Cl **045** *SC* **45.2.1.97** *P* **42** *L* **3** # r01-1

Marris, Arthur Cadence Design Syste

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

Remove editors note as it says it is to be removed in the next draft

SuggestedRemedy

Remove editors note as it says it is to be removed in the next draft

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **112** *SC* **112.9** *P* **202** *L* **26** # r01-2

Marris, Arthur Cadence Design Syste

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

Remove editors note as it says it is to be removed in the next draft

SuggestedRemedy

Remove editors note as it says it is to be removed in the next draft

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **073** *SC* **73.6.4** *P* **62** *L* **4** # r01-3

Hidaka, Yasuo Fujitsu Laboratories of

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

According to the second paragraph of page 62, 25GBASE-CR PHY should advertise both A9 and A10 ability bits. It provides interoperability with 25GBASE-CR-S PHY even over 5m cables in the BASE-R FEC mode. It is the best mode of interoperation with 25GBASE-CR-S PHY, but it may cause high data error rates. Some customers may want failure in auto negotiation with 25GBASE-CR-S PHY over 5m cables by enforcing RS-FEC. Such enforcement of RS-FEC for 5m cable is possible but not clearly described in the document. Such method should be clearly described.
This is related to the comment i-31 to D3.0.

SuggestedRemedy

Insert the following paragraph between the second and third paragraphs in page 62:
On the other hand, if the physical medium identified by the management entity is not supported by 25GBASE-CR-S PHYs (e.g. CA-25G-L cable assembly), 25GBASE-CR PHY may advertise only A10 ability bit in order to prevent unreliable interoperation with 25GBASE-CR-S PHY, or may advertise both of A9 and A10 ability bits to allow the best mode of interoperation with 25GBASE-CR-S PHY, although the bit error rate may be high. Likewise, if the physical medium identified by the management entity is not supported by 25GBASE-KR-S PHYs, 25GBASE-KR PHY may advertise only A10 ability bit or both of A9 and A10 ability bits. The method used by the management entity to identify the physical medium is beyond the scope of this standard.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

According to the style guide, the word should has the following meaning…
"The word should indicates that among several possibilities, one is recommended as particularly suitable without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (should equals is recommended that)."

The sentence that the commenter is referring to is providing guidance for the general case without other considerations. The sentence does not preclude alternate configuration given other considerations.

The word "should" was deliberately chosen because it does not require the user of a 25GBASE-CR PHY to advertise both bits and so allows the user to prevent 25GBASE-CR-S being negotiated if there is concern that the medium cannot support it.

Using the word "should" was discussed at the September meeting of the ballot resolution committee in Bonita Springs Florida.

The suggested remedy is unnecessary and is likely to confuse the reader.

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: Comment ID

Comment ID **r01-3**

Page 1 of 13
2016-03-07 7:39:17 PM

Cl **106**   *SC* **106.3**   *P* **98**   *L* **8**   # r01-4
Marris, Arthur   Cadence Design Syste

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

Change 100 ppm to 0.01% to match the base standard

SuggestedRemedy

Change 100 ppm to 0.01% to match the notation in Clause 46 in the base standard

Do this in 106.3 and the PICS in 106.5.3.3

Proposed Response   *Response Status* **Z**

PROPOSED REJECT.

This comment was WITHDRAWN by the commenter.

Cl **110**   *SC* **110.8.4.1**   *P* **153**   *L* **36**   # r01-5
Healey, Adam   Broadcom Ltd.

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

The requirements stated in items a), b), and c) are not included in the PICS.

SuggestedRemedy

Add items to the PICS table in 110.13.4.4 corresponding the normative specifications in 110.8.4.1.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

However, the comment highlights a deficiency that should be addressed.

Cl **110**   *SC* **110.8.4.2.5**   *P* **157**   *L* **31**   # r01-6
Healey, Adam   Broadcom Ltd.

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

The requirements defined in the last paragraph of 110.8.4.2.5 are not included in the PICS. This text seems redundant with the normative requirement stated in 110.8.4.2: "A 25GBASE-CR PHY shall comply with the receiver interference tolerance test requirements for the RS-FEC, BASE-R FEC and no-FEC modes. A 25GBASE-CR-S PHY shall comply with the receiver interference tolerance test requirements for the BASE-R FEC and no-FEC modes."

SuggestedRemedy

If the correct interpretation is that "test requirements" and "error requirements" are separate items, then add these normative specifications to the PICS table in 110.13.4.4. If the correct interpretation is that "test" and "error" requirements are one in the same, then change the last paragraph to the following: "For 25GBASE-CR and 25GBASE-CR-S PHYs, the receiver the receiver interference tolerance requirements are summarized in Table 110-7 and Table 110-8. For a 25GBASE-CR PHY, additional requirements are summarized in Table 110-6."

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change the last paragraph of 110.8.4.2.5 to the following:

"For 25GBASE-CR and 25GBASE-CR-S PHYs, the receiver interference tolerance requirements are summarized in Table 110-7 and Table 110-8. For a 25GBASE-CR PHY, additional requirements are summarized in Table 110-6."

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **r01-6**   Page 2 of 13
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   2016-03-07 7:39:17 PM
SORT ORDER: Comment ID

Cl **110**   *SC* **110.10.7.1.1**   *P* **162**   *L* **1**   # r01-7

Healey, Adam   Broadcom Ltd.

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

The function cascade() is used in Equation 110-1 but is not defined.

SuggestedRemedy

Include a reference to the defintion of cascade() in an appropriate location in 110.10.7.1.1.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT IN PRINCIPLE.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

However, the comment highlights a deficiency that should be addressed.

Append to the second paragraph of 110.10.7.1:

"The channel path calculations use the function cascade() defined in 93A.1.2.1."

Cl **093A**   *SC* **93A.1**   *P* **211**   *L* **31**   # r01-8

Healey, Adam   Broadcom Ltd.

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

The title of Annex 83D in the base standard is "Chip-to-chip 100 Gb/s four-lane Attachment Unit Interface (CAUI-4)" and has not been modified by this amendments. As a result, the inclusion of "C2C" in the reference doesn't seem to be appropriate.

SuggestedRemedy

Align the reference in Table 93A-2 with the title of the Annex that it is referencing.

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The P802.3by task force added the "C2C" label to unambiguously identify the chip-to-chip CAUI-4 rather than the chip-to-module CAUI-4.

Annex 83D and 83E ambiguously label the "chip-to-chip CAUI-4" and "chip-to-module CAUI-4" as "CAUI-4".

C2C is defined as "chip-to-chip" in subclasue 1.5 "Abbreviations".

Cl **FM**   *SC* **FM**   *P* **1**   *L* **12**   # r01-9

Grow, Bob

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

It used to be the style to number amendments on the title page, but that isn't illustrated in the Style Manual, nor is it required on the PAR form anymore. (We needed exemption for that on drafts because of our difficulty in knowing approval order throughout the process, and perhaps IEEE-SA editorial staff has gone too far in accomodating us). Looking at P802.3bv possibly being Amendment 9, I believe it critical to clearly identify order at the appropriate time. The 802.3 Chair has done that for P802.3by.

SuggestedRemedy

Change Amendment: to Amendment 2: to also be consistent with frontmatter listing on page 12.

Proposed Response   *Response Status*   **W**

PROPOSED ACCEPT.

[Editor changed CommentType from G to E to correct rogue comment entry error.]

Cl **FM**   *SC* **FM**   *P* **12**   *L* **18**   # r01-10

Grow, Bob

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

The amendment identification is not consistent. I believe it is correct here (references to CMP) and most places in the draft, but not at P.11, L.3. Basically, we have drifted away from all references in the body of the draft being of the form IEEE Std 802.3by-20xx, (with document title and headers using the project designation P802.3by/D3.1). Though likely to be caught in publication preparation (especially since the boxed note is instructed to be this way in current IEEE templates), we should strive for consistency in the body of the document so publication editors only search for one string that needs to be updated.

SuggestedRemedy

The note is something carried into the published standard and therefore should in that note be IEEE Std 802.3by-201x. This may be something that IEEE editorial staff has changed recently. We should get clear guidance from staff (especially since they are currently revising the Style Manual). We also use IEEE Std 802.3by-201x in the PICS template and PICS in this draft.

Proposed Response   *Response Status*   **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

This note is consistent with the current (version 2.5) 802.3 draft template.

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: Comment ID

Comment ID **r01-10**   Page 3 of 13
2016-03-07 7:39:17 PM

Cl **001** *SC* **1.5**   *P* **30**   *L* **41**   # r01-11

Grow, Bob

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

The acronyms list and inserts are alphanumeric, not alphabetic.

SuggestedRemedy

Change alphabetical to alphanumerical.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

The comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

However, this comment highlights a deficiency that should be addressed.

Cl **030** *SC* **30.3.2.1.2** *P* **31**   *L* **11**   # r01-12

Grow, Bob

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

In discussion with our publication editors at the Atlanta meeting, I understood their instruction to be to only include reference to an amendment when it is relevant to the editing instruction. In this case and most other instructions with a parenthetical list, the list has nothing to do with the insertion point for new content. In looking at this for P802.3bv (assuming it could be Amendment 9), if following this format, I would be listing six amendments that inserted something into the SYNTAX before bv, none of which are relevant to the insert point specified. The insert point can be specified clearly in all of the seven amendments inserting into this attribute without a list of previous amendments.) This draft (though not all 802.3 drafts in ballot) is also inconsistent. The list is included in SYNTAX, but not in BEHAVIOUR, both are part of an attribute specification. Similarly, this draft inserts into 1.5, but correctly does not list all amendments that have modified that alphanumeric list.

SuggestedRemedy

Delete the parenthetical list of amendments in editing instructions and only include reference to an amendment when it is necessary to specify the insertion point (or source for text of a Change instruction, etc.) Delete the three unnecessary lists in clause 30.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Delete the text "(as modified by IEEE Std 802.3bw-2015)" in the editing instructions of 30.3.2.1.2, 30.3.2.1.3 and 30.5.1.1.2.

The editing instructions in 45.2.1, 45.2.1.6, 45.2.1.10 and 45.5.3.3 correctly reference 802.3bw and do not need to be changed.

Cl **045** *SC* **45.2.1.6** *P* **39**   *L* **10**   # r01-13

Grow, Bob

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

Our publication editors like the suggestion that an early amendment simplify the reserved values problem for this and similar tables, that many amendments will define reserved values for.

SuggestedRemedy

Please consider the service to follow-on 802.3 projects of listing the code points individually as reserved so that subsequent amendments don't have to worry about mucking with the reserved rows which is a problem for amendment approval order.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The "x" in the code points are in text to be deleted is the base standard and so the commenter's intent is achieved as is.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **r01-13** Page 4 of 13
COMMENT STATUS: D/dispatched A/accepted R/rejected RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   2016-03-07 7:39:17 PM
SORT ORDER: Comment ID

Cl **045**   *SC* **45.2.1.10.aa**   *P* **38**   *L* **18**   # r01-14

Grow, Bob

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

The lettering of inserts is broken given sufficient inserts (in the case of P802.3bn two). When discussing this problem with our publication editors in Atlanta, they admitted after consultation with the manager of the IEEE editorial department that what the style manual describes breaks pretty quickly. They agreed a long string of a's is not particularly good. They also did not jump at making letters simply a tag, with alphabetic order not meaning anything (my preferred solution if we want to letter instead of instruct renumbering). In drafts I've reviewed this week, we are using aa in three different ways (1. when an insert is required after a and before b, 2. like this when an insert is required before a, and 3. in P802.3bn when more than 26 inserts need to be done <the bn current draft has a bad insert point so doesn't currently show this>). Therefore, though trying to make alphabetical order mean something, we have failed to do so consistently in current 802.3 projects -- other it seems that b follows a is consistent, but I believe we have cases of a being before the reference point and b being after.

SuggestedRemedy

If using letters, use the letter b and give up on the letter meaning anything about order. Preferred though would be to insert and instruct renumbering as we did for years.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

[editor changed subclause from 45.2.1.10aa to 45.2.1.10.aa]

The use of the paragraph number "45.2.1.10.aa" has been in the P802.3by draft for a number of revisions now.

This numbering method is consistent with previously published amendments.

Changing the number might have knock on effects to projects that are amending 802.3by (e.g., 802.3bq).

Changing it now would be risky and cause confusion.

Cl **110**   *SC* **110.8.4.2.3**   *P* **156**   *L* **44**   # r01-15

Mellitz, Richard   Intel Corporation

Comment Type **T**   *Comment Status* **D**   *RITT COM*

There does not seem to be a way to determine where to use SCHSp and how it relates to Sp.

SuggestedRemedy

change: d) The transmitter device package model S(tp) is omitted from the calculation of Sp to: d) Sp is determined from equation 93A-3 by substituting SCHSp for S except that the transmitter device package model S(tp) is omitted from the calculation of Sp.

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Although correct, the current text involves deeply nested references that may be difficult to follow.

Rather than referring to another equation and making an exception, it may be simpler to add a specific equation.

Insert new equation 110-1 as follows:
"$S\_p = \mathrm{cascade}(SCHSp, S^{(rp)})$
where the function cascade() is defined in 93A.1.2.1 and $S^{(rp)}$ is defined in 93A.1.2.4."

Change:
"d) The transmitter device package model $S^{(tp)}$ is omitted from the calculation of S_p. Instead, the voltage transfer function is multiplied by the filter"

to:
"d) The augmented signal path in 93A.1.2 is replaced by S_p determined from equation (110-1) (effectively omitting the transmitter device package model). The voltage transfer function calculated in (93A-19) is multiplied by the filter"

This response might be affected by the responses to comments r01-16, r01-17, r01-19, r01-31, and r01-32.

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: Comment ID

Comment ID **r01-15**   Page 5 of 13
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Cl **110**   *SC* **110.8.3**   *P* **153**   *L* **18**   # r01-16

Dudek, Michael   QLogic Corporation

Comment Type **TR**   *Comment Status* **D**   *Tx specifications*

As pointed out in dudek_3by_0116 there is a hole in the budget because the Pmax/Vf ratio specification for the transmitter is more relaxed than the effective ratio used in COM. There have been three further presentations on this topic to the ad-hoc and there will be a presentation at the March plenary.

SuggestedRemedy

At this point in the document after 92.8.3.9 add "except that the Pmax/Vf ratio shall be 0.49." Add to the Tx used in COM in annex 93A an option to add a Gaussian filter as defined in equation 93A-46 with beta of 2. On page 160 line 9 after 93A.1 add with a Tx Gaussian filter of 12ps risetime). In table 110-11 (on page 160) change the gDC value for CA-25G-S and CA-25G-L to 13dB. In this same table also change the value of SNR_TX to 29dB for all three cables.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Consensus for implementing the suggested remedy has not been demonstrated.

For task force discussion.

Cl **111**   *SC* **111.8.2**   *P* **181**   *L* **5**   # r01-17

Dudek, Michael   QLogic Corporation

Comment Type **TR**   *Comment Status* **D**   *Tx specifications*

As pointed out in dudek_3by_0116 there is a hole in the budget because the Pmax/Vf ratio specification for the transmitter is more relaxed than the effective ratio used in COM. There have been three further presentations on this topic to the ad-hoc and there will be a presentation at the March plenary.

SuggestedRemedy

At this point in the document after 93.8.1.7 add "except that the Pmax/Vf ratio shall be 0.75." Add to the Tx used in COM in annex 93A an option to add a Gaussian filter as defined in equation 93A-46 with beta of 2 (default no filter). State on page 183 line 25 that a 12ps risetime Tx filter is used. In table 111-8 (on page 184) change the Av value to 0.43, the Afe and Ane values to 0.63 and the gDC value to 16dB.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

Consensus for implementing the suggested remedy has not been demonstrated.

For task force discussion.

Cl **110**   *SC* **110.1**   *P* **145**   *L* **44**   # r01-18

Dawe, Piers J G   Mellanox Technologie

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

PHYs don't support cables, any more than tables support floors, even if the opposite is true.

SuggestedRemedy

Change "Table 110-2 summarizes the cable assembly types supported by each of the PHY types", "Table 110-2--Cable assembly types supported by each PHY type" to:
"Table 110-2 summarizes the cable assembly types used by each of the PHY types",
"Table 110-2--Cable assembly types used by each PHY type", or
"Table 110-2 summarizes the cable assembly types for each of the PHY types", "Table 110-2--Cable assembly types for each PHY type".
Or say it in the active voice and match the language in the first sentence of the same paragraph: "Table 110-2 summarizes the PHY types operating over each of the cable assembly types", "Table 110-2--PHY types operating over each cable assembly type".
Or
"Table 110-2 summarizes the cable assembly types connecting each of the PHY types", "Table 110-2--Cable assembly types connecting each PHY type".

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The standard includes several precedent uses of the term "support" referring to a device , PHY, or PMD, with the meaning used here.

Examples include:

In 60.3, "A 1000BASE-PX10 compliant transceiver supports all media types listed"

In 80.2.5, "MDI ... is the actual medium attachment for the various supported media"

In 83.5, "the number of PCSLs for the interface type supported"

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: Comment ID

Comment ID **r01-18**   Page 6 of 13
2016-03-07 7:39:17 PM

Cl **110** *SC* **110.8.3** *P* **153** *L* **18** # r01-19

Dawe, Piers J G Mellanox Technologie

Comment Type **TR** *Comment Status* **D** *Tx specifications*

dudek_022416_25GE_adhoc.pdf says that the draft spec is not self consistent.

SuggestedRemedy

Increase linear fit pulse peak (min.) from 0.45 x vf to 0.5 x vf, do not change Gdc.
Alternatively, add a 16 ps Gaussian filter to COM, and reduce the cable lengths and
losses, do not change Gdc.
Or a combination.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

See comment r01-16.

Cl **110** *SC* **110.8.4.2.3** *P* **155** *L* **45** # r01-20

Dawe, Piers J G Mellanox Technologie

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

Use consistent terminology: compare the language in 110.7.1.

SuggestedRemedy

Change "test references" to "test points" here and in 110.8.4.2.3, change "Tx test
reference" to "Tx test point" (or "TP0"). And see another comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

110.8.4.2.3 specifies the receiver test setup, while 110.7.1 specifies test points defined for
cable assembly and PMD measurements. The receiver test setup is not equivalent to a
cable assembly and the test references are not equivalent to the test points.

This terminology was the result of considerable consensus building. See the following
resulting consensus presentations:

http://www.ieee802.org/3/by/public/Jan16/ran_3by_01b_0116.pdf
"Consensus proposal for RITT changes in clauses 110 and 111"

http://www.ieee802.org/3/by/public/Jan16/ran_3by_02a_0116.pdf
"Additional info: Candidate text for Annex 93A, Clause 110 and Clause 111"

Cl **110** *SC* **110.8.4.2.1** *P* **156** *L* **4** # r01-21

Dawe, Piers J G Mellanox Technologie

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

There's an arrow from Transmitter control to Rx under test

SuggestedRemedy

Shouldn't it point the other way?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

In Figure 110-3a, an arrow should be pointing from the RX to the transmit control since the
RX initiates transmitter updates. An arrow should be pointing from the TX to represent
status report information to the receiver; this may be required when the pattern generator is
not able to generate this information in-band.

Put arrows at the end of the lines from the RX and TX touching the Transmit Control.

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: Comment ID

Comment ID **r01-21** Page 7 of 13
2016-03-07 7:39:17 PM

Cl **110**   *SC* **110.8.4.2.1**   *P* **156**   *L* **9**   # r01-22
Dawe, Piers J G   Mellanox Technologie

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

The placing of the three test points in these figures is not consistent. Also, measuring a waveform at the output of a pattern generator isn't practical unless you have a scope with a small remote head. But measuring the insertion loss at the "frequency dependent attenuator" (a PCB) is practical because network analysers have their own special cables that are calibrated out, and measuring a waveform at the output of a connecting cable is also practical.

SuggestedRemedy

Move the "Tx test reference" from the output of "Pattern generator
and noise injection" to the input of "Frequency dependent attenuator" in both Figure 110-3a and Figure 110-3b. Then it will be conistent with the Rx test reference and the cable assembly measurement (TP1, TP4) better.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The placing of the test references and the cable assembly boundaries is consistent with the text that describes the test setup.

TP1 and TP4 are test points for cable measurement. TP1 would be located at the left side of the left-hand cable assembly test fixture to the right of the frequency dependent. This is not the same point as the Tx test reference in this setup.

The line and arrow connecting the pattern generator to frequency dependent attenuator indicates direction of signal propagation not anything physical (e.g., cable, board).

See also the response to Draft 3.0 comment i-72.

Cl **110**   *SC* **110.8.4.2.3**   *P* **156**   *L* **29**   # r01-23
Dawe, Piers J G   Mellanox Technologie

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

In Figure 110-4, there is a point called Rx test reference which is the same as TP4 in 110.7.1. We must call something by the same name every time. Also, it isn't associated with a receiver, except the one in the network analyser: it's more output than Rx.

SuggestedRemedy

So we must call it TP4, as in Figure 110-2.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The test references are paired TX to RX and linked by the arrow indicating the test channel measurement. The test references in this figure are relevant to measurement of a test channel for a receiver interference tolerance test, not for qualifying a cable assembly.

Cl **110**   *SC* **110.8.4.2.3**   *P* **156**   *L* **42**   # r01-24
Dawe, Piers J G   Mellanox Technologie

Comment Type **T**   *Comment Status* **D**   RITT COM

The names in "COM is calculated using both Test 1 and Test 2 receiver device package model transmission line lengths listed in Table 110-11" are confusing, because 110.8.4.2 has Test 1 (low loss) and Test 2 (high loss) in the tables. While in practice, Test 2 receiver device package model transmission line length goes with Test 2 (high loss), this doesn't necessarily apply to the two Test 1s, and now we are explicit that "The value of COM is taken as the lower of the two calculated values". To clear up the confusion we should rename one of the pairs.

SuggestedRemedy

Change "COM is calculated using both Test 1 and Test 2 receiver device package model transmission line lengths listed in Table 110-11." to "COM is calculated using both receiver device package model transmission line lengths listed in Table 110-11.".
In Table 110-11, change "Transmission line length, Test 1 Transmission line length, Test 2" to "Transmission line length A Transmission line length B" or to "Transmission line length S Transmission line length L" .
p 161 lines 32-34, rename "Test 1 and Test 2" to ""Transmission line lengths A and B" (or "Transmission line lengths S and L").
Similarly in 111.8.3.1, 111.9.1, 111.9.2 and Table 111-8.
Adjust PICS CA10 and CC3 to match.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

The text clearly refers to Test 1 and Test 2 in Table 110-11 "COM is calculated using both Test 1 and Test 2 receiver device package model transmission line lengths listed in Table 110–11."

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: Comment ID

Comment ID **r01-24**   Page 8 of 13
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Cl **110**   *SC* **110.8.4.2.3**   *P* **156**   *L* **42**   # r01-25

Dawe, Piers J G   Mellanox Technologie

Comment Type **E**   *Comment Status* **D**   *RITT general*

This says "COM is calculated using both Test 1 and Test 2 receiver device package model transmission line lengths listed in Table 110-11" while the table has "Device package model ... Transmission line length, Test 1... i.e. no "receiver". In this subclause, the only device package model is the receiver one because item d tells us to omit the transmitter device package model. But, someone looking for "receiver" in the table would find only "Receiver 3 dB bandwidth". Would it be better to use the same name as in the table?

SuggestedRemedy

Here, delete "receiver"

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

The parameter name does not include the word "receiver". However, the suggested remedy might obscure the intent to use the two package models for the receive-side package.

Change
"COM is calculated using both Test 1 and Test 2 receiver device package model transmission line lengths listed in Table 110-11"

To
"COM is calculated using both Test 1 and Test 2 device package model transmission line lengths listed in Table 110-11 on the receiver side".

Cl **110**   *SC* **110.8.4.2.3**   *P* **157**   *L* **3**   # r01-26

Dawe, Piers J G   Mellanox Technologie

Comment Type **TR**   *Comment Status* **D**   *RITT COM*

This recipe needs to be brought back to reality, so the implementer has an idea if he has done it right or not, and to guard against mathematically valid but unrepresentative test setups. I think this is a particular issue for the BASE-R FEC mode and possibly all the low loss tests.

SuggestedRemedy

In Table 110-7, add a row for minimum SNR_TX for Test 2 (high loss). Add text explaining that if a calculated SNR_TX is too low, a worse test channel should be used (more loss or ILD).

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is essentially a resubmission of Draft 3.0 comment i-80.

The response to i-80 states that "This issue is resolved by enforcing a minimum channel loss."

Tables 110-6, 110-7, and 110-8 specify the required test channel loss for each test. The minimum loss specified is sufficient to ensure a practical injected noise level.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **r01-26**   Page 9 of 13
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   2016-03-07 7:39:17 PM
SORT ORDER: Comment ID

Cl **110**   *SC* **110.10**   *P* **158**   *L* **45**   # r01-27

Dawe, Piers J G   Mellanox Technologie

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

"achievable cable length of at least 5 m" excludes achievable cable lengths of less than 5 m. The NOTE here and, and Table 110C-1 footnote a, say "It may be possible to construct compliant cable assemblies longer than indicated. Length of a cable assembly does not imply compliance to specifications." So, acheivable lengths shorter than 5 m are not within the spec, and actual lengths are longer than the achievable lengths. Not shorter. As the market demands cables with actual lengths shorter than 5 m or 3 m, this wording is unhelpful.

Also, this text doesn't agree with Table 110C, which has achievable lengths of 5 m and 3 m, not at least 5 m and 3 m.

SuggestedRemedy

Delete "at least" three times here.
Change "It may be possible to construct compliant cable assemblies longer than indicated" to "It may be possible to construct compliant cable assemblies that are shorter or longer than these achievable cable lengths" here and at Table 110C-1 footnote a.
Preferably, change "achievable length" to "example length".

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

This comment is essentially a resubmission of Draft 3.0 comment i-83 which was rejected based on lack of consensus.

The response to Draft 3.0 comment i-83 follows:
REJECT.
The use of the word "achievable" here does not preclude the use of shorter lengths of cable nor indicate they are not achievable.
There is not sufficient support to make any changes.
Straw poll #3
I support changing "assemblies longer than indicated" to "assemblies shorter or longer than indicated".
Y: 5
N: 4
A: 15

Cl **110**   *SC* **110.10**   *P* **159**   *L* **13**   # r01-28

Dawe, Piers J G   Mellanox Technologie

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

As D3.0 comment 86 and sella_022416_25GE_adhoc.pdf: I don't see a good reason for breaking the consensus of the September meeting, which was 15 dB for a 2.75 m cable. The numbers in the draft now (15.5 dB, 3 m cable) don't work for affordable (= high yielding) 26 AWG which is what's needed, when the allowed variation in MCB connector loss is taken into account.

SuggestedRemedy

Change 15.5 dB to 16 dB for CA-25G-N.
Alternatively change 3 m back to 2.75 m, or adopt an asymmetric host loss for 25GBASE-SR no-FEC mode.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is essentially a resubmission of Draft 3.0 comment i-86 which was rejected based on lack of consensus.

The response to Draft 3.0 comment i-86 follows:

The change of insertion loss to 15.5 dB was done in D2.1, based on Comment #118 against D2.0 and motion #5 of 802.3by in the September 2015 interim meeting. The previous value was 12.98 dB. The comment does not state any justification for changing the value to 16 dB.
The change of 2.75 m to 3 m was done with a clarification that these values indicate achievable lengths, and that "Length of a cable assembly does not imply compliance to specifications". This change does not preclude constructing a 2.75 cable as the comment suggests.
There is no consensus to make the requested changes at this meeting.
See comment i-58.

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: Comment ID

Comment ID **r01-28**   Page 10 of 13
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Cl **110**   *SC* **110.10.7**   *P* **160**   *L* **14**   # r01-29
Dawe, Piers J G   Mellanox Technologie

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

While researching D3.0 comment 86, I noticed that 3A.1.1 recommends that the scattering parameters be measured to a stop frequency of at least the signaling rate fb, yet the reference test fixture insertion loss is specified only to 25 GHz (e.g. in 92.11.1.2).

SuggestedRemedy

For 802.3by PMDs and cables, reduce the stop frequency from fb to 25 GHz, or increase the frequency range of the all the reference test fixture insertion losses from 0.01 <= f <= 25 GHz, to 0.01 <= f <= 25.79 GHz.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The commenter has not demonstrated the importance of specifying the IL between 25 GHz and 25.79 GHz.

For COM, measurement recommendation is stated in terms of f_b to make the method work for any PHY. The measurement recommendation is based, among other things, on numerical extrapolation of the scattering parameters.

For channel characterization, spectral content near f_b does not have a critical effect on performance.

The test fixture insertion loss specification in 92.11.1.2 does not need to be aligned with the COM measurement recommendation.

There is no justification for making suggested changes.

Cl **110**   *SC* **110.10.7**   *P* **161**   *L* **12**   # r01-30
Dawe, Piers J G   Mellanox Technologie

Comment Type **TR**   *Comment Status* **D**   *Tx specifications*

dudek_022416_25GE_adhoc.pdf says that the TxSNR we use for COM for CA-25G-L and CA-25G-S is not consistent with the required SNDR, taking into account any differences in test point.

SuggestedRemedy

Increase TxSNR for CA-25G-S and CA-25G-L from 27 dB to 29 dB. Should the TxSNR for CA-25G-N also be increased, from 28.4 to 29 dB?

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

See comment r01-16.

Cl **111**   *SC* **111.8.2**   *P* **181**   *L* **4**   # r01-31
Dawe, Piers J G   Mellanox Technologie

Comment Type **TR**   *Comment Status* **D**   *Tx specifications*

dudek_022416_25GE_adhoc.pdf says that the draft spec is not self consistent. As option C of slide 24:

SuggestedRemedy

Increase linear fit pulse peak (min.) from 0.71 x vf to 0.75 x vf, add a 12 ps Gaussian filter to COM. Do not change the channel lengths and losses, do not change Gdc.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

See comment r01-17.

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: Comment ID

Comment ID **r01-31**   Page 11 of 13
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Cl **110B**   *SC* **110B.1**   *P* **234**   *L* **28**   # r01-32

Dawe, Piers J G   Mellanox Technologie

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

Figure 92-16 shows the reference test fixture insertion loss of the HCB, but I could not find where the reference test fixture insertion loss of the MCB (Eq 92-35) is illustrated.

SuggestedRemedy

Please add a figure showing the two reference test fixture insertion losses.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The commenter's suggestion relates to Clause 92 in the base standard. Changes to Clause 92 are out of scope for this project.

Cl **110B**   *SC* **110B.1.2**   *P* **235**   *L* **1**   # r01-33

Dawe, Piers J G   Mellanox Technologie

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

As D3.0 comment 86 and sella_022416_25GE_adhoc.pdf: the numbers for CA-25G-N (15.5 dB, 3 m cable) don't work for affordable (= high yielding) 26 AWG which is what's needed, when the allowed variation in MCB connector loss is taken into account. Part of the problem appears to be the way the MCB loss is calibrated out: if the MCB connector loss is high and the MCB PCB loss is low, accounting for differences between the insertion loss of an actual test fixture and the reference insertion loss in the required way exacerbates the measurement error rather than improving it.

SuggestedRemedy

Account for MCB loss by adjusting the MCB-HCB mated pair loss for the HCB PCB loss (which is required information in 92.11.1.2 anyway and can be obtained from a measurement of a replica channel). So variance in MCB connector loss would be accounted for.
To do this we need to define a reference IL for the MCB-HCB mated pair (or equivalently, the whole of the MCB or the MCB connector). This need not be binding on anyone, not even MCB makers.
Another way to proceed would be to leave the accounting for as it is but add required max/min IL for the whole of the MCB or the MCB connector.

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The test fixture PCB and connector reference insertion are provided.

110B.1.2 states "The test fixture printed circuit board reference insertion loss is given in Equation (92–35). The effects of differences between the insertion loss of an actual test fixture and the reference insertion loss are to be accounted for in the cable assembly or module measurements."

The note in Figure 92A-2 (92A.5) "The connector insertion loss is 1.07 dB for the mated test fixture."

The effects of the differences between the actual and reference test fixture IL values can be accounted for.

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: Comment ID

Comment ID **r01-33**   Page 12 of 13
2016-03-07 7:39:18 PM

Cl **111**   *SC* **111.9.2**   *P* **184**   *L* **41**   **#** r01-34

Mellitz, Richard   Intel Corporation

Comment Type   **TR**   *Comment Status* **D**   *Tx specifications*

In table 111-8 Transmitter differential peak output voltage does not math transmitter specification min and max voltage.

SuggestedRemedy

Change Av=0.44, Afe=0.65, Ane=0.65

Proposed Response   *Response Status* **W**

PROPOSED REJECT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

The current values do match the transmitter min and max voltage specification. This follows precedence in clauses 92, 93, and 94. Changing these values as suggested will be inconsistent with the PMD specifications.

The comment provides no justification for the changes in the suggested remedy nor proposed text to explain the difference.

Cl **108**   *SC* **108.5.4.6**   *P* **122**   *L* **50**   **#** r01-35

RAN, ADEE   Intel Corporation

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

The box in this figure is not dotted, it is dashed.

SuggestedRemedy

Change "dotted box" to "dashed box".

Proposed Response   *Response Status* **W**

PROPOSED ACCEPT.

This comment is not against a changed portion of the draft, a portion of the draft affected by changes, or a portion of the draft that is the subject of unresolved comments associated with "Disapprove" votes. It is out of the scope of the recirculation ballot.

However, the comment highlights a deficiency that should be addressed.

TYPE: TR/technical required ER/editorial required GR/general required T/technical E/editorial G/general   *Comment ID* **r01-35**   Page 13 of 13
COMMENT STATUS: D/dispatched A/accepted R/rejected   RESPONSE STATUS: O/open W/written C/closed U/unsatisfied Z/withdrawn   2016-03-07 7:39:18 PM
SORT ORDER: Comment ID