

IEEE P802.3cm D3.0 400 Gb/s over Multimode Fiber Initial Sponsor ballot comments

CI 0 SC 0 P L # i-11

Anslow, Peter Ciena  
 Comment Type E Comment Status X

The IEEE 802.3 chair has announced the assumed order of amendments to be:  
 IEEE Std 802.3cn-20xx - Amendment 4  
 IEEE Std 802.3cg-20xx - Amendment 5  
 IEEE Std 802.3cq-20xx - Amendment 6  
 IEEE Std 802.3cm-20xx - Amendment 7

SuggestedRemedy

Change the draft to be Amendment 7 and include any changes due to P802.3cn, P802.3cg, and P802.3cq that are now assumed to be ahead of this draft.

Proposed Response Response Status O

CI 0 SC 0 P L # i-15

Ran, Adeo Intel Corporation  
 Comment Type G Comment Status X

This amendment adds the new PHY type "400GBASE-SR4.2". The "4.2" notation for a bi-directional link is new, not intuitively understood, and is only explained in clause 150.

There are a few existing bi-directional PHYs in Ethernet, namely 100BASE-BX10 and 1000BASE-BX10. And subclause 1.2.3 specifically assigns "B" for bidirectional optics.

If this working group ever gets to define 400GBASE-SR4 (with 4 pairs of multimode fiber) or - who knows - 400GBASE-SR2 (with 2 pairs), it will become very confusing.

The PHY type notation "400GBASE-BR4" is available and would be less confusing.

SuggestedRemedy

Consider changing the nomenclature from "400GBASE-SR4.2" to "400GBASE-BR4" across this amendment.

Proposed Response Response Status O

CI 0 SC 0 P0 L0 # i-10

Turner, Michelle  
 Comment Type G Comment Status X

This draft meets all editorial requirements.

SuggestedRemedy

Proposed Response Response Status O

CI 1 SC 1.4.110a P18 L9 # i-14

Ran, Adeo Intel Corporation  
 Comment Type E Comment Status X

In "over eight lanes on multimode fiber", "on" seems to be a typo.

SuggestedRemedy

Change to "over eight lanes of multimode fiber".

Proposed Response Response Status O

CI 9 SC 9.8 P88 L41 # i-12

Rannow, R K Self  
 Comment Type TR Comment Status X

use of "i.e.," in this context appears ambiguous.

SuggestedRemedy

Remove "i.e.," to make a grammatically superior statement that is not potentially confusing.

Proposed Response Response Status O

CI 9 SC 9.8.2 P89 L38 # i-13

Rannow, R K Self  
 Comment Type GR Comment Status X

Two instances of, "defined in that specification ..."

SuggestedRemedy

Perhaps a pointer/reference to "that specification".

Proposed Response Response Status O

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CI 116 SC 116.1.4 P25 L12 # i-16

Ran, Adeo Intel Corporation

Comment Type E Comment Status X

Columns in this table and similar ones in the standard are ordered by clause/annex numbering. According to this order, the column for 400GBASE-SR4.2 clause 150 should be rightmost.

SuggestedRemedy

Change column order to make 150 400GBASE-SR4.2 appear on the right.

Proposed Response Response Status O

CI 138 SC 138.5.1 P35 L13 # i-17

Ran, Adeo Intel Corporation

Comment Type E Comment Status X

The original Figure 138-2 had signal-detect lines from the optical receivers vertically aligned, so that it was visually hinted that the signal from L0 is passes "underneath" optical receiver L1, and so on.

The updated figure has 7 lines at the top of the L7 optical receiver, but they are not aligned with the lines from optical receivers L0 and L1 above.

Also, many lines are not flushed with the boxes they are touching. This can be made cleaner (edit with high zoom factor).

Also applies to Figure 150-2.

SuggestedRemedy

Correct the alignment and make sure that lines are flush with boxes, in both figures.

Proposed Response Response Status O

CI 138 SC 138.5.8 P37 L9 # i-18

Ran, Adeo Intel Corporation

Comment Type E Comment Status X

"Table 138-8" appears in smaller font than the text. Also in line 51 in this page.

SuggestedRemedy

Correct the font size.

Proposed Response Response Status O

CI 138 SC 138.7.2 P38 L34 # i-1

Rolfe, Benjamin Blind Creek Associates

Comment Type T Comment Status X

Note (a) states a normative requirement ("shall" is the clue). Notes to tables are informative:

Subclause 6.4.1 of the IEEE-SA Standards Board Operations Manual defines which parts of a standard are normative and which parts of a standard are informative. A table note (a note to a table) is informative. A table footnote is normative. This distinction should be kept in mind when determining whether information should go in a table note or a table footnote.

SuggestedRemedy

Move statement of requirements to a footnote or move requirement text to an appropriate sub-clause.

Proposed Response Response Status O

CI 138 SC 138.8.5 P39 L29 # i-19

Ran, Adeo Intel Corporation

Comment Type T Comment Status X

The additional text referring to the optical splitter and variable reflector does not seem to be related to "optical channel requirements in 121.8.5.2".

121.8.5.2 does not mention the splitter and the reflector, and it is excluded by the existing text anyway.

The additional text for 40GBASE-SR8 would better be listed in a separate exception.

SuggestedRemedy

Separate the new text into a separate exception.

Proposed Response Response Status O

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CI 138 SC 138.8.5 P 39 L 38 # i-26

Dawe, Piers J G Mellanox Technologies

Comment Type TR Comment Status X

The 0.1 dB allocation for both modal noise and mode partition noise should be increased by 0.2 dB. See kolesar\_3cm\_adhoc\_01\_042519, dawe\_3cm\_adhoc\_01\_101118, castro\_3cm\_01\_1118, pepeljugoski\_1\_1104 and castro\_3cm\_01\_0119 (which said 0.23 to 0.45 dB for MN). The total penalties should be kept below 4.6 dB, which is unreasonably high already. The adjustment for MN should be done in the same way as for 100GBASE-SR4 with a formula, so as not to penalise good transmitters.

With this remedy, a 400GBASE-SR8 module used in breakout mode as 200GBASE-SR4, 100GBASE-SR2 or 50GBASE-SR is interoperable with and compliant to those specs (but a SR/SR2/SR4 module is not necessarily interoperable with anything, worst case, because of this gap in their specs).

It is better to provide an adequate yet compatible spec for 400GBASE-SR8 than repeat a mistake made in 802.3cd.

*SuggestedRemedy*

Add an exception in 138.8.5 as follows:

For the calculation of TDECQ (but not SECQ) for 400GBASE-SR8, Equation (138-1) is used in place of Equation (121-11).

$$R = \sqrt{\sigma_G^2 + \sigma_S^2 - M^2} \quad (138-1)$$

where  $M = 0.0065P_{ave}$

Proposed Response Response Status O

CI 138 SC 138.8.5.1 P 39 L 45 # i-29

Dawe, Piers J G Mellanox Technologies

Comment Type TR Comment Status X

SMF TDECQ is defined with minimum and maximum dispersion so that the signal after any allowed dispersion is acceptable. MMF TDECQ is defined with maximum dispersion only. We thought that was the worst case but it isn't always.

As explained in D2.0 comment 9, equalizing a signal after an 11.2 GHz BT4 filter with a 5-tap FFE needs at least one precursor unless the signal is carefully pre-distorted. If it is, and a fourth post-cursor is also needed, the same transmitter seen after a fast channel, e.g. a short fibre, can be difficult to receive (outside the TDECQ spec limit and/or receive power too low) because the 5-tap FFE can't correct the fourth post-cursor and the (now -ve) first precursor at the same time.

The signal after the fast channel can have more distortion from laser dynamics and a little more modal noise.

These three effects can outweigh the better Ceq after the fast channel.

Possible remedies include:

- (a) Ensure there is at least one precursor (tap 2 or 3 is the largest), or
- (b) Add ~0.4 dB to TDECQ if tap 1 is the largest, or
- (c) Define MMF TDECQ with fast and slow channels, in the same spirit as SMF with high and low dispersion, noting that if tap 2 or 3 is the largest it can be assumed that  $TDECQ_{(fast)} < TDECQ_{(slow)}$ , so no need to determine it.

No extra cost: an implementer who doesn't like option c, if adopted, can comply by following a or b. If he doesn't like b he can follow a. In practice, it seems that TDECQ uses at least one precursor for reasonable MMF transmitters, so there is no extra cost to a competent / responsible transmitter implementer, but the receiver needs protection from inferior transmitters that could appear in the future.

With this remedy, a 400GBASE-SR8 module used in breakout mode as 200GBASE-SR4, 100GBASE-SR2 or 50GBASE-SR is interoperable with and compliant to those specs (but a SR/SR2/SR4 module is not necessarily interoperable with anything, worst case, because of this gap in their specs).

It is better to provide an adequate yet compatible spec for 400GBASE-SR8 than repeat a mistake made in 802.3cd.

*SuggestedRemedy*

To ensure that the 400GBASE-SR8 transmitter is good enough for the intended range of channel bandwidths, either:

- (a) Change the fourth sentence in 138.8.5.1 from "Tap 1, tap 2, or tap 3, has the largest magnitude tap coefficient, which is constrained to be at least 0.8." to "For 50GBASE-SR, 100GBASE-SR2, and 200GBASE-SR4, tap 1, tap 2, or tap 3, has the largest magnitude tap coefficient, which is constrained to be at least 0.8. For 400GBASE-SR8, tap 2, or tap 3 has the largest magnitude tap coefficient, which is constrained to be at least 0.8."; or
- (b) In 138.8.5, add another exception: "For 400GBASE-SR8, if tap 1 has the largest magnitude tap coefficient, TDECQ is 1.1 x the value given by Eq. (121-12). The TDECQ

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value with tap 2 having the largest magnitude tap coefficient may be used instead."; or  
 (c) Change the third exception in 138.8.5 to:  
 TDECQ is defined for two measurement conditions for 400GBASE-SR8, and for one measurement condition for 50GBASE-SR, 100GBASE-SR2, and 200GBASE-SR4. In the high bandwidth case, which applies to 400GBASE-SR8, the combination of the O/E converter and the oscilloscope used to measure the optical waveform is as in 121.8.5.1. In the low bandwidth case, it has a 3 dB bandwidth of 11.2 GHz with a fourth-order Bessel-Thomson response to at least 1.5 x 22.4 GHz. At frequencies above 1.5 x 22.4 GHz the response should not exceed -24 dB. Compensation may be made for any deviation from an ideal fourth-order Bessel-Thomson response. For 400GBASE-SR8, TDECQ is the higher of the results from the two bandwidth cases. If tap 2 or tap 3 has the largest magnitude tap coefficient in the low bandwidth case, it may be assumed that the result from the low bandwidth case is higher than the result from the high bandwidth case.

Proposed Response      Response Status

CI 138      SC 138.8.10      P 39      L 51      # i-20

Ran, Adeo      Intel Corporation

Comment Type    E      Comment Status    X

Missing period at the end of the sentence

*SuggestedRemedy*

Add a period.

Proposed Response      Response Status

CI 138      SC 138.10.3.1      P 41      L 19      # i-21

Ran, Adeo      Intel Corporation

Comment Type    E      Comment Status    X

In the sentence "The interface contains sixteen active lanes within sixteen total positions", "within sixteen total positions" is redundant.

See for comparison 123.11.3.1.

*SuggestedRemedy*

Delete "within sixteen total positions".

Proposed Response      Response Status

CI 138      SC 138.10.3.4      P 42      L 8      # i-22

Ran, Adeo      Intel Corporation

Comment Type    E      Comment Status    X

"Figure 138-8 shows an MPO female plug connector with flat interface, and an MDI"

... but this figure is in a subclause that is specific to 100GBASE-SR2 and 200GBASE-SR4. Although the figure itself is generic, it is referenced in 138.10.3.3 within the text.

Also, this sentence is placed in the middle of a long discussion about the two lane assignment options A and B, but it is unrelated to this discussion.

This is not a good editorial structure.

The proposed changed is minimal. More pervasive ones are

1. move figure 138-8 and the text referring to it into 138.10.3.1 which discusses all multi-lane interfaces.
2. Create a new figure similar to 138-8 for the 8-lane connection, with perhaps different dimensions.

*SuggestedRemedy*

Change "Figure 138-8 shows an MPO female plug connector with flat interface, and an MDI"

to

"The MPO female plug connector and MDI are structurally similar to those depicted in figure 138-8".

And move this sentence to the end of the 138.10.3.4.

Proposed Response      Response Status

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CI 138 SC 138.11.3 P46 L15 # i-23  
 Ran, Adeo Intel Corporation  
 Comment Type T Comment Status X  
 Figure 138-7a has two options. An implementation can conform with one of the options, but not both.  
 The MDI connection is an important major option that should be defined in the PICS, but currently there is only one item, SR8, for both options.  
 Item OC6 refers to Figure 138-7a without stating which option.  
*SuggestedRemedy*  
 Change  
 Add two new items SR8A and SR8B after SR8A  
 \*SR8A | 400GBASE-SR8 MDI option A | 138.10.3.4 | Device has MDI with dual-row twelve-fiber interface | SR8:O.1 | Yes [ ] No [ ]  
 \*SR8B | 400GBASE-SR8 MDI option B | 138.10.3.4 | Device has MDI with single-row sixteen-fiber interface | SR8:O.1 | Yes [ ] No [ ]  
 Separate OC6 to two items, referring to option A and option B. Status should be "SR8A:M" and "SR8B:M" respectively.  
*Proposed Response* Response Status O

CI 138 SC 138.11.4.2 P46 L1 # i-25  
 Healey, Adam Broadcom Inc.  
 Comment Type T Comment Status X  
 In the base document, the subclause number for "Characteristics of the fiber optical cabling and MDI" is 138.11.4.6 (as stated in the editing instruction) and not 138.11.4.2.  
 Also implement Maintenance Request #1332  
 <[http://www.ieee802.org/3/maint/requests/maint\\_1332.pdf](http://www.ieee802.org/3/maint/requests/maint_1332.pdf)> which points out that PICS items originally numbered OC9 and OC10 (OC11 and OC12 in this draft) have contents that do not reflect the requirements of the subclause that they reference.  
*SuggestedRemedy*  
 Change the subclause number from 138.11.4.2 to 138.11.4.6.  
 In 138.11.4.6, Item OC11 (formerly OC9), Value/Comment field change:  
 "Per IEC 61754-7-1 interface 7-1-1"  
 to:  
 "Per IEC 61754-7-1 interface 7-1-3 or interface 7-1-10"  
 In 138.11.4.6, Item OC12 (formerly OC10), Value/Comment field change:  
 "Per IEC 61754-7-1 interface 7-1-1"  
 to:  
 "Per IEC 61754-7-1 interface 7-1-4"  
*Proposed Response* Response Status O

CI 150 SC 150.1 P47 L12 # i-27  
 Dawe, Piers J G Mellanox Technologies  
 Comment Type E Comment Status X  
 The 4.2 nomenclature tells us the number of fibres divided by 2 (they aren't really pairs in this PMD type, by the way) and the number of wavelengths per fibre. It doesn't tell us that it's bidirectional; had we chosen the co-directional option I think we would still have called it 400GBASE-SR4.2. No need to introduce a controversial assertion that would interfere with a future project.  
*SuggestedRemedy*  
 Delete "propagating in opposite directions". If wished, add a separate sentence "The two wavelengths propagate in opposite directions on each fiber."  
*Proposed Response* Response Status O

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CI 150 SC 150.1 P47 L 12 # i-33

Kolesar, Paul CommScope, Inc.

Comment Type TR Comment Status X

The following existing sentence needs clarification to avoid overly constraining the meaning of the SR4.2 suffix as being tied to counter propagation.

"The 4.2 nomenclature is used to indicate that transmission is over four fiber pairs (eight individual fibers) with the use of two wavelengths propagating in opposite directions on each individual fiber."

The use of two wavelengths would be encoded in the suffix as ".2" independent of the propagation direction, be it co-propagating or counter-propagating (i.e. bidirectional). But here is implied to be only applicable to wavelengths propagating in opposite directions. Changing the description will avoid setting an unintended precedent.

SuggestedRemedy

Break the sentence into two as follows.

"The 4.2 nomenclature is used to indicate that transmission is over four fiber pairs (eight individual fibers) with the use of two wavelengths. For 400GBASE-SR4.2 these wavelengths propagate in opposite directions on each individual fiber."

Here the general description is conveyed in the first sentence. The second sentence describes how these wavelengths propagate in this particular PMD.

Proposed Response Response Status O

CI 150 SC 150.7 P54 L # i-24

Ran, Adeo Intel Corporation

Comment Type T Comment Status X

It seems that most of the specifications in 150.7 are copied over from the 200GBASE-SR4 equivalents, with changes possibly only in the wavelength-dependent parameters.

Same goes for 150.8 with seems to be practically a copy of 136.8 (unless I'm missing something).

These subclauses are long and are the most important part of clause 150, and it is difficult to see what exactly is different from previous specifications.

It would be preferable to provide reference to existing specifications for anything that is unchanged. This would make the clause easier to read (and review).

SuggestedRemedy

Go over 150.7 and 150.8 and their subclauses, and replace as much as possible with references to clause 138. Wherever there are changes, add exceptions.

Proposed Response Response Status O

CI 150 SC 150.7.1 P55 L 39 # i-9

Rolfe, Benjamin Blind Creek Associates

Comment Type G Comment Status X

(1) What is the Encircled flux requirement when not measured as specified?

Guessing you really don't mean "if" but rather meant that the measurement is to be made per the referenced specification, in which case delete "if"

SuggestedRemedy

Delete "if"

Proposed Response Response Status O

CI 150 SC 150.7.2 P56 L 8 # i-35

Kolesar, Paul CommScope, Inc.

Comment Type TR Comment Status X

Both TxRx pair types are associated with the incorrect receive wavelength. The receive wavelength for TxRx pair type TR is lambda 2 (900 - 918 nm), not lambda 1 (844 - 863nm). The receive wavelength for TxRx pair type RT is lambda 1, not lambda 2.

SuggestedRemedy

Change TR to RT and change RT to TR at lines 8 and 9 respectively.

Proposed Response Response Status O

CI 150 SC 150.7.2 P56 L 27 # i-2

Rolfe, Benjamin Blind Creek Associates

Comment Type G Comment Status X

Per Subclause 6.4.1 of the IEEE-SA Standards Board Operations Manual notes to tables are informative. Thus statement of mandatory requirement ("shall") is not appropriate in a note to a table

SuggestedRemedy

Move requirement statement to text following the table or include in the table properly

Proposed Response Response Status O

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CI 150 SC 150.8.2 P 58 L 38 # i-3  
 Rolfe, Benjamin Blind Creek Associates  
 Comment Type T Comment Status X  
 "if measured per IEC 61280-1-3" is incomplete, as you don't state what the limits are if measured some other way.  
 I \*think\* you mean "as measured per IEC 61280-1-3" which makes sense.  
 SuggestedRemedy  
 change "if" to "as"  
 Proposed Response Response Status O

CI 150 SC 150.8.5 P 59 L 8 # i-6  
 Rolfe, Benjamin Blind Creek Associates  
 Comment Type T Comment Status X  
 "if measured" is wrong. "as measured", would not be wrong. Just "measured" would not be wrong. Possibly "when measured" even.  
 I'd suggest pick one of the not wrong options and use consistently throughout.  
 SuggestedRemedy  
 "as measured" works  
 Proposed Response Response Status O

CI 150 SC 150.8.3 P 58 L 44 # i-4  
 Rolfe, Benjamin Blind Creek Associates  
 Comment Type G Comment Status X  
 "if measured" again  
 SuggestedRemedy  
 Either change to "as measured" or specify what the limits would be if NOT measured according to the methods given in IEC 61280-1-1  
 Proposed Response Response Status O

CI 150 SC 150.8.5 P 59 L 16 # i-31  
 Dawe, Piers J G Mellanox Technologies  
 Comment Type E Comment Status X  
 This is very hard to understand: "with a fourth-order Bessel-Thomson response to at least 1.5 x 17.92 GHz and at frequencies above 1.5 x 17.92 GHz the response should not exceed -24 dB".  
 SuggestedRemedy  
 Break it up as in P802.3cn/D3.1 definition of transition time: Change to: "with a fourth-order Bessel-Thomson response to at least 1.5 x 17.92 GHz. At frequencies above 1.5 x 17.92 GHz the response should not exceed -24 dB".  
 Similarly in 150.8.10.  
 Proposed Response Response Status O

CI 150 SC 150.8.4 P 58 L 50 # i-5  
 Rolfe, Benjamin Blind Creek Associates  
 Comment Type G Comment Status X  
 "if measured" again  
 SuggestedRemedy  
 delete "if"  
 Proposed Response Response Status O

IEEE P802.3cm D3.0 400 Gb/s over Multimode Fiber Initial Sponsor ballot comments

CI 150 SC 150.8.5.1 P 59 L 28 # i-30

Dawe, Piers J G Mellanox Technologies

Comment Type TR Comment Status X

SMF TDECQ is defined with minimum and maximum dispersion so that the signal after any allowed dispersion is acceptable. MMF TDECQ is defined with maximum dispersion only. We thought that was the worst case but it isn't always.

As explained in D2.0 comment 14, equalizing a signal after an 8.96 GHz BT4 filter with a 5-tap FFE needs at least one precursor unless the signal is carefully pre-distorted. If it is, and a fourth post-cursor is needed, the same transmitter seen after a fast channel, e.g. a short fibre, can be difficult to receive (outside the TDECQ spec limit and/or receive power too low) because the 5-tap FFE can't correct the fourth post-cursor and the (now -ve) first precursor at the same time.

The signal after the fast channel can have more distortion from laser dynamics and a little more modal noise.

These three effects can outweigh the better Ceq after the fast channel.

Possible remedies include:

- (a) Ensure there is at least one precursor (tap 2 or 3 is the largest), or
- (b) Add ~0.4 dB to TDECQ if tap 1 is the largest, or
- (c) Define MMF TDECQ with fast and slow channels, in the same spirit as SMF with high and low dispersion, noting that if tap 2 or 3 is the largest it can be assumed that TDECQ(fast) < TDECQ(slow), so no need to determine it.

No extra cost: an implementer who doesn't like option c, if adopted, can comply by following a or b. If he doesn't like b he can follow a. In practice, it seems that TDECQ uses at least one precursor for reasonable MMF transmitters, so there is no extra cost to a competent / responsible transmitter implementer, but the receiver needs protection from inferior transmitters that could appear in the future.

*SuggestedRemedy*

To ensure that the transmitter is good enough for the intended range of channel bandwidths, either:

- (a) Change "Tap 1, tap 2, or tap 3, has" to "Tap 2 or tap 3 has"; or
- (b) In 150.8.5, add another exception: "If tap 1 has the largest magnitude tap coefficient, TDECQ is 1.1 x the value given by Eq. (121-12). The TDECQ value with tap 2 having the largest magnitude tap coefficient may be used instead."; or
- (c) Change the paragraph at line 15 to:  
TDECQ is defined for two measurement conditions. In the high bandwidth case, the combination of the O/E converter and the oscilloscope used to measure the optical waveform is as in 121.8.5.1. In the low bandwidth case, it has a 3 dB bandwidth of 8.96 GHz with a fourth-order Bessel-Thomson response to at least 1.5 x 17.92 GHz. At frequencies above 1.5 x 17.92 GHz the response should not exceed -24 dB. Compensation may be made for any deviation from an ideal fourth-order Bessel-Thomson response. TDECQ is the higher of the results from the two bandwidth cases. If tap 2 or tap 3 has the largest magnitude tap coefficient in the low bandwidth case, it may be assumed that the result from the low bandwidth case is higher than the result from the high bandwidth case.

Proposed Response Response Status O

CI 150 SC 150.8.6 P 59 L 47 # i-7

Rolfe, Benjamin Blind Creek Associates

Comment Type T Comment Status X

"if measured" again (still wrong).

*SuggestedRemedy*

"when measured"

Proposed Response Response Status O

CI 150 SC 150.8.7 P 60 L # i-32

Dawe, Piers J G Mellanox Technologies

Comment Type E Comment Status X

Readers struggle to understand "as measured through an O/E converter and oscilloscope with a combined 3 dB bandwidth of approximately 13.28125 GHz with a fourth-order Bessel-Thomson response to at least 1.5 x 26.5625 GHz and at frequencies above 1.5 x 26.5625 GHz the response should not exceed -24 dB". 5-line sentence is too long. Similar issue in three other places.

*SuggestedRemedy*

Break it up as in P802.3cn/D3.1 definition of transition time: Change to: "as measured through an O/E converter and oscilloscope with response defined as follows. The combined response of the O/E converter and oscilloscope has a 3 dB bandwidth of approximately 13.28125 GHz with a fourth-order Bessel-Thomson response to at least 1.5 x 26.5625 GHz. At frequencies above 1.5 x 26.5625 GHz the response should not exceed -24 dB."

Proposed Response Response Status O

CI 150 SC 150.8.10 P 61 L 33 # i-8

Rolfe, Benjamin Blind Creek Associates

Comment Type T Comment Status X

another "if measured"

*SuggestedRemedy*

"when measured"

Proposed Response Response Status O



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CI 150 SC 150.10 P 63 L 38 # i-28

Dawe, Piers J G Mellanox Technologies

Comment Type E Comment Status X

Someone who is interested in the cabling rather than the transceiver technology may not be familiar with "TxRx pairs", which aren't used in any other clause.

SuggestedRemedy

After the first mention of TxRx pairs in this subclause, insert "(see 150.6)".

Proposed Response Response Status O

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CI 150 SC 150.10.2.1 P 65 L 11 # i-34

Kolesar, Paul CommScope, Inc.

Comment Type TR Comment Status X

Footnote e is incorrectly applied to the 2470 MHz.km entry for OM5. The footnote applies only to entries that are characterized (i.e. informative in nature), not those that are specified. 2470 MHz.km is a specification of OM5, not a characterization.

SuggestedRemedy

Delete footnote e on 2470.

Proposed Response Response Status O