature of *KRRCR)
P138/L2 (clause 110 title), P138/L7, P138/L11
P138/L18 (table 110-1 title), P138/L47
P139/L10, P139/L14, P139/L40 (in Figure 110-1)
P139/L50 (Figure 110-1 title)
P140/L3, P140/L34
P142/L21
P142/L46 (Figure 110-2 title)
P145/L42
P146/L17, P146/L23, P146/L31
P147/L37 (Table 110-6 title)
P148/L1 (Table 110-6 title), P148/L19 (Table 110-7 title)
P151/L16, P151/L34, P151/L35
P156/L47

P157/L3
P159/L3 (clause 110.13 title), P159/L8, P159/L38
P161/L20 (clause 110.13.4 title)
P167/L2 (clause 111 title), P167/L7, P167/L16 (Table 111-1 title), P167/L44
P168/L7, P168/L35 (in Figure 111-1), P168/L45 (Figure 111-1 title)
P168/L51
P169/L27
P171/L12, P171/L32 (in Figure 111-2)
P173/L33, P173/L44
P174/L3
P175/L1 (Table 111-5 title), P175/L28 (Table 111-6 title)
P179/L3 (clause 111.11 title), P179/L8, P179/L38
P181/L2 (clause 111.11.4 title)
P224/L7 (Annex 110A title), P224/L15
P226/L37
P227/L6 (Annex 110B title), P227/L11, P227/L14
P230/L2 (clause 110B.2 title), P230/L9, P230/L38
P231/L13 (clause 110B.2.4 title)
P232/L6 (Annex 110C title), P232/L13, P232/L25, P232/L27
P233/L37, P233/L47

<i>Proposed Response</i>	<i>Response Status</i>	W
PROPOSED REJECT.		

The comment does not address a technical problem with the standard.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

CI **074** SC **74.1** P **59** L **17** # **108**
Geoff Thompson GraCaSI S.A.

Comment Type **TR** Comment Status **D** definitions, CC

Comment is more than 255 characters. Enlarging on unsatisfied comment #236 from InitWG ballot. The insertion of a "definition" for channel is not consistent with either the definition in clause 1.4 or the definition of channel in cabling standards, each of which is quite specific and different from this use. The reference to a "definition" buried in the text of a clause is not appropriate as that definition is overridden by clause 1.4. The proper term for a MDI to MDI point-to-point connection in 802.3 is "Link Segment". This is NOT equivalent to the term "channel" as used in TR-41 and/or SC25 which does not go MDI to MDI.

SuggestedRemedy

Replace with properly defined term.

Proposed Response Response Status **W**

PROPOSED REJECT.

This comment refers to text imported from the base standard for context and is not modified by P802.3by.

As the comment would modify the text in the base standard affecting in-force specifications, it is out of scope of the P802.3by project.

See also comments 104, 107.

CI **074** SC **74.7.4.8** P **68** L **13** # **14**
Slavick, Jeff Avago Technologies

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

The phrase "If the optional EEE deep sleep capability is supported" has been changed to "supports the optional EEE deep sleep capability". I read the new phrasing to say "it can do it" not "it is doing it".

SuggestedRemedy

Change the word "supports" to "is supporting" in the first sentence of each of the last two paragraphs.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the second paragraph to:

"The Clause 49 and Clause 107 PCS sublayers encode /I/ during the wake state and /LI/ during the refresh state, which produces the two types of deterministic FEC blocks."

Delete added text:

"A Clause 107 PCS sublayer that supports the optional EEE deep sleep capability also encodes /I/ during the wake state and /LI/ during the refresh state, which produces the two types of deterministic FEC blocks."

Revert the last paragraph back to the text in the base document:

"If the optional EEE deep sleep capability is supported, then a Clause 82 PCS sublayer also encodes /I/ during ..."

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

CI **074** SC **74.7.4.8** P **68** L **13** # **60**
 Dudek, Mike QLogic

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

The order of the paragraphs is unusual with Clause 49 first , then clause 107 and finally clause 82

SuggestedRemedy

Reverse the order of the last two paragraphs.

Proposed Response Response Status **W**

PROPOSED REJECT.

The paragraph order is logical as it stands.

The second paragraph talks about Clause 49 10G EEE operation.

The third paragraph explains that Clause 107 25G deep sleep operation is equivalent to Clause 49 EEE operation.

The fourth paragraph then explains that Clause 82 40G and 100G deep sleep operation also has to support RAMs.

See also response to comment 14.

CI **074** SC **74.9** P **69** L **49** # **109**
 Geoff Thompson GraCaSI S.A.

Comment Type **TR** Comment Status **D** definitions, CC

Enlarging on unsatisfied comment #236 from InitWG ballot. Use of "channel" is improper.

SuggestedRemedy

Replace with properly defined or appropriately general term. I suggest "data path".

Proposed Response Response Status **W**

PROPOSED REJECT.

This comment refers to text imported from the base standard to be modified only as necessary for inclusion of 25Gb/s Ethernet.

As the comment would modify the text in the base standard affecting in-force specifications, it is out of scope of the P802.3by project.

See also comments 104, 107.

CI **078** SC **78.1.3.3.1** P **72** L **38** # **28**
 Marris, Arthur Cadence Design Syste

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

The first and last sentences of the last paragraph of 78.1.3.3.1 do not match the modification made by 802.3bq.

SuggestedRemedy

Change to:

"Except for BASE-T, for PHYs with an operating"

and:

"Except for BASE-T PHYs, fast wake support is mandatory"

Proposed Response Response Status **W**

PROPOSED ACCEPT.

CI **078** SC **78.1.3.3.1** P **72** L **41** # **8**
 Ran, Adeo Intel

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

25G has both deep sleep and fast wake, so comparing deep sleep to "the only mechanism defined for PHYs with an operating speed less than 40 Gb/s" isn't correct anymore.

Also, is the last sentence (FW is mandatory.) correct for BASE-T?

SuggestedRemedy

Change "with an operating speed less than 40 Gb/s" to "with an operating speed of 10 Gb/s or below".

Change "40" to "25" in line 42.

Consider adding "except for BASE-T" or something similar in the last sentence.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Implement suggested remedy.

Also, see response to comment 28 regarding reference to BASE-T.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl **105** SC **105.3.3** P **79** L **14** # **78**
 Dawe, Piers Mellanox

Comment Type **T** Comment Status **D** fec sublayer summary

Even after the change, this section still seems misleading. I'm not referring to copper PHY options, but to 25GBASE-SR, where "RS-FEC may be used" is not correct - it shall be used.

SuggestedRemedy

Change "The RS-FEC (see Clause 108) may be used by some 25GBASE-R PHYs" to "The RS-FEC (see Clause 108) is used for 25GBASE-SR, and may be used by other 25GBASE-R PHYs".

Proposed Response Response Status **W**

PROPOSED REJECT.

The sentence is correct as written.

The commenter fails to list also 25GBASE-KR and 25GBASE-SR, which also use RS-FEC. In the future, new 25G PHY types may also require the use of RS-FEC.

The fourth sentence in this section directs the reader to subclause 105.2 where precise mapping of FEC capabilities to PHYs is provided.

Since this is a summary of the sublayer, the use of RS-FEC for particular PHY is provided in a previous subclause within Clause 105 (105.2) and within each PMD clause, providing more detail in 105.3.3 is redundant.

Cl **107** SC **107.2** P **95** L **50** # **83**
 Dawe, Piers Mellanox

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

"The 25GBASE-R PCS shall support all the functionality of the 10GBASE-R PCS ... the PCS shall support the scrambled idle test pattern generator specified": Can we have better wording that "support", please? The floor supports the table; saying the table supports its components doesn't make sense to me.

SuggestedRemedy

The 25GBASE-R PCS shall have [or implement] all the functionality of the 10GBASE-R PCS ... the PCS shall be have the ability to generate the scrambled idle test pattern as specified"

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change to:

"The 25GBASE-R PCS shall have all the functionality of the 10GBASE-R PCS specified in Clause 49. In addition, the PCS has the ability to generate the scrambled idle test pattern specified in 107.2.3"

Also correct PICS item TP1 to make it reference just 107.2.3.

See also comment #87

Cl **107** SC **107.2** P **95** L **50** # **87**
 Dawe, Piers Mellanox

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

Competing definitions of scrambled idle generator, with competing shalls: 107.2 says "the PCS shall support the scrambled idle test pattern generator specified in 82.2.11" while 107.2.3 specifies another mandatory test-pattern generator. We don't need both. Also, as a host with nothing to do will transmit scrambled idle or Remote Fault anyway, depending on the input, I don't believe there really is an additional scrambled idle generator.

SuggestedRemedy

Remove the contradiction or duplication.

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

See response to comment 83

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Cl 107 **SC 107.2** **P 95** **L 52** # **17**
Slavick, Jeff Avago Technologies

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

We're changing the values used in Clause 49 for the BER monitor. But we have no shall statement. In the PICS we just check against Clause 49 compliance (PICS). The PICS in 49 points to the state diagram.

SuggestedRemedy

Change "still applies but with" to "still applies but it shall use"
Add a PICS entry to confirm the BER monitor is running over the longer window.

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

Cl 107 **SC 107.2** **P 96** **L 2** # **16**
Slavick, Jeff Avago Technologies

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

While redefinig the BER monitor functon for clause 107 the entire change in the first sentence, then only the timer is redefined. Why not also provide the new ber_cnt definition?

SuggestedRemedy

Change the last sentence from:
So the definition of "125us_timer" in 49.2.13.2.5 is replaced with "Timer that is triggered every 2 ms +1%, -25%".
To:
So the definitions of "125us_timer" in 49.2.13.2.5 is replaced with "Timer that is triggered every 2 ms +1%, -25%" and "ber_cnt" in 49.2.13.2.4 is replaced with "Count up to a maximum of 97 of the number of invalid sync headers within the current 2ms period".

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

Cl 107 **SC 107.2** **P 96** **L 2** # **82**
Dawe, Piers Mellanox

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

Having changed the timer and ber_cnt...

SuggestedRemedy

Also need to say that the definition of hi_ber in 49.2.13.2.2 (Boolean variable which is asserted true when the ber_cnt exceeds 16 indicating a bit error ratio >10-4) is changed.

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

Add the following text:
the definition of "hi_ber" in 49.2.13.2.2 is replaced with "Boolean variable which is asserted true when the ber_cnt exceeds 97 indicating a bit error ratio >10-4"

Cl 108 **SC 108.5.2.4** **P 106** **L 4** # **18**
Slavick, Jeff Avago Technologies

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

Don't think the , should be there

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

SuggestedRemedy

Remove the ,

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl **108** SC **108.5.2.4** P **106** L **15** # **1**
Rob, Stone Broadcom

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

CL 108.5.2.4

In 802.3bj, CL 91.5.3.7 (AM mapping and insertion) notes that "The 5-bit pad am_rxmapped<1284:1280> is ignored." For completeness and consistency with .bj, a similar note should also be added to 108.5.2.4 relative to the fact that the single bit pad is ignored also.

SuggestedRemedy

Append to line 27: ",and is ignored by the receiver."

Proposed Response Response Status **W**

PROPOSED ACCEPT IN PRINCIPLE.

[Editor changed subclause from the original 5.2.4]

108.5.2.4 is within the transmit function and should not include any receiver behavior.

The receiver behavior is implied by the definition of cwm_valid (108.5.4.2): "Codeword marker validity is tested by comparing bits 23:0 and 55:32 of rx_cwm<256:0>, on a nibble-wise basis (12 comparisons), against their respective values in tx_cwm<256:0>". All other bits are not compared, so may be ignored by the receiver.

Note that 91.5.3.7 defines mapping of existing AMs to "AM payloads" which requires a padding. In 108 there is no mapping - the CWM is defined as a 257-bit block.

However, the modified text in D2.1 says "tx_cwm, constructed of four alignment markers." while in fact it is constructed of four AMs and a terminating zero.

Change "constructed of four alignment markers" to "constructed of four alignment markers followed by a zero bit".

Cl **108** SC **108.5.3.1** P **108** L **41** # **65**
Booth, Brad Microsoft

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

I know this isn't changed text, but I'm hoping you'll consider it.

In reading the description, it states that the status is visible in the state machine variable. But, the variable's value is actually reflected in register bit 1.201.14. It would be good to add that text as it helps connect the dots as to where the value can be observed.

SuggestedRemedy

Add the following to the end of the paragraph:
"as observed in MDIO register bit 1.201.14."

Change the PICS to read:
RF2; Codeword marker lock status; 108.5.3.1; Status reflected in MDIO register bit 1.201.14; M; Yes []

Proposed Response Response Status **W**

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

MDIO is optional for the PHYs defined in this project and implementations may use different means to make state variables available to management.

MDIO function mapping in 108.6 contains the requested register reference (Table 108-2) and is introduced with the following conditionally normative statement:
"If MDIO is implemented, it shall map MDIO control bits to RS-FEC control variables as shown in Table 108-1 and MDIO status bits to RS-FEC status variables as shown in Table 108-2."

Cl **108** SC **108.5.3.6** P **110** L **41** # **9**
Ran, Adeo Intel

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

Editor's note has served its purpose.

SuggestedRemedy

Delete editor's note.

Proposed Response Response Status **W**

PROPOSED ACCEPT.

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CI 108 SC 108.7.3 P 121 L 6 # 94
Andrewartha, Mike Microsoft

Comment Type E Comment Status D bucket

The first two items, *KR and *CR, refer to the opposite PHY in the Feature column. Item *KR lists feature 25GBASE-CR with Value/Comment "Used to Form a complete 25GBASE-KR PHY". Item *CR lists feature 25GBASE-KR with Value/Comment "Used to Form a complete 25GBASE-CR PHY". These seem backwards. Item and feature should match.

SuggestedRemedy

Change Item *KR Feature column entry to 25GBASE-KR.
Change Item *CR Feature column entry to 25GBASE-CR.

Proposed Response Response Status W

PROPOSED ACCEPT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The comment highlights an obvious error that should be corrected.

Use suggested remedy.

CI 108 SC 108.7.4.2 P 122 L 15 # 64
Booth, Brad Microsoft

Comment Type ER Comment Status D PICS

RF3 and RF5 have the same Feature naming, but are performing different functions.

If this comment is accepted, I will consider comment 114 from D2.0 satisfied.

SuggestedRemedy

Change RF5 Feature to read:
Uncorrected error indication

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 109B SC 109B.3.4 P 213 L 43 # 68
Dawe, Piers Mellanox

Comment Type T Comment Status D

This says "The required channel equalization is provided by..." but there is no particular requirement for channel equalization - the requirement is for correctly determining the bits. The Style Manual says "shall equals is required to".

SuggestedRemedy

Delete "The required".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

CI 109B SC 109B.3.4 P 213 L 43 # 69
Dawe, Piers Mellanox

Comment Type T Comment Status D 25gaui c2m equalizer

This says "...channel equalization is provided by the module receiver using..." but the module receiver receives an optical signal and outputs a retimed electrical signal; this subclause is about the Tx side of the 25GAUI C2M part of a PMA. Should use correct terminology as in the previous sentence and the subclause title. Should be clear that the alternative also puts the equalization in the module. Also, "uses the setting provided by the host" is vague, doesn't match terminology in 83E.3.4.1.1 ("the reference CTLE setting used to meet eye width and eye height requirements").

SuggestedRemedy

Change "...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." to "...equalization is provided by an equalizer in the module which uses the reference CTLE setting provided by the host, or by an adaptive equalizer in the module which does not use the setting provided by the host."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

No comma required since this is a list of two options.

"...equalization is provided by an equalizer in the module which uses the reference CTLE setting provided by the host or by an adaptive equalizer in the module which does not use the setting provided by the host."

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Cl **109B** SC **109B.5.3** P **217** L **6** # **70**
Dawe, Piers Mellanox

Comment Type **T** Comment Status **D** 25gaui c2m equalizer

This says "Adaptive receiver" but the module receiver receives an optical signal and outputs a retimed electrical signal; this PICS is about the Tx side of the 25GAUI C2M part of a PMA. Use correct terminology as in nearly all of 93E and 109E. The relevant sentence in 83E.3.4.1.1 is simply "Modules may optionally elect not to use the Recommended_CTLE_value."

SuggestedRemedy

Change:
Item: ADR
Feature: Adaptive receiver
Value/Comment: Module 25GAUI receiver does not use Recommended_CTLE_value
to:
Item: ADE
Feature: Adaptive equalizer
Value/Comment: Module does not use Recommended_CTLE_value

Proposed Response Response Status **W**
PROPOSED ACCEPT.

Cl **110** SC **110.1** P **151** L **54** # **95**
Tracy, Nathan TE Connectivity

Comment Type **T** Comment Status **D** Cable length, anchor

Data in "tracy_3by_01_0715" shows that 3m is achievable with 15.5dB loss budget. So for CA-25G-N we can target 3m reach.

SuggestedRemedy

change "c) Cable assembly no-FEC (CA-25G-N): Cable assembly that supports links between two PHYs that operate in no-FEC mode, with cable length up to 2.75 m" to "c) Cable assembly no-FEC (CA-25G-N): Cable assembly that supports links between two PHYs that operate in no-FEC mode, with cable length up to 3m"

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

2.75 m is the consensus value which appears in http://www.ieee802.org/3/by/public/Sept15/goergen_3by_02b_0915.pdf and was adopted per motion #5. No consensus was demonstrated to change this value.

The commenter is correct in noting that 3 meter cables may be achievable, and the current text (which is in a normative clause) seems to prohibit that.

In list items a), b), and c), change "with cable length up to" to "with achievable cable length of at least".

Add a NOTE after the list as follows:

"NOTE--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."

Consider removing "by itself" here and in Table 110C-1.

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Cl 110	SC 110.1	P 152	L 15	# 55
Healey, Adam		Avago Technologies		
Comment Type	TR	Comment Status	D	Cable IL, anchor, BTI
As a consequence of the changes to the CA-25G-N cable type, the CA-25G-S and CA-25G-N cable types are now separated by less than 1 dB of insertion loss. This does not seem sufficiently distinct to warrant a separate classification.				
SuggestedRemedy				
Remove the CA-25G-S designation or modify its definition to make it more distinct from CA-25G-N.				
Proposed Response		Response Status	W	
PROPOSED REJECT.				
CA-25G-S defines the 3 m cable assembly included in the project objectives.				
Modifying its parameters to allow higher loss would require demonstration of feasibility.				
For task force discussion.				
See comment #59.				

Cl 110	SC 110.7.1	P 142	L 39	# 104
Geoff Thompson		GraCaSI S.A.		
Comment Type	TR	Comment Status	D	definitions, CC
Fig 110-2 Enlarging on unsatisfied comment #236 from InitWG ballot. Figure definition of "channel" doesn't align to either cl 1.4 or cabling standards.				
SuggestedRemedy				
Replace with properly defined or appropriately general term.				
Proposed Response		Response Status	W	
PROPOSED REJECT.				
The term "channel" is frequently used in several existing copper cable clauses, including 85 and 92.				
In context, "channel" spans a passive electrical path longer than the MDI-to-MDI connection, and there is no existing definition that is applicable. A possible term to replace "channel" in this context is "signal path". This term would require a new definition. However, for consistency, such a change should be applied in clauses 92 and 85 as well.				
To change established terminology in a single clause would cause confusion, and not be an improvement to 802.3.				
It is beyond the scope of 802.3by to make changes to other clauses which are in force.				
The editors agree that it may be worthwhile augmenting the definition of the word 'channel' in subsection 1.4.127 to include its generic meaning as used in the above listed and other clauses. However, any new definition would need careful and extensive review as it would apply to many in-force clauses, and is therefore considered beyond the scope of 802.3by.				
It would be more appropriate for this topic to be the subject of a maintenance request.				
See also comment 107.				

Cl 110	SC 110.7.1	P 143	L 12	# 105
Geoff Thompson		GraCaSI S.A.		
Comment Type	TR	Comment Status	D	definitions, CC
Enlarging on unsatisfied comment #236 from InitWG ballot. Use of "channel" is improper, doesn't match cl. 1.4 def'n or cabling stds def'n				
SuggestedRemedy				
Replace with properly defined or appropriately general term.				
Proposed Response		Response Status	W	
PROPOSED REJECT.				
See response to comment #104.				

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 SC 110.8.3 P 146 L 17 # 35
Mellitz, Richard Intel Corporation

Comment Type TR Comment Status D OOS

I believe the intent of the fit was to span the DFE range (Nb). However in equation 85-6 in clause 85.8.3.3.5. Np rows are use for X which is the fitting length. That should be N_b+D_p. i.e. 14+2=16

SuggestedRemedy

change line 17ff to:
Transmitter electrical characteristics at TP2 for 25GBASE-CR and 25GBASE-CR-S PHYs shall be the same as those of a single lane of 100GBASE-CR4, as summarized in Table 92-6and detailed in 92.8.3.1through 92.8.3.9 expect N_p=16 and N_w=16.

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The commenter has not provided evidence that the change is required nor that making the change will yield the expected results.

Changing the transmitter measurements specifications would be contrary to retaining common specifications with 100GBASE-CR4.

Cl 110 SC 110.8.4.2 P 145 L 35 # 59
Dudek, Mike QLogic

Comment Type TR Comment Status D cable length, BTI, anchor

The base-R interference tolerance test is significantly easier to pass than the no-FEC interference tolerance test. We should somewhat tighten this test while still keeping it easier to pass than the no-FEC test. This will enable relaxation of the CA-S cable specifications which will allow thinner cables with better bend radius and lower costs to be used.

SuggestedRemedy

See presentation dudek_3by_01_1015

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

Pending presentation and task force discussion.

See comment #55.

Cl 110 SC 110.8.4.2 P 146 L 53 # 106
Geoff Thompson GraCaSI S.A.

Comment Type TR Comment Status D definitions, CC

Enlarging on unsatisfied comment #236 from InitWG ballot. Use of "channel" (2 places) is improper, doesn't match cl. 1.4 def'n or cabling stds def'n

SuggestedRemedy

Replace with properly defined or appropriately general term.

Proposed Response Response Status W

PROPOSED REJECT.

See response to comment #104.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 SC 110.8.4.2 P 147 L 1 # 102
Geoff Thompson GraCaSI S.A.

Comment Type E Comment Status D definitions, CC

Enlarging on unsatisfied comment #236 from InitWG ballot. Use of "channel" (2 places) is improper, doesn't match cl. 1.4 def'n or cabling stds def'n

SuggestedRemedy

Proposed Response Response Status W

PROPOSED REJECT.

See response to comment #104.

Cl 110 SC 110.8.4.2 P 147 L 2 # 58
Dudek, Mike QLogic

Comment Type T Comment Status D bucket

It is not really the COM values that are meant here.

SuggestedRemedy

Replace "COM values" with "COM parameter values" (3 places).

Proposed Response Response Status W

PROPOSED ACCEPT.

Cl 110 SC 110.8.4.2 P 147 L 19 # 71
Dawe, Piers Mellanox

Comment Type E Comment Status D bucket

(In the following, # means the square root "radical" symbol)

Section 6 uses dB/#GHz four times, dB/GHz^{1/2} twice and ns^{1/2}/mm twice. Section 5 has a square root in Eq. 69B-6 and does not use Hz^{1/2}. Earlier sections use neither, I think. Square root is listed in the table of "Special symbols and operators" in IEEE Std 802.3-2012, which used to be included in each draft.

We can't make things fully consistent by changes in P802.3by, but to make the document usable we should match clauses 92 and 93 exactly.

SuggestedRemedy

Change dB/GHz^{1/2} back, in 3 cases, to dB/#GHz to match the base standard. Leave the other three, to match the base standard.

A consolidation across 802.3 can be done in maintenance.

Proposed Response Response Status W

PROPOSED REJECT.

dB/GHz^{1/2} is technically correct and has precedence.

Being consistent within this amendment would be the first step for future consistency in the full standard, which could be done through maintenance.

Cl 110 SC 110.8.4.2 P 147 L 23 # 4
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D

In Table 110-5 (thru 110-7) the two Applied SJ and RJ components are also used in COM calculation per Table 110-10. So it may be appropriate to mention the usage in COM calculation too.

SuggestedRemedy

Replace Applied SJ (p-p) with Applied SJ (p-p) and used in COM calculation.

Replace Applied RJ(RMS) with Applied RJ(RMS) and used in COM calculation.

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The COM parameters A_DD and sigma_RJ values used in COM calculation are not modified by this table.

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Cl 110 SC 110.8.4.2 P 147 L 33 # 2
Krishnasamy, Kumaran Broadcom

Comment Type T Comment Status D bucket

Footnote "b" below Table 110-5 (thru Table 110-7) referring to Figure 92-10.

[The commenter did not enter comment type. Editor set comment type to "T".]

SuggestedRemedy

Refer to Figure 110-4.

Proposed Response Response Status W

PROPOSED ACCEPT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

Change "Figure 92-10" to a cross-reference to Figure 100-4 in footnotes of tables 110-5, 110-6, and 110-7.

Cl 110 SC 110.8.4.2 P 147 L 37 # 45
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D OOS, RITT channel

In Table 110-6, if we use the fitted IL coefficients of Test-2, in equation 92-23, it gives 23.19 dB.

SuggestedRemedy

Correction can be made, to be consistent with Table 110-5

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

For committee discussion.

See comment #39.

Cl 110 SC 110.8.4.2 P 147 L 43 # 57
Healey, Adam Avago Technologies

Comment Type T Comment Status D OOS, RITT BER

Table 111-5 requires the block error ratio (defined as the number of corrected and uncorrected blocks divided by the total number of blocks) to be less than $2.1E-5$. However, to meet the frame loss ratio objective, the number of uncorrected blocks divided by the total number of blocks is required to be $4.7E-10$ (as calculated in http://www.ieee802.org/3/by/public/adhoc/architecture/ran_020415_25GE_adhoc.pdf). The requirement in Table 111-5 does not seem to be stringent enough since 1 uncorrected block for every $2.1E5$ blocks is sufficient to pass the test but does not necessarily demonstrate that the frame loss ratio objective is met.

SuggestedRemedy

Redefine the BASE-R FEC block error ratio to be the number of uncorrected blocks divided by the total number of blocks and set the limit to be $4.7E-10$. Make similar changes to Table 111-5.

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The comment seems to refer to Table 110-6.

Based on statistics of assumed error mechanisms, burst error events should be less frequent than single-bit error events. Therefore, if the receiver detects uncorrected blocks at a ratio of $2.1e-5$, it should detect and correct many more correctable blocks, and the block error ratio (as defined) would likely exceed $2.1e-5$.

Similar reasoning applies to the required RS-FEC symbol error ratio (here and in 802.3bj).

See also #54.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 **SC 110.8.4.2** **P 147** **L 46** # **39**
 Mellitz, Richard Intel Corporation
Comment Type **TR** **Comment Status** **D** **OOS, RITT channel**
 Fitted insertion loss coefficients for test 2 compute to 23.1927db in table 110-6
SuggestedRemedy
 use a1, a2, a4 =[3.42 0.4721 0.03055]
Proposed Response **Response Status** **W**
 PROPOSED REJECT.

 The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

 For committee discussion.

 See comment #45.

Cl 110 **SC 110.8.4.2** **P 148** **L 14** # **54**
 Healey, Adam Avago Technologies
Comment Type **T** **Comment Status** **D** **OOS, RITT BER, anchor**
 Table 110-6 note (a) is potentially misleading. The target value implies that the quantity to be measured is the probability that a block contains errors (corrected or uncorrected) whereas the term "block error ratio" is not clearly defined and could be interpreted as the probability of an uncorrected block (from which the DER_0 and bmax values were derived). The statement that the value is measured using the sum of the "FEC corrected blocks" and "FEC uncorrected blocks" counters may clarify this to some extent but a clear definition of block error ratio would be even more useful.
SuggestedRemedy
 Change note (a) to: "The BASE-R FEC block error ratio is the number of blocks that contain errors divided by the total number of blocks received. The number of blocks that contain errors measured using the sum of the FEC corrected blocks counter (see 74.8.4.1) and the FEC uncorrected blocks counter (see 74.8.4.2)." Make a similar change to Table 111-5 note (a).
Proposed Response **Response Status** **W**
 PROPOSED ACCEPT IN PRINCIPLE.

 The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

 However, the suggested remedy is an improvement that could add clarity.

 Change note (a) to: "The BASE-R FEC block error ratio is the number of blocks that contain errors divided by the total number of blocks received. The number of blocks that contain errors is measured using the sum of the FEC corrected blocks counter (see 74.8.4.1) and the FEC uncorrected blocks counter (see 74.8.4.2). The total number of blocks received is calculated from the test time divided by 81.92 ns".

 Make a similar change to Table 111-5 note (a).

 Consider rephrasing the similar notes in table 110-5 (RS-FEC symbol error ratio) and table 110-7 (no-FEC BER) for consistency.

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Cl 110 SC 110.8.4.2 P 148 L 27 # 40
Mellitz, Richard Intel Corporation
Comment Type TR Comment Status D RITT
Fitted insertion loss coefficients for test 2 compute to 22.4322db in table 110-7
SuggestedRemedy
use a1, a2, a4 =[3.28 0.4424 0.0301]
Proposed Response Response Status W
PROPOSED ACCEPT.

Cl 110 SC 110.8.4.2.1 P 148 L 51 # 74
Dawe, Piers Mellanox
Comment Type T Comment Status D
This says "The cable assembly unused single-ended paths are terminated in 50 O to provide 100 O differential termination." In Fig 110-3, these get connected to the host through the test channel - doesn't the host expect AC coupling, won't 50 O termination force an abnormal bias point on the unused inputs and all the outputs (including the one connected to "Rx termination") even if it doesn't damage the host under test?
SuggestedRemedy
Change "are terminated in 50 O" to "are terminated with AC-coupling to 50 O".
Proposed Response Response Status W
PROPOSED REJECT.
The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.
AC-coupling is specified to be within the cable assembly plug connectors.

Cl 110 SC 110.8.4.2.1 P 149 L 1 # 93
Krishnasamy, Kumaran Broadcom
Comment Type E Comment Status D
This is a general comment/concern regarding the COM calculation used in the Interference Tolerance test (Figure 110-3). According to 93A.2, in addition to the signal channel (Stc), a noise channel (Snc) was also involved in the COM calculations where the broadband noise was injected thru the Snc at the end of Stc. However, in 110.8.4.2.1 the broadband noise is added at the Tx and so the Snc is now same as the Stc. Also now the SNRtx is adjusted to control the broadband noise.
This a little confusing, so it would helpful if a brief paragraph can be added to explain how the original test channel COM calculation procedure (93A.2) is modified to be used here for the 25GBASE-CR, with information on any assumptions/approximations used.
SuggestedRemedy
Requesting to include a paragraph from the COM developers/experts, with a brief explanation on how the fundamental test channel calibration COM calculation process was modified to be used in here.
Proposed Response Response Status W
PROPOSED REJECT.
The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.
The receiver interference tolerance test specified in this clause does not refer to the method in 93A.2. Instead, it uses the calibration procedure described in 110.8.4.2.3.
The commenter is advised to propose specific changes to 110.8.4.2.3 or elsewhere, in case further clarification is needed.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 SC 110.8.4.2.2 P 149 L 23 # 67
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D bucket

If a reference to test points (TP1-TP4) and to Table 110-10 are added in a), where it says "A cable assembly that meets the cable assembly COM....", then it will reduce a lot of confusion between the cable assembly alone COM calculation and the test channel COM calculation with exeptions in line #49.

SuggestedRemedy

a) A cable assembly (measured between TP1 and TP4) that meets the cable assembly COM specified for the test being performed per Table 110-10.

OR

a) A cable assembly that meets the cable assembly COM specified for the test being performed (see 110.10).

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The second option in the suggested remedy suggests a useful cross-reference. In addition the cable assembly test fixture annex should be referenced.

In item a), insert "(See 110.10)" after "A cable assembly".

In item b), insert "(See 110B.1.2 and 92.11.2)" after "A cable assembly test fixture".

Cl 110 SC 110.8.4.2.3 P 149 L 29 # 76
Dawe, Piers Mellanox

Comment Type E Comment Status D bucket

There's only one test channel to be calibrated for a serial PHY's receiver. While we are here, not sure what "characterized at" means. What character? This is simpler than bj, just one s4p measurement. Are we not allowed to use and de-embed the VNA cables?

SuggestedRemedy

Change

The scattering parameters of the test channels are characterized at the test references... to

The scattering parameters of the test channel are measured [or determined] with respect to the test references...

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The comment highlights an obvious error that should be corrected.

Change "channels" to "channel".

Change "characterised" to "measured".

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

CI 110 SC 110.8.4.2.3 P 149 L 43 # 66
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D OOS, RITT channel

The sentence where it says "The fitted insertion loss coefficients of the cable assembly between the reference points, derived using the fitting procedure in 92.10.2, shall meet the values in Table 110-5,...." should be corrected to refer to "test channel" instead of "cable assebmly".

This is because Tables 110-5 thru 110-7 refer to the test channel measured between the two test reference points in Figure 110-4.

SuggestedRemedy

Change the above sentence to "The fitted insertion loss coefficients of the test channel between the reference points, derived using the fitting procedure in 92.10.2, shall meet the values in Table 110-5, Table 110-6, or Table 110-7, as appropriate for the test being performed.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The comment suggests a clarification that is worth making.

Change "cable assembly between the reference points" to "signal path between the reference points in Figure 110-4".

CI 110 SC 110.8.4.2.3 P 149 L 45 # 46
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D

By default, as spec tables, all the parameteers in Tables 110-5 thru 110-7 are expected to be met as close as practically possible. So why the special caution to meet specifically the fitted IL coefficients and the fitting parameters ?

Alraedy in those tables the fitted IL parameter is mentioned to be approximate.

SuggestedRemedy

Possibly remove the sentence in line 45 starting with "It is recommended that the deviation..." ?

Proposed Response Response Status W

PROPOSED REJECT.

[Editor changed subclause from the original 110.8.4.2.2]

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The recommendation is about the difference between the fitted IL and the actual IL. The actual IL and the difference (ILD) are not specified, so a recommendation is in place.

CI 110 SC 110.8.4.2.3 P 149 L 51 # 3
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D bucket

The outer "cascade" operator is redundant in the eqaution SCHSp = cascade(cascade(S(ctsp),S(hosp))).

SuggestedRemedy

Replace with SCHSp = cascade(S(ctsp),S(hosp)).

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

See #31.

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CI 110 SC 110.8.4.2.3 P 149 L 51 # 31
Omer Sella Mellanox Technologie

Comment Type E Comment Status D bucket

It appears that there is a copy-paste issue here: cascade(x,y) is a function of two variables. However, it says in line 51: cascade(cascade(S^(CTSP),S^(HOSP))) so the outer cascade is an erroneous syntax here.

SuggestedRemedy

Remove the outer cascade and brackets.

Proposed Response Response Status W

PROPOSED ACCEPT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

Apply the suggested remedy.

CI 110 SC 110.8.4.2.3 P 149 L 51 # 30
Omer Sella Mellanox Technologie

Comment Type E Comment Status D

Although figure 110-4 shows that the connecting path (AKA SMA cables) from the pattern generator to the MCB should be included in the COM calculation, I believe it is clearer if this is placed in the text as well.
My main fear is that people would miss that.

SuggestedRemedy

change "where S(CTSP) is the measured channel between the test references in Figure 110-4" to "where S(CTSP) is the measured channel between the test references in Figure 110-4 including the connecting path between the test reference and the cable assembly test fixture."

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The suggested remedy does not add information beyond what is shown in the figure.

Also, the current text is similar to the parallel 92.8.4.4.3.

CI 110 SC 110.8.4.2.3 P 150 L 3 # 75
Dawe, Piers Mellanox

Comment Type T Comment Status D OOS, RITT SNR_TX, anchor

This says "SNR_TX of the pattern generator after noise injection (see 110.8.4.2.4) is measured" but there is no indication of what SNR_TX is (apart from a COM parameter, which is a table entry not a measured thing), or how to measure it in this subclause or in the referenced 110.8.4.2.4.

SuggestedRemedy

Are we meant to set SNDR to the SNR_TX value that gives the right COM?

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

Change the first sentence of item c) from
"SNR_TX of the pattern generator after noise injection (see 110.8.4.2.4) is measured and used in calculation of COM."
to
"SNDR of the pattern generator after noise injection (see 110.8.4.2.4) is measured using the procedure in 92.8.3.7. The resulting value is used as SNR_TX in calculation of COM."

CI 110 SC 110.8.4.2.3 P 150 L 3 # 5
Krishnasamy, Kumaran Broadcom

Comment Type E Comment Status D OOS, RITT SNR_TX

In step c), the measurable parameter is SNDR being consistent with the Transmitter parameters per Table 92-6.

SuggestedRemedy

Replace the SNRtx in step c) with SNDR.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

See comment #75.

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Cl 110 **SC 110.8.4.2.3** **P 150** **L 3** # **98**
 Krishnasamy, Kumaran Broadcom

Comment Type T **Comment Status D** **OOS, RITT SNR_TX**

When we read this exception c) we are in the COM calculation process for the test channel. So exception c) should simply instruct to find the SNRtx parameter through the COM calculation, to achieve the required COM value by the test being performed.

Once this value is found then it should be set in the pattern generator section in 110.8.4.2.4

[The commenter did not indicate a comment type. The editor set the comment type to "T".]

SuggestedRemedy

c) The COM parameter SNRtx is modified to achieve the required COM values in Table 110-5, Table 110-6, or Table 110-7, as appropriate for the test being performed.

Proposed Response **Response Status W**

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

See comment #75.

Cl 110 **SC 110.8.4.2.3** **P 150** **L 6** # **43**
 Krishnasamy, Kumaran Broadcom

Comment Type E **Comment Status D**

Exception d) in 110.8.4.2.3, where it says "If the pattern generator presents a high-quality termination...", is NOT an exception because if we follow the text in 110.8.4 Receiver characteristics, this step is same as in 92.8.4.4.3.

SuggestedRemedy

This exception d) can be removed from 110.8.4.2.3.

Proposed Response **Response Status W**

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The exceptions are from the method and parameters of 110.10.7, which specifies cable assembly COM. Item d) is an exception because it does not apply to 110.10.7.

110.8.4 refers to 92.8.4.2, 92.8.4.3 and 92.8.4.6 which contain specifications other than interference tolerance tests.

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Cl 110	SC 110.8.4.2.3	P 150	L 7	# 32	Cl 110	SC 110.8.4.2.3	P 150	L 9	# 36
Omer Sella		Mellanox Technologie			Mellitz, Richard		Intel Corporation		
Comment Type	T	Comment Status	D		Comment Type	TR	Comment Status	D	OOS, RITT T_r
<p>The way the text appears at the moment, it suggests the following flow: Step 1: Measure SNR at the pattern generator output. Step 2: Calculate COM using the newly measured SNR_TX. Step 3: If desired COM achieved, we are finished. Else go to Step 4. Step 4: If desired COM is not achieved, inject more noise and go to step 1.</p> <p>This means an iterative procedure that includes a ping-pong game between measuring real SNR and calculating COM.</p> <p><i>SuggestedRemedy</i></p> <p>Clearly the above algorithm is equivalent to:</p> <p>Step 1: Measure COM. Step 2: Adjust SNR_TX parameter until the desired COM is achieved. Step 3: Set the noise injection to produce the desired SNR at point PGC of figure 110-3.</p> <p><i>Proposed Response</i> <i>Response Status</i> W</p> <p>PROPOSED REJECT.</p> <p>[Editor changed sucblause from the original 110.8.4.2.2]</p> <p>The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.</p> <p>The test description is generic, and does not include the 4 steps listed in the comment, although they may constitute a practical way of achieving the required COM as specified in item c).</p>					<p>Equation 92-22 is not causal and can increase COM by approximately 1/2 dB for slow rise-times. This erroneously increases the amount of required noise for RITT.</p> <p><i>SuggestedRemedy</i></p> <p>add: use Bessel-Thomson filter implemented with following equation: $H_t=105./(f.^4*(k*T_r)^4 - f.^3*(k*T_r)^3*10i - 45*f.^2*(k*T_r)^2 + f*(k*T_r)*105i + 105);$ where k=9 note: T_r is in ns and f is in GHz</p> <p><i>Proposed Response</i> <i>Response Status</i> W</p> <p>PROPOSED REJECT.</p> <p>The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.</p> <p>The commenter has not provided evidence that the proposed change is necessary nor that the proposed changes result in the desired effect.</p> <p>There is an intent to reuse transceivers compliant to the 100GBASE-CR4/KR4 PMD specification. By changing these parameters as proposed it may be possible that some receivers that met the CR4/KR4 criteria may fail given the new parameters.</p>				

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 SC 110.8.4.2.3 P 150 L 10 # 33
Omer Sella Mellanox Technologie

Comment Type T Comment Status D OOS, RITT T_r, RITT TP0a

The way Tr is measured should be stated more clearly in my mind.
For instance - it is unclear if a mated HCB-MCB should be used, or the Tr is measure by directly connecting the pattern generator to a measurement device.
This may cause variance in the way people perform the test.
In addition - the noise injection device may be embedded in the pattern generator, OR it could be added to a pattern generator that does not include such a device (namely a noise box is used).
I think we should provide the people using test equipment a clearer mapping of where, what and how things are measured - to my understanding TP points are not defined for test equipment.

SuggestedRemedy

State clearly (and not just by saying TP0a) that the pattern generator is connected directly to a measuring device OR: state clearly that a mated HCB-MCB are to be used.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

[Editor changed page number from the original 151]

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

See comment #52.

Cl 110 SC 110.8.4.2.3 P 150 L 10 # 73
Dawe, Piers Mellanox

Comment Type T Comment Status D OOS, RITT TP0a

This says: "If the pattern generator presents a high-quality termination, e.g., it is a piece of test equipment... transition time (see 86A.5.3.3) of the signal as measured at TP0a" but there is no definition of or reference to TP0a. I found 93.8.1.1, Transmitter test fixture, but that's for a transmitter on a board, and one would expect that test equipment would have coax connectors.

SuggestedRemedy

If you mean TP0a, provide a reference to 93.8.1.1 and explain how it applies to test equipment. Are we to use PGC for "Package-to-board interface"?
Also add a reference for the TP0a in 111.7.4.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

See comment #52.

Cl 110 SC 110.8.4.2.4 P 150 L 3 # 51
Healey, Adam Avago Technologies

Comment Type T Comment Status D OOS, RITT SNR_TX

Item c) states that SNR_TX of the pattern generator, after noise injection, is measured and used in the calculation of COM. There is no defined procedure for the measurement of SNR_TX.

SuggestedRemedy

State that the SNDR of the pattern generator, after noise injection, is measured and used as the SNR_TX value for the calculation of COM. Add a cross-reference to the definition of the SNDR measurement.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

See comment #75.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 **SC 110.8.4.2.4** **P 150** **L 9** # **52**
Healey, Adam Avago Technologies

Comment Type **T** **Comment Status** **D** *OOS, RITT TP0a, anchor*

Item d) states that the 20% to 80% transition time of the signal is measured at TP0a. The position of TP0a in the interference tolerance test setup is not indicated.

SuggestedRemedy

Change the reference point from TP0a to the "pattern generator connection (PGC)".

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

Change "measured at TP0a" to "measured at the PGC reference point".

Cl 110 **SC 110.10** **P 151** **L 32** # **103**
Geoff Thompson GraCaSI S.A.

Comment Type **ER** **Comment Status** **D** *definitions, CC*

Enlarging on unsatisfied comment #236 from InitWG ballot. Use of the term "cable assembly" should be replaced with the defined term "Link Segment" here and elsewhere throughout the draft.

SuggestedRemedy

Use the 802.3 term "Link Segment" where the definition fits (many places). The term is not used at all in you draft.

Proposed Response **Response Status** **W**

PROPOSED REJECT.

The term "Cable assembly" is frequently used in two existing copper cable clauses, 85 and 92.

While this term fits the definition of "Link Segment", significantly deviating from terms used in similar clauses may be confusing and would not be an improvement to 802.3.

It is beyond the scope of 802.3by to make changes to other clauses which are in force.

It would be more appropriate for this topic to be the subject of a maintenance request.

See also comments 104 and 107.

Cl 110 **SC 110.10** **P 151** **L 51** # **47**
Palkert, Thomas Molex

Comment Type **TR** **Comment Status** **D** *Cable length*

The use of Base-R FEC supports longer distances than 3m.

SuggestedRemedy

Change 3m to 4m.

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

[Editor changed subclause from the original 10]

See comment #95.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 SC 110.10 P 151 L 53 # 48
Palkert, Thomas Molex
Comment Type TR Comment Status D Cable length
No FEC cable distance should be 3m
SuggestedRemedy
Change 2.75m to 3m
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
[Editor changed subclause from the original 10]
See comment #95.

Cl 110 SC 110.10 P 151 L 54 # 99
Shanbhag, Megha TE Connectivity
Comment Type T Comment Status D Cable length
Data in "tracy_3by_01_0715" shows that 3m is achievable with 15.5dB loss budget. So for CA-25G-N we can target 3m reach.
SuggestedRemedy
change "c) Cable assembly no-FEC (CA-25G-N): Cable assembly that supports links between two PHYs that operate in no-FEC mode, with cable length up to 2.75 m" to "c) Cable assembly no-FEC (CA-25G-N): Cable assembly that supports links between two PHYs that operate in no-FEC mode, with cable length up to 3m"
Proposed Response Response Status W
PROPOSED ACCEPT IN PRINCIPLE.
[Comment is identical to #95.]
See comment #95.

Cl 110 SC 110.10 P 152 L 15 # 49
Palkert, Thomas Molex
Comment Type TR Comment Status D Cable IL
The use of Base-R FEC supports higher loss cables.
SuggestedRemedy
Change IL for CA-S from 16.48dB to 19.5dB
Proposed Response Response Status W
PROPOSED REJECT.
[Editor changed subclause from the original 10]
See comment #47.

Cl 110 SC 110.10 P 154 L 25 # 50
Palkert, Thomas Molex
Comment Type TR Comment Status D cable IL, BTI
COM for CA-S cables should be improved to support higher loss cables
SuggestedRemedy
Change CA-25G-S COM value from 3.0 to 2.4
Proposed Response Response Status W
PROPOSED REJECT.
[Editor changed subclause from 10 to 110.10]
The existing COM is sufficient for BASE-R FEC signaling over 3 m cables, which fulfill an objective of 802.3by.
Modifying parameters to allow higher loss would require demonstration of feasibility.
For task force discussion.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110 **SC 110.10.7** **P 154** **L 7** # **90**
Dawe, Piers Mellanox

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

Names of parameters in Table 110-10, COM parameter values for CA-25G-N CA-25G-S and CA-25G-L, and Table 111-8, COM parameter values for 25GBASE-KR 25GBASE-KR-S channels, should exactly match the master, 93A.1 and particularly Table 93A-1, COM parameters. They don't have to be descriptive.

SuggestedRemedy

Change "Alien far-end aggressor" to "Far-end aggressor" in each table.

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

Apply the suggested change in both Clause 110 and Clause 111.

Cl 110 **SC 110.10.7** **P 154** **L 26** # **77**
Dawe, Piers Mellanox

Comment Type **E** **Comment Status** **D** *KR channel, anchor*

Here we have note a under the table "The parameters for CA-25G-L are the same as those for 100GBASE-CR4 (Table 93-8), except for Afe." which is good, and in 111.9.1 we have regular text before the equivalent table "These characteristics are the same as those of a single lane of 100GBASE-KR4, as defined in 93.9.1 through 93.9.4.", which is also good - but the inconsistency is bad.

SuggestedRemedy

Do them both the same way.

Proposed Response **Response Status** **W**

PROPOSED ACCEPT IN PRINCIPLE.

Align the definitions in clause 111 to those of clause 110.

In 111.9.1, Delete "These characteristics are the same as those of a single lane of 100GBASE-KR4, as defined in 93.9.1 through 93.9.4."

In 111.9, add a new paragraph after the existing one: "All channels shall meet the requirements of a single-lane of 100GBASE-KR4 as specified in 93.9.2, 93.9.3 and 93.9.4". Add a corresponding PICS entry with editorial license.

In Table 111-8, change value for parameter A_fe from 0.4 V to 0.6 V, and add a footnote to the 25GBASE-KR column title: "The parameters for the 25GBASE-KR channel are the same as those for 100GBASE-KR4 (Table 93-8), except for A_fe."

Cl 110A **SC 110A.7** **P 226** **L 43** # **41**
Mellitz, Richard Intel Corporation

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

COM is normative and recommended is used in the text.

SuggestedRemedy

change:
The Channel Operating Margin (COM) for the channel between TP0 and TP5, computed using the procedure in 93A.1 and the parameters in Table 110-10, is recommended to be greater than or equal to the Channel Operating Margin (min.) value in Table 110-10 for the cable assembly type being used.

to:
The Channel Operating Margin (COM) for the channel between TP0 and TP5, computed using the procedure in 93A.1 and the parameters in Table 110-10, shall be greater than or equal to the Channel Operating Margin (min.) value in Table 110-10 for the cable assembly type being used.

Proposed Response **Response Status** **W**

PROPOSED REJECT.

Annex 110A is an informative annex and does not include normative requirements (i.e., shall or PICS).

Cl 110B **SC 110B.1.3.6** **P 228** **L 50** # **80**
Dawe, Piers Mellanox

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

Equation (110B-1) through Equation (110B-2)

SuggestedRemedy

Equation (110B-1) and Equation (110B-2)

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

Cl 110B **SC 110B.1.3.6** **P 228** **L 50** # **61**
Dudek, Mike QLogic

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

We are calling it "integrated near-end crosstalk everywhere else."

SuggestedRemedy

Change "integrated crosstalk" to "integrated near-end crosstalk" on line 50.

Proposed Response **Response Status** **W**

PROPOSED ACCEPT.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 110C SC 110C.1 P 232 L 26 # 96
Tracy, Nathan TE Connectivity

Comment Type T Comment Status D
Data in "tracy_3by_01_0715" has shown that 3m is achievable with 15.5dB loss budget. So for CA-25G-N we can target 3m reach.

SuggestedRemedy
change "The CA-25G-N specifications enable a shorter length of 2.75 m with lower loss..." to "The CA-25G-N specifications enable a shorter length of 3 m with lower loss"

Proposed Response Response Status W
PROPOSED REJECT.

The CA-25G-N 2.75 m length cited [P232 L26] was considered in the context of a consensus proposal including specification parameters other than the cable assembly insertion loss. See goergen_3by_02b_0915.pdf slide 5.

Footnote "a" to Table 110C-1 recognizes that it may be possible to construct compliant cable assemblies longer than indicated.

See also comment #95.

For committee discussion.

Cl 110C SC 110C.1 P 232 L 26 # 100
Shanbhag, Megha TE Connectivity

Comment Type T Comment Status D
Data in "tracy_3by_01_0715" has shown that 3m is achievable with 15.5dB loss budget. So for CA-25G-N we can target 3m reach.

SuggestedRemedy
change "The CA-25G-N specifications enable a shorter length of 2.75 m with lower loss..." to "The CA-25G-N specifications enable a shorter length of 3 m with lower loss"

Proposed Response Response Status W
PROPOSED REJECT.

See comment #96

Cl 110C SC 110C.1 P 233 L 1 # 101
Shanbhag, Megha TE Connectivity

Comment Type T Comment Status D
Data in "tracy_3by_01_0715" shows that 3m is achievable with 15.5dB loss budget. So for CA-25G-N we can target 3m reach.

SuggestedRemedy
Update Table 110C.1 with length for CA-25G-N changed from 2.75m to 3m for all cable assembly form factors listed.

Proposed Response Response Status W
PROPOSED REJECT.

See comment #96

Cl 110C SC 110C.1 P 233 L 1 # 97
Tracy, Nathan TE Connectivity

Comment Type T Comment Status D
Data in "tracy_3by_01_0715" shows that 3m is achievable with 15.5dB loss budget. So for CA-25G-N we can target 3m reach.

SuggestedRemedy
Update Table 110C.1 with length for CA-25G-N changed from 2.75m to 3m for all cable assembly form factors listed.

Proposed Response Response Status W
PROPOSED REJECT.

See comment #96

Cl 110C SC 110C-1 P 233 L 5 # 42
Mellitz, Richard Intel Corporation

Comment Type TR Comment Status D
Table 110 C-1 does not suggest what gage was used for length comparisons

SuggestedRemedy
change Length^a to Lenth^a,c table 110 C-1
add footnote c: Cables with 26 AGW are used for length comparisons.

Proposed Response Response Status W
PROPOSED REJECT.

AWG is one factor to consider in the achievable insertion loss for a particular cable design. 26 AWG cable designs used to construct cable assemblies may not meet the achievable lengths of the listed compliant cable assemblies.

Also note that the 5 m length has been associated with 24 AWG cable constructions.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

CI 111 SC 111.1 P 167 L 40 # 92
Dawe, Piers Mellanox

Comment Type E Comment Status D KR channel

"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."
Only supports as opposed to what? Actually operating? Reporting? What do you mean, "supports operation"?

SuggestedRemedy

Change to:
A 25GBASE-KR PHY operates over a channel meeting the requirements of 111.9.1 or 111.9.2. A 25GBASE-KR-S PHY operates over a channel meeting the requirements of 111.9.2.

Proposed Response Response Status W

PROPOSED ACCEPT.

CI 111 SC 111.8.2 P 174 L 5 # 34
Mellitz, Richard Intel Corporation

Comment Type TR Comment Status D OOS

I believe the intent of the fit was to span the DFE range (Nb). However in equation 85-6 in clause 85.8.3.3.5 Np rows are used for X which is the fitting length. That should be $N_b + D_p$ i.e. $14 + 2 = 16$

SuggestedRemedy

change line 3ff to :
Transmitter electrical characteristics at TP0a for 25GBASE-KR and 25GBASE-KR-S shall be the same as those of a single lane of 100GBASE-KR4, as summarized in Table 93-4 and detailed in 93.8.1.1 through 93.8.1.7 expect $N_p = 16$ and $N_w = 16$.

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The commenter has not provided evidence that the proposed change is necessary nor that the proposed changes result in the desired effect.

There is an intent to reuse transceivers compliant to the 100GBASE-CR4/KR4 PMD specification. By changing these parameters as proposed it may be possible that some transmitters that met the CR4/KR4 criteria may fail given the new parameters.

CI 111 SC 111.8.3.1 P 174 L 15 # 37
Mellitz, Richard Intel Corporation

Comment Type TR Comment Status D OOS, RITT T_r

Equation (93A-46) is not causal which is used in 93.8.2.3 which is referred to in 111.8.3.1. It can increase COM by approximately 1/2 dB for slow rise-times. This erroneously increases the amount of required noise for RITT.

SuggestedRemedy

add: use Bessel-Thomson filter implemented with following equation:
 $H_t = 105 / (f.^4 * (k * T_r)^4 - f.^3 * (k * T_r)^3 * 10i - 45 * f.^2 * (k * T_r)^2 + f * (k * T_r) * 105i + 105)$;
where $k = 9$
note: T_r is in ns and f is in GHz

Proposed Response Response Status W

PROPOSED REJECT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

The commenter has not provided evidence that the proposed change is necessary nor that the proposed changes result in the desired effect.

There is an intent to reuse transceivers compliant to the 100GBASE-CR4/KR4 PMD specification. By changing these parameters as proposed it may be possible that some transmitters that met the CR4/KR4 criteria may fail given the new parameters.

CI 111 SC 111.8.3.1 P 174 L 31 # 38
Mellitz, Richard Intel Corporation

Comment Type TR Comment Status D OOS, RITT channel

Test 1 table 111-4 low loss does not seem correct (30dB)

SuggestedRemedy

use Low loss Insertion loss and fit coefficients from table 111-5 or 111-6

Proposed Response Response Status W

PROPOSED ACCEPT.

The comment is not related to the substantive changes between IEEE P802.3by/D2.1 and IEEE P802.3by/D2.0 or the unsatisfied negative comments from the initial ballot and is therefore out of scope.

However, it highlights an obvious error that should be corrected.

Use the suggested remedy to change values in Table 111-4.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 111 SC 111.9.1 P 176 L 33 # 81
Dawe, Piers Mellanox

Comment Type E Comment Status D KR channel

Two 25GBASE-KR PHY channel? What's a one-PHY channel? Doesn't seem grammatical, we would not do this for any other PHY as far as I know. Also, what's a PHY channel?

SuggestedRemedy

Change to: 25GBASE-KR channel

Actually, this can be sidestepped and simplified by removing the headings 111.9.1 and 111.9.2, and removing the first of two identical sentences "COM is calculated for two test cases..."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Subclauses 111.9.1 and 111.9.2 were added based on the the approved response to comment #225 against D2.0.

See comment #91.

Cl 111 SC 111.9.1 P 176 L 33 # 53
Healey, Adam Avago Technologies

Comment Type E Comment Status D KR channel

The subclause heading seems awkward. Suggest changing it from "Two 25GBASE-KR PHY channel" to "25GBASE-KR PHY channel". The fact that this channel is only interoperable between two 25GBASE-KR PHYs is explained in the body of the subclause.

SuggestedRemedy

Per comment.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See comment #91.

Cl 111 SC 111.9.1 P 176 L 34 # 91
Dawe, Piers Mellanox

Comment Type T Comment Status D KR channel, anchor

links that comprise two 25GBASE-KR PHYs? Links connect PHYs, not comprise them: "1.4.248 link: The transmission path between any two interfaces of generic cabling. (From ISO/IEC 11801.)" Also, the table says COM parameter values not channel characteristics, and 110.10.7 has "COM parameter values ... are provided in Table 110-10".

SuggestedRemedy

Change "Channel characteristics for links that comprise two 25GBASE-KR PHYs" to "COM parameter values for a channel that connects two 25GBASE-KR PHYs".

In 111.9.2, change "Channel characteristics for links that comprise one or two 25GBASE-KR-S PHYs are provided in Table 111-8" to "COM parameter values for a channel that connects a 25GBASE-KR-S PHY to a 25GBASE-KR-S or 25GBASE-KR PHY are provided in Table 111-8".

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change heading of 111.9.1 from "Two 25GBASE-KR PHY channel" to "25GBASE-KR channel".

Change heading of 111.9.2 from "25GBASE-KR-S PHY channel" to "25GBASE-KR-S channel".

In 111.9.1, change "Channel characteristics for links that comprise two 25GBASE-KR PHYs are provided in Table 111-8"

To "A 25GBASE-KR channel can be used as a link connecting two 25GBASE-KR PHYs. COM parameter values for this channel are provided in Table 111-8".

In 111.9.2, change "Channel characteristics for links that comprise one or two 25GBASE-KR-S PHYs are provided in Table 111-8"

To "A 25GBASE-KR-S channel can be used as a link connecting a 25GBASE-KR-S PHY to either a 25GBASE-KR-S PHY or a 25GBASE-KR PHY. COM parameter values for this channel are provided in Table 111-8".

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 111 SC 111.9.2 P 177 L 4 # 56
Healey, Adam Avago Technologies

Comment Type TR Comment Status D KR channel, BTI

The receiver interference tolerance requirements defined in 111.8.3.1 and jitter tolerance requirements defined in 111.8.3.2 include tests for a "no FEC" mode of operation. However, there are no channel requirements for that mode of operation (Table 111-8 only includes RS-FEC and BASE-R FEC modes).

SuggestedRemedy

Remove "no FEC" tests from 111.8.3.1 and 111.8.3.2 or add a "no FEC" column to Table 111-8. If a column is added, it should include the relevant requirements of the corresponding interference tolerance test e.g., DER0=1E-12, bmax=0.35.

Proposed Response Response Status W

PROPOSED REJECT.

Clause 111 does not define a channel per mode, instead it defines a set of channel parameters for compatibility with 25GBASE-KR PHYs and a similar set for 25GBASE-KR-S PHYs.

Operation in no-FEC mode may be possible in some channels compatible with 25GBASE-KR-S (and 25GBASE-KR). A test procedure for this mode is provided for completeness.

Similarly, clause 93 interference tolerance test includes test parameters for operation with RS-FEC correction bypassed, although there is no separate channel definition for this mode; 93.9.1 states "Channels that are compatible with this mode of operation shall meet this COM requirement with the value of DER0 set to 10^{-12} ".

Possible changes include:

1. Changing the channel definitions from being aligned with PHY specification to being aligned with FEC mode. This would require adding a channel for no-FEC mode.
2. Adding text similar to 93.9.1 to state that no-FEC operation requires setting DER_0 to 10^{-12} .
3. Removing the no-FEC test definition.

For task force discussion.

Cl 111 SC 111.9.2 P 177 L 42 # 89
Dawe, Piers Mellanox

Comment Type T Comment Status D KR channel

Table 110-10, COM parameter values for 25GBASE-CR and 25GBASE-CR-S has alien far-end aggressor Afe = 0.6 V. The committee asserted that 0.6 was correct: "not the same as the far-end aggressor voltage used in clause 92, since far-end aggressors in some form factors are not assumed to be on the same device as the "victim" transmitter (and are therefore marked as "alien" FEXT). The alien transmitter can use the maximum voltage." This Table 111-8 for 25GBASE-KR and 25GBASE-KR-S has alien far-end aggressor Afe = 0.4 V.

Should the same logic apply to 25GBASE-KR and 25GBASE-KR-S? So far, I don't see why not.

SuggestedRemedy

Change Afe from 0.4 V to 0.6 V here. Modify 111.9.1, presently "These characteristics are the same as those of a single lane of 100GBASE-KR4, as defined in 93.9.1 through 93.9.4."

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

See comment #77.

IEEE 802.3by D2.1 25 Gb/s Ethernet 1st Working Group recirculation ballot comments

Cl 112 SC P L # 107
Geoff Thompson GraCaSI S.A.

Comment Type TR Comment Status D definitions, CC

I reject the logic of your response: "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." Your use is NOT consistent with cabling standards which have a VERY specific definition for channel which you do not use. Further, changing to be aligned with the clause 1 definitions rather than some vague use buried in a number of other clauses will be less confusing, rather than more.

[The comment set clause to "Init WG Ballot #237". The editor changed clause to 112.]

SuggestedRemedy

Use terminology as defined in clause 1.4

Proposed Response Response Status W

PROPOSED REJECT

See also comments 13 and 44.

The nomenclature and text is consistent with other optical clauses 38, 52, 53, 58, 59, 68, 75, 86, 87, 88, and 95. Further, throughout the 802.3 document, word 'channel' is used in many clauses (~40 clauses), usually as the generic name for the link between transmitter and receiver (which don't have definitions in clause 1 either).

To change established terminology in a single clause would cause confusion, and not be an improvement to 802.3.

It is beyond the scope of 802.3by to make changes to other clauses which are in force.

The definition in 1.4.134 is specific to the 10BROAD36, which does not apply to P802.3by.

The editors agree that it may be worthwhile augmenting the definition of the word 'channel' in subsection 1.4.134 to include its generic meaning as used in the above clauses. However, any new definition would need careful and extensive review as it would apply to many in-force clauses, and is therefore considered beyond the scope of 802.3by.

It would be more appropriate for this topic to be the subject of a maintenance request.

Cl 112 SC 112.7.1 P 192 L 28 # 86
Dawe, Piers Mellanox

Comment Type E Comment Status D

In 802.3bx, pattern 5 is defined in 82.2.11, although in 802.3-2012 it's in 82.2.10. In 82.2.11 it's not called "pattern 5" - the connection is made in Table 95-9, but we could be kinder to the reader.

SuggestedRemedy

Change "pattern 5 defined in 82.2.10" to "pattern 5, the scrambled idle test pattern defined in 82.2.11,".

To reduce the version control issue, on p21, state precisely what is used for "the existing base standard and its amendments". With so many amendments in progress, this may be a table of the ones that this project has taken into consideration in the TO BE REMOVED PRIOR TO FINAL PUBLICATION box, with version numbers. It would be helpful to include the ones that we think do not affect this document, and mark them as such.

Proposed Response Response Status W

PROPOSED ACCEPT IN PRINCIPLE.

Change "pattern 5 defined in 82.2.10" to "pattern 5, the scrambled idle test pattern defined in 82.2.11,".

Cl 112 SC 112.7.1 P 192 L 33 # 72
Dawe, Piers Mellanox

Comment Type T Comment Status D

Last time, the draft was changed to use 25G-specific test patterns instead of 100G test patterns. Particularly for 100GBASE-SR4 modules that have dual use as 4 x 25GBASE-SR, it would be more convenient to test them just once. As we have Clause 112 open and not Clause 95, we should allow the use of 100GBASE-SR4 patterns for 25GBASE-SR qualification.

SuggestedRemedy

Add a new paragraph: "As an alternative, the test patterns used for 100GBASE-SR4 may be used, with appropriate attention to multi-lane testing considerations."

In 109B.3.2.1.1 and 109B.3.2.1.2, change "or a valid 25GBASE-R signal" to "or a valid 25GBASE-R or 100GBASE-R signal".

Proposed Response Response Status W

PROPOSED REJECT.

802.3by is a single lane project, co-packaging four lanes is an example implementation. Previous single lane clauses have not attempted to define implementation specific tests or specifications.