Cl **00** *SC* **0** *P* *L* # r01-3

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A** *Bucket*

Now that IEEE Std 802.3bj-2014 has been approved by the standards board, "802.3bj-201x" can be changed to "802.3bj-2014"

SuggestedRemedy

Change "802.3bj-201x" to "802.3bj-2014" throughout the draft.
Also, change the base text of the draft in line with any changes in IEEE Std 802.3bj-2014 made during the publication process. (including the summary shown on Page 4, line 29).

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **0** *P* *L* # r01-4

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A** *Bucket*

There are a number of tables in the draft where changes are made without showing the entire base table (e.g. Table 45-3). This can cause some doubt as to the status of existing rows in the table. In the publication process for IEEE Std 802.3bj it has been proposed to add "(unchanged rows not shown)" to the editing instruction in these cases.

SuggestedRemedy

Where rows of existing tables are modified or new rows added without showing the unchanged rows in the base table, add "(unchanged rows not shown)" to the editing instruction with editorial license.

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **1.3** *P* **22** *L* **26** # r01-5

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A**

IEC 61754-7-1 has been "approved for publication" by IEC with a target date for "Publication issued" of 30 September 2014. Consequently the editor's note can be removed.

SuggestedRemedy

Remove the editor's note: IEC 61754-7-1 is currently in IEC approval process, expected publication August 2014. The connector types referenced here are currently described in IEC 61754-7

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **1.5** *P* **23** *L* **3** # r01-1

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A** *Bucket*

Since no new abbreviations have been introduced to 1.5, the editing instruction and Editor's note can be removed.

SuggestedRemedy

Remove:
Insert the following new abbreviations into the list, in alphabetical order:
[Editor's note (to be removed prior to publication) - any new abbreviations to be added here.]

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **1.5** *P* **23** *L* **9** # r01-2

Anslow, Peter — Ciena Corporation

Comment Type **E** *Comment Status* **A** *Bucket*

The change to the expansion of CAUI-n is not shown properly.

SuggestedRemedy

Show "over n lanes" in underline font

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.92b.3** *P* **37** *L* **11** # r01-6

RAN, ADEE Intel Corporation

Comment Type **E** *Comment Status* **A**

The text description in 45.2.1.92b.2 uses the term "weight" while the table uses the term "ratio". It would be less confusing to use one term consistently.

During the July meeting there was an objection to using the word "weight" since "tap weight" can be interpreted as the coefficient value, which may not be the same as the ratio defined in Table 83D-3.

However, the term "tap weight" is used in only one other place in the standard (Clause 68), and there, an FIR filter is defined with a set of coefficients which sum to unity - so the coefficients and tap weights are the same.

On the other hand, the term "coefficient" is used in numerous places in the base standard when the sum of coefficients is not unity.

Therefore, using the term "weight" here is consistent with its meaning in the base standard.

Comment applies to similar occurrences in table 45-71b and table 45-71c.

SuggestedRemedy

Change "ratio" to "weight" throughout tables 45-71b and 45-71c.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

In, 45.2.1.92b.2, 45.2.1.92b.3, 45.2.1.92b.4, 45.2.1.92b.5, 45.2.1.92d.2, 45.2.1.92d.3, 45.2.1.92d.4, 45.2.1.92d.5, change "weight" to "ratio"

See also comment r01-11

Cl **83D** *SC* **83D.1** *P* **159** *L* **23** # r01-10

RAN, ADEE Intel Corporation

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

"Actual channel loss could be higher or lower than Equation (83D-1)..."

Comparing "loss" and "equation" as done here is somewhat unusual, especially when the equation is an inequality.

In addition, "channel loss" isn't defined anywhere. the equation refers to insertion loss, which is distinct from ILD, RL, and crosstalk.

SuggestedRemedy

Change "Actual channel loss could be higher or lower than Equation (83D-1) due to the channel ILD, return loss, and crosstalk"

to "Equation (83D-1) defines the recommended channel insertion loss limit and Figure 83D-3 shows the recommended insertion loss region. Actual channel quality and compliance are also affected by ILD, return loss, and crosstalk".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Equation (83D-1) and Figure 83D-3 are already referred to earlier in this subclause with:
"Figure 83D-2 depicts a typical CAUI-4 application, and Equation (83D-1) (illustrated in Figure 83D-3) summarizes the informative differential insertion loss budget associated with the chip-to-chip application."

Change:
"Actual channel loss could be higher or lower than Equation (83D-1) .. " to:
"Actual channel loss could be higher or lower than that given by Equation (83D-1) .. "

Cl **83D** *SC* **83D.3.1** *P* **161** *L* **35** # r01-24

Dudek, Michael — QLogic Corporation

Comment Type **TR** *Comment Status* **A**

The linear fit method described in 93.8.1.5.1 and 93.8.1.6 uses a transversal equalizer equivalent with Np =14 and Dp=2. This will enable equalization (eg removal from Tx SNDR) of Transmitter distortions that can't be removed by the reference equalizer assumed in the COM code.

SuggestedRemedy

Add a footnote to the references 93.8.1.5.2 and 93.8.1.6 in table 83D-1. "The values of the parameters are measured as defined in the referenced subclause except that the values of Np and Nw are 5."

Response *Response Status* **C**

ACCEPT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
Make the changes as per the Suggested Remedy.

Cl **83D** *SC* **83D.3.1.1** *P* **161** *L* **41** # r01-23

Dudek, Michael — QLogic Corporation

Comment Type **TR** *Comment Status* **A**

The requirements in Tables 83D-2 and 83D-3 do not result in a monotonic change in transmitter equalization and it isn't obvious from the wording here that monotonicity is an additional requirement on the transmitter.

SuggestedRemedy

Change "Each successive step in Local_eq_cm1 and Local_eq_c1 value results in a monotonic change in transmitter equalization." to "Each successive step in Local_eq_cm1 and Local_eq_c1 value shall result in a monotonic change in transmitter equalization." Add a PICS based on the shall statement.

Response *Response Status* **C**

ACCEPT.

Cl **83D** *SC* **83D.3.1.1** *P* **162** *L* **27** # r01-11

RAN, ADEE — Intel Corporation

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

The headings of the second column in tables 83D-2 and 83D-3 are the definitions of the specified values. It would be helpful if these definitions be placed in the text and given names ("weight") which can then be used in the specification and referred to in Clause 45.

SuggestedRemedy

In the paragraph preceding these tables (page 160 line 38), change

"The variable Local_eq_cm1 controls the weight of the pre-cursor tap c(-1). The valid values of Local_eq_cm1 and their effect are specified in Table 83D-2. The variable Local_eq_c1 controls the weight of the post-cursor tap c(1). The valid values of Local_eq_c1 and their effect are specified in Table 83D-3."

to

"The variable Local_eq_cm1 controls the the weight of the pre-cursor tap c(-1), defined as c(-1)/(|c(-1)|+|c(0)|+|c(1)|). The valid values of Local_eq_cm1 and the corresponding tap weight values are specified in Table 83D-2. The variable Local_eq_c1 controls the the weight of the post-cursor tap c(1), defined as c(1)/(|c(-1)|+|c(0)|+|c(1)|). The valid values of Local_eq_c1 and the corresponding tap weight values are specified in Table 83D-3."

Change the column headings in tables 83D-2 and 83D-3 to "weight of c(-1)" and "weight of c(1)" respectively.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The variable Local_eq_cm1 controls the weight of the pre-cursor tap c(-1). The valid values of Local_eq_cm1 and their effect are specified in Table 83D-2. The variable Local_eq_c1 controls the weight of the post-cursor tap c(1). The valid values of Local_eq_c1 and their effect are specified in Table 83D-3."
to:
"The variable Local_eq_cm1 controls the weight of the pre-cursor tap c(-1), by changing the ratio c(-1)/(|c(-1)|+|c(0)|+|c(1)|). The valid values of Local_eq_cm1 and the corresponding ratios are specified in Table 83D-2. The variable Local_eq_c1 controls the the weight of the post-cursor tap c(1), by changing the ratio c(1)/(|c(-1)|+|c(0)|+|c(1)|). The valid values of Local_eq_c1 and the corresponding ratios are specified in Table 83D-3."

For the column heading in Table 83D-2 add "c(-1) ratio" to the existing heading enclosed in brackets and in Table 83D-3 add "c(1) ratio" to the existing heading enclosed in brackets.

Cl **83D** *SC* **83D.3.3** *P* **163** *L* **24** # r01-46

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **R**

According to 93A.2 and 93C.2, it appears that interference tolerance is calibrated at TP5 replica not TP5a.

SuggestedRemedy

Could add a footnote to the interference tolerance row: "Calibrated at TP5 replica (see 93C.2)."

Response *Response Status* **C**

REJECT.

This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

Since the draft references Annex 93C for the method, such a footnote is not needed: "The receiver shall satisfy the requirements for interference tolerance defined in Table 83D-5. The interference tolerance test uses the method described in Annex 93C as specified by 93.8.2.3."

Cl **83D** *SC* **83D.3.3.1** *P* **163** *L* **14** # r01-12

RAN, ADEE — Intel Corporation

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

Now that we have a target column for calibrated values, Applied sinusoidal jitter should be defined as target, rather than minimum.

SuggestedRemedy

Move "Table 88-13" from "min" column to "target" column, in both tests.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment r01-16

Cl **83D** *SC* **83D.3.3.1** *P* **164** *L* **14** # r01-16

Dudek, Michael — QLogic Corporation

Comment Type **TR** *Comment Status* **A**

In Table 83D-5 the maximum Applied sinusoidal jitter is unconstrained. Large amplitude Sinusoidal jitter is generally more stressful than random jitter and having the maximum amount of this type of jitter unconstrained will enable the stressed generator to have significantly more sinusoidal jitter than a compliant transmitter can have. It will also lead to less consistent results from the test

SuggestedRemedy

Move the table 88-13 reference from the Min column to the Target column for both Test's 1 and 2.

Response *Response Status* **C**

ACCEPT.
See also comment r01-12

Cl **83E** *SC* **83E.1** *P* **171** *L* **52** # r01-47

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **R**

Draft uses "chip-to-module XLAUI", "chip-to-module CAUI-10", "chip-to-module CAUI-4" and "CAUI-4 chip-to-module". It seems more natural to put the adjective before the noun.

SuggestedRemedy

Change "CAUI-4 chip-to-module" to "Chip-to-module CAUI-4" throughout. Also for "CAUI-4 chip-to-chip".

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

Cl **83E** *SC* **83E.1** *P* **171** *L* **54** # r01-48

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Blank lines or white space (in the clean version) cause 83E.1.1 to appear on a later page.

SuggestedRemedy

In the clean version, at p171 lines 53-54, p172 lines 28, 52-54.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Remove blank lines with editorial license

Cl **83E** *SC* **83E.1** *P* **174** *L* **25** # r01-49

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Figure 83E-5 could be centred like the one above.

SuggestedRemedy

Centre the figure

Response *Response Status* **C**

ACCEPT.

Cl **83E** *SC* **83E.1.1** *P* **173** *L* **3** # r01-33

Petrilla, John — Avago Technologies

Comment Type **E** *Comment Status* **A**

The phrase, "Maximum BER assumes errors are not correlated to ensure", may not capture the intention since assuming something doesn't really ensure something.

SuggestedRemedy

Change the phrase, "Maximum BER assumes errors are not correlated to ensure ...", to "Maximum BER requires errors are not correlated to ensure ..."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change: to "Maximum BER requires that errors are not correlated to ensure ..."

"The bit error ratio (BER) shall be less than 10^-15. Maximum BER assumes errors are not correlated to ensure a sufficiently high mean time to false packet acceptance (MTTFPA) assuming 64B/66B coding."
to:
"The bit error ratio (BER) shall be less than 10^-15 with any errors sufficiently uncorrelated to ensure an acceptably high mean time to false packet acceptance (MTTFPA) assuming 64B/66B coding."

In 83E.5.3, item BER, change "10^-15" to "See 83E.1.1"

Cl **83E** *SC* **83E.2** *P* **173** *L* **35** # r01-50

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Rogue capital

SuggestedRemedy

Change "measuring Host CAUI-4" to "measuring host CAUI-4" (as for module in next paragraph).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
However, the changes suggested are an improvement to the draft that would otherwise need to be made during the publication process.
Make the changes as per the Suggested Remedy.
Also, two lines above change "the Host and Module respectively" to "the host and module respectively".

Cl **83E** *SC* **83E.3.1** *P* **179** *L* **26** # r01-34

Petrilla, John — Avago Technologies

Comment Type **T** *Comment Status* **R**

In Table 83E-1 (also 83E-3) there are parameters Eye width and Eye height and references that eventually lead to the method in 83E.4.2. Here terms EW6 & EW15 and EH6 & EH15 are defined and used. Unfortunately there's no explicit mapping between Eye width and Eye height in the tables and EW6 & EW15 and EH6 & EH15 in 83E.4.2 and the term "eye width" is used with both terms EW6 and EW15. It would be helpful to the reader, if the mapping were explicit

SuggestedRemedy

Change Eq 83E-7 from "EW15 = EW6 - 3.19 x (RJR + RJL)" to "Eye width = EW15 = EW6 - 3.19 x (RJR + RJL)" and Change Eq 83E-8 from "EH15 = EH6 - 3.19 x (RN0 + RN1)" to "Eye height = EH15 = EH6 - 3.19 x (RN0 + RN1)"

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

The connection between the term eye height and EW15 is made via the text "The eye width is then given by Equation (83E-7)". Similarly for eye height.

Cl **83E** *SC* **83E.3.1.2** *P* **175** *L* **32** # r01-52

Dawe, Piers J G — Mellanox Technologie

Comment Type **T** *Comment Status* **R**

If we are going to touch 83E.3.1.2 it would be good to clean up the confusion between voltage and peak voltage. At present, according to 83E.3.1.2, AC common-mode voltage is 0 by definition.

SuggestedRemedy

Change "The peak-to-peak differential voltage vdi is defined to be SLi<p> minus SLi<n>." to "The peak-to-peak differential voltage vdi is defined to be the maximum of SLi<p> minus the minimum of SLi<n>."

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
The peak-to-peak differential voltage text is consistent with the definition in other clauses (93.8.1.3)

Cl **83E** *SC* **83E.3.1.2** *P* **175** *L* **32** # r01-51

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

Table 83E-1 refers to 83E.3.1.2 for single-ended output voltage but there is no mention of it there.

SuggestedRemedy

Change "The peak-to-peak differential voltage vdi is defined to be SLi<p> minus SLi<n>." to "The peak-to-peak differential voltage vdi is defined to be the difference between the single-ended output voltages, SLi<p> minus SLi<n>.".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

However, while this text is consistent with other clauses (e.g., 93.8.1.3), single ended output voltage specs have been added to this Annex, so this change is an improvement that would otherwise need to be made in maintenance.
Change:
"The peak-to-peak differential voltage vdi is defined to be SLi<p> minus SLi<n>." to:
"The peak-to-peak differential voltage vdi is defined to be the difference between the single-ended output voltages, SLi<p> and SLi<n>."

Cl **83E** *SC* **83E.3.1.2** *P* **175** *L* **36** # r01-53

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Blank lines or white space (in the clean version) cause 83E.3.1.5 to appear on a later page.

SuggestedRemedy

In the clean version, at p175 lines 1-2, p176 lines 1-3, 25-27.

Response *Response Status* **C**

ACCEPT.
With editorial license

Cl **83E** *SC* **83E.3.1.2** *P* **175** *L* **50** # r01-54

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **R**

Sentences duplicate Table 83E-1: "The peak-to-peak differential output voltage is less than or equal to 900 mV. The peak-to-peak differential output voltage is less than or equal to 35 mV when the transmitter is disabled."

SuggestedRemedy

Delete the sentences, or change to "The maximum limits for peak-to-peak differential output voltage when the transmitter is enabled and disabled are given in Table 83E-1.".

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
This text is not technically incorrect

Cl **83E** *SC* **83E.3.1.4** *P* **178** *L* **3** # r01-25

Dudek, Michael — QLogic Corporation

Comment Type **TR** *Comment Status* **A**

The draft says the transition times are defined in 86A.5.3.3. However 86A.5.3.3 says that the waveform is observed through a 12GHz low pass filter response, which would negate the intent of the earlier statement "A test system with a fourth-order Bessel-Thomson low-pass response with 33 GHz 3 dB bandwidth is to be used for all output signal measurements, unless otherwise specified." as this does specify a lower bandwidth.

SuggestedRemedy

Add to the end of the sentence "with the exception that the observation is though a 33 GHz low pass filter response".

Response *Response Status* **C**

ACCEPT.
(applies to 83E.3.1.5 Transition time)
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
Make the changes as per the Suggested Remedy.

Cl **83E** *SC* **83E.3.1.6** *P* **177** *L* **11** # r01-13

RAN, ADEE — Intel Corporation

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

The way the variable Recommended_CTLE_value is described here is confusing; it is not clear which sublayer or entity this variable belongs to.

In the context of host output eye measurement, it seems to belong to the "host" side of the C2M link, since there is no module in this test. But in the context of the Module stressed input test (83E.3.4.1.1), it seems to exist in the module, since there is no host in that test. But there is only one variable, and it is not described how its value is shared between the chip to the module.

This question is also relevant for MDIO addressing. Consider two cases: a) both chip and module implement MDIO; b) the chip implements MDIO while the module does not. In case a, register 1.169 in the module affects the module receiver, while at the chip side, this address has no effect; in the second case, one could expect that writing the register at the chip side would somehow relay the information to the module (based on the current text in 83E.3.1.6 which mentions this register).

It is more reasonable to define the variable as belonging to the receiver in the module. The host output eye definition should be rephrased to avoid confusion - especially, remove the reference to the MDIO register, which is irrelevant in this case.

SuggestedRemedy

Change
"The recommended CTLE peaking value (which is also used for host output eye measurements) is provided to the module via the variable Recommended_CTLE_value. If a Clause 45 MDIO is implemented, this variable is accessible through register 1.169 (see 45.2.1.92a)."

to
"The reference CTLE setting used for the host output eye measurements is the same setting which the host provides to the module via the variable Recommended_CTLE_value."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment r01-21

Cl **83E** *SC* **83E.3.1.6** *P* **178** *L* **10** # r01-21

Dudek, Michael QLogic Corporation

Comment Type **E** *Comment Status* **A**

This section is describing the host output eye width and eye height so it is strange to have the "recommended CTLE peaking value" as "also" used for host output eye measurement.

SuggestedRemedy

Change "The recommended CTLE peaking value (which is also used for host output eye measurements) is provided to the module via the variable Recommended_CTLE_value." to "The recommended CTLE peaking value is used for host output eye measurements. In addition it is provided to the module via the variable Recommended_CTLE_value."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The recommended CTLE peaking value (which is also used for host output eye measurements) is provided to the module via the variable Recommended_CTLE_value. If a Clause 45 MDIO is implemented, this variable is accessible through register 1.169 (see 45.2.1.92a)."
To:
"The recommended CTLE peaking value is used for host output eye measurements. In addition it is provided to the module via the variable Recommended_CTLE_value. If a Clause 45 MDIO is implemented, this variable is accessible in the module through register 1.169 (see 45.2.1.92a)."
Also see comment r01-13

Cl **83E** *SC* **83E.3.1.6** *P* **178** *L* **16** # r01-55

Dawe, Piers J G Mellanox Technologie

Comment Type **E** *Comment Status* **A**

Sentence without a verb: "For the case of Pattern 3, with at least 31 UI delay between the PRBS31 patterns on one lane and any other lane." Also in 83E.3.2.1.

SuggestedRemedy

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.

Change to: "For the case where Pattern 3 is used with a common clock, there is at least 31 UI delay between the PRBS31 patterns on one lane and any other lane."
Also in 83E.3.2.1, 83E.3.3.2.1, 83E.3.4.1.1

Cl **83E** *SC* **83E.3.2** *P* **180** *L* **50** # r01-56

Dawe, Piers J G Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Text wrapping in cell, Table 83E-3.

SuggestedRemedy

Can make LH column wider, 2nd column narrower if needed.

Response *Response Status* **C**

ACCEPT.

Cl **83E** *SC* **83E.3.3.1** *P* **184** *L* **1** # r01-57

Dawe, Piers J G Mellanox Technologie

Comment Type **E** *Comment Status* **R** *Bucket*

Blank lines or white space (in the clean version) may be causing Table 83E-8 to appear on a later page.

SuggestedRemedy

In the clean version, at p182 lines 1-3 and 52-54, p176 lines 1-3, 25-27.

Response *Response Status* **C**

REJECT.
Table 83E-8 will not move on to the previous page.

Cl **83E** *SC* **83E.3.3.3.1** *P* **184** *L* **46** # r01-58

Dawe, Piers J G Mellanox Technologie

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

CTLE does not have to be in software (see 83E.3.2.1.1).

SuggestedRemedy

Change "selectable software CTLE" to "selectable CTLE". Also in 83E.3.4.2.1.

Response *Response Status* **C**

ACCEPT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.

Make the changes as per the Suggested Remedy. (applies to 83E.3.3.2.1 and 83E.3.4.1.1 in clean version)

Cl **83E** *SC* **83E.3.3.3.1** *P* **185** *L* **50** # r01-60

Dawe, Piers J G — Mellanox Technologie

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

The 19 ps crosstalk generators here (emulating a host) should be the same as the ones in 83E.3.2.1 which are calibrated at 900 mV with an unstated pattern, presumably PRBS31 or equivalent. Yet here they are calibrated at 900 mV with PRBS9, which will make the signal a few percent bigger when the pattern is changed for the stressed input test. The bigger signal will be beyond the 900 mV limit for the module input, and the two different amplitudes will be a nuisance for labs testing both hosts and modules.
There is a similar problem in the other direction.

SuggestedRemedy

Change 900 to 870, here and in 83E.3.4.2.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 83E.3.3.2.1 and 83E.3.4.1.1 in clean version)
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
In 83E.3.3.2.1 and 83E.3.4.1.1
Change:
"The crosstalk signal is calibrated with Pattern 4. The pattern is changed to Pattern 5 (with or without FEC encoding), Pattern 3 or a valid 100GBASE-R signal for the stressed input test."
to:
"The crosstalk signal transition time is calibrated with Pattern 4. The pattern is changed to Pattern 5 (with or without FEC encoding), Pattern 3 or a valid 100GBASE-R signal for amplitude calibration and the stressed input test."

Cl **83E** *SC* **83E.3.3.3.1** *P* **186** *L* **11** # r01-59

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

Consistent terminology: Table 83E-6 uses "host input" not receiver.

SuggestedRemedy

Change "exceeding the receiver's differential pk-pk input voltage tolerance specification" to "exceeding the differential pk-pk input voltage tolerance specification".
Similarly in 83E.3.4.2.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 83E.3.3.2.1 and 83E.3.4.2.1 in clean version)
Change:
"(without exceeding the receiver's differential pk-pk input voltage tolerance specification as shown in Table 83E-4)"
to:
"(without exceeding the differential pk-pk input voltage tolerance specification as shown in Table 83E-4)"
Change in 83E.3.4.1.1:
"(without exceeding the receiver's differential pk-pk input voltage tolerance specification as shown in Table 83E-7)"
to:
"(without exceeding the differential pk-pk input voltage tolerance specification as shown in Table 83E-7)"

Cl **83E** *SC* **83E.3.3.3.1** *P* **186** *L* **13** # r01-61

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

Style guide: that and which.

SuggestedRemedy

Consider if "CTLE which maximizes" should be "CTLE that maximizes".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change
CTLE which maximizes
to
CTLE that maximizes
in 83E.3.3.2.1

Cl **83E** *SC* **83E.3.4** *P* **185** *L* **40** # r01-22

Dudek, Michael QLogic Corporation

Comment Type **T** *Comment Status* **R**

As stated in the footnote the DC common mode voltage (min) and (max) are generated by the host not the module. The specification is really the voltage tolerance. We already have this tolerance specified as a single-ended voltage tolerance so these additional specifications are not needed.

SuggestedRemedy

Delete the rows "DC common mode voltage (min) and DC common mode voltage (max).

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
During the implementation of Table 83E-7 some committee members felt that specifying both single-ended voltage tolerance and DC common mode voltage was desirable.

Cl **83E** *SC* **83E.3.4.1.1** *P* **184** *L* **1** # r01-18

Dudek, Michael QLogic Corporation

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

The reference describing pattern 4 has been removed. It is not friendly to the reader to have to search in other sub-clauses to find what this is. There is a convenient sentence close by in the same paragraph where it can be added very easily.

SuggestedRemedy

Change "Patterns 3 and 5 are described in Table 86-11." to "Patterns 3,4 and 5 are described in Table 86-11." Make the same change on page 187 line 24.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change
Patterns 3 and 5 are described in Table 86-11
to
Patterns 3, 4 and 5 are described in Table 86-11
in 83E.3.3.2.1 (line 1 on page 184) and 83E.3.4.1.1 (line 25 on page 186)

Cl **83E** *SC* **83E.3.4.1.1** *P* **187** *L* **30** # r01-19

Dudek, Michael QLogic Corporation

Comment Type **E** *Comment Status* **A**

The sentence would read better with a change in word order.

SuggestedRemedy

Change " For the high loss case, frequency dependent attenuation is added such that from the output of the pattern generator to TP1a is 13.8 dB loss at 12.89 GHz" to "For the high loss case, frequency dependent attenuation is added such that the loss at 12.89GHz from the output of the pattern generator to TP1a is 13.8 dB."

Response *Response Status* **C**

ACCEPT.

Cl **83E** *SC* **83E.3.4.1.1** *P* **187** *L* **49** # r01-20

Dudek, Michael QLogic Corporation

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

The order of the steps is incorrect. The pattern needs to be changed before the BER is measured.

SuggestedRemedy

Preferably move the paragraph "The pattern is then changed to Pattern 5 (with or without FEC encoding), Pattern 3 or a valid 100GBASE-R signal for the input test which is conducted by inserting the module into the MCB." to be a sentence on line 43 immediately before "The module under test shall meet". As an alternative solution change the paragraph to "The input test is conducted by inserting the module into the MCB and measuring the BER with Pattern 5 (with or without FEC encoding), Pattern 3 or a valid 100GBASE-R signal".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Move the paragraph
Change:
...accessible through register 1.169 (see 45.2.1.92a). The module under test...
to
...accessible through register 1.169 (see 45.2.1.92a). The pattern is then changed to Pattern 5 (with or without FEC encoding), Pattern 3 or a valid 100GBASE-R signal for the input test which is conducted by inserting the module into the MCB. The module under test...
remove the now redundant paragraph

Cl **83E** *SC* **83E.3.4.2.1** *P* **189** *L* **2** # r01-62

Dawe, Piers J G — Mellanox Technologie

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

Is this target transition time of 19 ps at TP4 correct?

SuggestedRemedy

Should it be 12 ps as in 83E.3.1.6?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change in 83E.3.4.1.1
The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with target amplitude of 900 mV peak-to-peak differential and 20% to 80% target transition time of 19 ps as measured at TP4.
to
The counter propagating crosstalk channels during calibration of the stressed signal are asynchronous with target amplitude of 900 mV peak-to-peak differential and 20% to 80% target transition time of 12 ps as measured at TP4.

Cl **83E** *SC* **83E.3.4.2.1** *P* **189** *L* **27** # r01-63

Dawe, Piers J G — Mellanox Technologie

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

"The module under test shall meet the BER": but this is an interface spec not a module spec.

SuggestedRemedy

The module CAUI-4 receiver under test shall meet the BER

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change in 83E.3.4.1.1
The module under test shall meet the BER requirement..
To
The module CAUI-4 receiver under test shall meet the BER requirement..

Cl **83E** *SC* **83E.4.1.1** *P* **186** *L* **44** # r01-15

RAN, ADEE — Intel Corporation

Comment Type **E** *Comment Status* **R**

Two or three settings? The text explicitly says three settings, but two of them are conditional, so in some cases only two are used.

A similar problem exists in item 2 of the list in 83E.4.2, for the host compliance.

Rephrasing can clarify this paragraph.

SuggestedRemedy

In the penultimate paragraph of 83E.3.4.1.1 (Module stressed input test procedure), change:
"The module under test shall meet the BER requirement as described in 83E.1.1 using three Recommended_CTLE_value values for both the high loss test and low loss test."

to
"The module under test shall meet the BER requirement as described in 83E.1.1, in both the high loss test and low loss test, using multiple Recommended_CTLE_value settings provided in each test."

In the same paragraph, since Recommended_CTLE_value is a variable rather than a value, change "Modules may optionally elect not to use the Recommended_CTLE_value" to "Modules may optionally elect to ignore Recommended_CTLE_value".

In item 2 of the list in 83E.4.2, change "For host compliance, the CTLE peaking in the reference receiver shall be set to three values" to "Host compliance shall be tested with multiple reference receiver CTLE peaking settings"; and change "and passes eye height B in Table 83E-1 at all of the two or three settings" to "and passes eye height B in Table 83E-1 at all tested settings".

In PICS item RM2, change "using settings associated with Recommended_CTLE_value" to "with multiple values of Recommended_CTLE_value on both high-loss and low-loss tests". Consider splitting this item into two, for the high-loss and low-loss tests.

Response *Response Status* **C**

REJECT.
Although three settings are referenced, text highlights "if present". The proposed changes to use "multiple", "all tested settings" and "ignore" do not improve the clarity of the draft

Cl **83E** *SC* **83E.4.2** *P* **190** *L* **22** # r01-64

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

Will is deprecated. We know what the pattern is, its transition density isn't exactly 50%.

SuggestedRemedy

Change "CDFR will be 0.5" to "CDFR would be 0.5."

Response *Response Status* **C**

ACCEPT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
However, the changes suggested are an improvement to the draft that would otherwise need to be made during the publication process.

Cl **83E** *SC* **83E.5.4.1** *P* **190** *L* **48** # r01-96

RAN, ADEE — Intel Corporation

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

Item TH12 states a single value of 95 mV, but the modified method in 83E.4.2 refers to the two eye height requirements, A and B, and table 83E-1 has two separate values for them, 95 mV and 80 mV.

SuggestedRemedy

Change this item to reflect the new requirements.

Consider adding 83E.4.2 as a subclause reference.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Modify TH12 to be Eye height A
Add TH13 with feature Eye height B, subclause 83E.3.1.6 and value 80 mV

Cl **83E** *SC* **83E.5.4.4** *P* **195** *L* **9** # r01-65

Dawe, Piers J G — Mellanox Technologie

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

Too much detail in the feature column, and not strictly accurate: as 83E.3.4.2.1 says, module can
elect not to use Recommended_CTLE_value (although the test uses it). In value/comment: 83E.3.4.2.1 doesn't say 1e-15, it refers to another subclause.

SuggestedRemedy

Feature: BER requirement
Value/Comment: As 83E.1.1 with settings associated with Recommended_CTLE_value

Response *Response Status* **C**

ACCEPT.

Cl **93A** *SC* **93A** *P* **194** *L* **1** # r01-66

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Empty page

SuggestedRemedy

Remove

Response *Response Status* **C**

ACCEPT.

Cl **95** *SC* **95.11.1** *P* **127** *L* **9** # r01-40

Petrilla, John — Avago Technologies

Comment Type **TR** *Comment Status* **A**

There seems to be no PIC associated with the 'shall' in the first sentence of 95.11.1 and Table 95-13

SuggestedRemedy

Add a PIC, "Meets requirements specified in Table 95-13" to 95.12.4.6

Response *Response Status* **C**

ACCEPT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

However, the changes suggested are an improvement to the draft that would otherwise need to be made in maintenance.
Insert an additional PICS item to 95.12.4.6 as COC2:
"Optical fiber characteristics", "95.11.1", "Per Table 95-13", "INS:M", "Yes [ ] N/A [ ]"

Cl **95** *SC* **95.12.4.4** *P* **133** *L* **13** # r01-67

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **R**

Subclause title doesn't match its master subclause

SuggestedRemedy

Change "Optical measurement methods" to "Definition of optical parameters and measurement methods".

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
In general there is not a one to one match between the titles of subclauses in the PICS proforma tables and those in the main clause.

Cl **95** *SC* **95.12.4.4** *P* **133** *L* **20** # r01-68

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **R**

All parameters are defined for modulated signals, this one is not exceptional. The sentence mentioning modulated does not contain a "shall". This PICS wording doesn't match 86.11.4.4 SOM2.

SuggestedRemedy

Delete "under modulated conditions". Remove any other unwanted discrepancies in the last sections of Clause 95.

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.
Clause 52 uses "under modulated conditions" in the PICS OM2.

Clause 86 doesn't have spectral bandwidth compliance called out in the PICS.

Cl **95** *SC* **95.12.4.5** *P* **133** *L* **45** # r01-69

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **R**

Too long for a value/comment

SuggestedRemedy

Change "Complies with applicable local and national codes for the limitation of electromagnetic interference" to "Complies with applicable codes for the limitation of electromagnetic interference" like Clause 89 or (because the subject can be implied from the feature column, just
"Complies with applicable codes".

Response *Response Status* **C**

REJECT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

Compared to the proposed text, the current text is more helpful in reminding the reader that 'applicable local and national codes for the limitation of EMI' should be followed.

Cl **95** *SC* **95.12.4.5** *P* **134** *L* **41** # r01-41

Petrilla, John — Avago Technologies

Comment Type **TR** *Comment Status* **A**

PIC CSE2 calls out IEC Hazard Level 1 in the Feature and Value/Comment entries. This is inconsistent with sub-clause 95.9.2 where Hazard Level 1M is set as the requirement.

SuggestedRemedy

Change PIC CES2 to call out IEC Hazard Level 1M in the Feature and Value/Comment entries.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment r01-14

[Editor's note added after comment resolution completed.
The response to Comment r01-14 was:
ACCEPT
with Suggested remedy:
Make no change to 95.9.2 since this refers to "Hazard Level 1M laser requirements as defined in IEC 60825-1 and IEC 60825-2"
In 95.12.4.5, item CES2 change "Laser safety--IEC Hazard Level 1" to "Laser safety--IEC Hazard Level 1M" and change "Conforms to Hazard Level 1 laser requirements ..." to "Conforms to Hazard Level 1M laser requirements ..."
]

Cl **95** *SC* **95.7.1** *P* **112** *L* **34** # r01-70

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

Consequential changes following adjustment of TxVEC limit: OMA-TxVEC min, OMA min, mean power min, budget, allocation for penalties, SRS OMA. Any more?

SuggestedRemedy

See presentation.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Comment r01-71 changed the TxVEC limit from 5 dB to 4.9 dB.

In Table 95-6:
Change the OMA-TxVEC min value from -8 dBm to -7.9 dBm
Change the Average launch power, each lane (min) from -9.1 dBm to -9 dBm
Change the OMA, each lane (min) from -7.1 dBm to -7 dBm

In Table 95-7:
Change the Average receive power, each lane (min) from -11 dBm to -10.9 dBm

See also comment r01-32

Cl **95** *SC* **95.7.1** *P* **112** *L* **41** # r01-71

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

D3.1 has VECP=4.2 and TxVEC not more than 5. These are much more than any previous VECP and TDP (3.5 and 3.9) and near a "cliff" (error floor approaching FEC's correction ability). Also, for stressed eyes, TxVEC can be a little less than VECP (more than a little if M=0), so we need to take care when we switch to TxVEC based SRS calibration that we do not make the eye even more stressful. This will affect the transmitter TxVEC limit also. See D3.0 comment 46 which recommended 4.3 dB.

SuggestedRemedy

Change the TxVEC limit in Table 95-6 (transmitter) and condition in Table 95-7 (receiver) from 5 dB to 4.3 dB (to be confirmed - see work of MMF ad hoc and/or presentation at this meeting). See another comment for consequential changes.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change the TxVEC limit in Table 95-6 (transmitter) and condition in Table 95-7 (receiver) to 4.9 dB

See also comments r01-43 and r01-32

Cl **95** *SC* **95.7.1** *P* **114** *L* **41** # r01-32

Dudek, Michael — QLogic Corporation

Comment Type **TR** *Comment Status* **A**

With the new specification method using TxVEC it is not certain that the same value should be used for TxVEC as was used for TDP in earlier drafts, particularly as the effects of Modal noise and mode partition noise are now included in the test through the M parameter, whereas they were not included in the TDP test.

SuggestedRemedy

Investigate whether the maximum value of TxVEC is appropriate, and if not change it, with potential consequential changes to other budgetted parameters including stressed receiver OMA, modified TxVEC for the Rx, and OMA-TxVEC, .

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See response to comment r01-71 for TxVEC limit and see response to comment r01-70 for consequential changes to other parameters.

[Editor's note added after comment resolution completed.
The response to Comment r01-71 was:
ACCEPT IN PRINCIPLE.

Change the TxVEC limit in Table 95-6 (transmitter) and condition in Table 95-7 (receiver) to 4.9 dB

See also comments r01-43 and r01-32

The response to Comment r01-70 was:
ACCEPT IN PRINCIPLE.
Comment r01-71 changed the TxVEC limit from 5 dB to 4.9 dB.

In Table 95-6:
Change the OMA-TxVEC min value from -8 dBm to -7.9 dBm
Change the Average launch power, each lane (min) from -9.1 dBm to -9 dBm
Change the OMA, each lane (min) from -7.1 dBm to -7 dBm

In Table 95-7:
Change the Average receive power, each lane (min) from -11 dBm to -10.9 dBm

See also comment r01-32
]

Cl **95** *SC* **95.7.1** *P* **114** *L* **41** # r01-43

Petrilla, John — Avago Technologies

Comment Type **TR** *Comment Status* **A**

The value, 5, entered for max TxVEC may not be correct for the method defined 95.8.5 and its subclauses and should be verified. One check was to use a link model and replace the worst case Rx with an Ref Rx with the same sensitivity and then replace the worst case Tx with an idealized Tx. The difference in link penalties and margin varies from 4.9 dB to 5.0 depending on inclusion/deletion of Pmn.

SuggestedRemedy

Review the value entered in Table 95-6 for max TxVEC and the factors 0.0257 and 0.01 in the equation for M and adjust as appropriate. For details see petrilla_01_0914_optx

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

see response to comment r01-71

[Editor's note added after comment resolution completed.
The response to Comment r01-71 was:
ACCEPT IN PRINCIPLE.

Change the TxVEC limit in Table 95-6 (transmitter) and condition in Table 95-7 (receiver) to 4.9 dB

See also comments r01-43 and r01-32
]

Cl **95** *SC* **95.7.2** *P* **113** *L* **28** # r01-72

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

Note d of Table 95-7 should apply to all of the indented test conditions.

SuggestedRemedy

Apply note d to "Conditions of stressed receiver sensitivity test:" not its subordinates.
Change note to:
These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
This was discussed in the MMF ad hoc, as documented in:
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See comment r01-17

Cl **95** *SC* **95.7.2** *P* **113** *L* **32** # r01-73

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

The J2, J4 conditions appear to be incompatible with requiring at least 2/3 of TxVEC to come from the second filter. Also targets for J2 and J4 are higher than previous specifications. Note D3.0/36 and D3.0/50 pointed out that J2 and J4 need revision.

SuggestedRemedy

Reduce J2 and J4 conditions, reduce the 2/3 limit a little if necessary or apply the 2/3 rule with both 2nd filter and Gaussian noise generator active. See presentation.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

see comment r01-28

[Editor's note added after comment resolution completed.
The response to Comment r01-28 was:
Define the bandwidth of the fourth-order Bessel-Thomson filter to be 19.3 GHz with editorial license.

In 95.8.8.2, change:
"...greater than two thirds of the dB value of the VECP should be created by..."
to:
"...at least 2.5 dB of SEC should be created by..."

Also, in Table 95-7 change:
Stressed eye J2 Jitter from 0.41 UI to 0.39 UI
Stressed eye J4 Jitter from 0.55 UI to 0.53 UI

See also comments r01-9, r01-73, and r01-90
]

Cl **95** *SC* **95.7.2** *P* **113** *L* **38** # r01-74

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

It is not clear enough what hit ratio applies to the SRS mask.

SuggestedRemedy

State the hit ratio in Table 95-7 in the style of Table 95-6. Need to choose the hit ratio.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment r01-35

[Editor's note added after comment resolution completed.
The response to Comment r01-35 was:
ACCEPT
with Suggested Remedy:
Add to the Description column for Stressed receiver eye mask definition the following, "Hit ratio 5 x 10^-5 hits per sample".
]

Cl **95** *SC* **95.7.2** *P* **115** *L* **36** # r01-35

Petrilla, John — Avago Technologies

Comment Type **TR** *Comment Status* **A**

It would be helpful to include the hit ratio associated with the eye mask coordinates.

SuggestedRemedy

Add to the Description column for Stressed receiver eye mask definition the following, "Hit ratio 5 x 10^-5 hits per sample".

Response *Response Status* **C**

ACCEPT.
See also comment r01-74

Cl **95** *SC* **95.7.2** *P* **115** *L* **44** # r01-31

Dudek, Michael — QLogic Corporation

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

VECP and stressed eye jitter are not the only parameters that are test conditions.

SuggestedRemedy

Make the footnote d to apply to the title "Conditions of stressed receiver sensitivity test" remove the footnote d from the individual lines. Change footnote d to say " These test conditions are for measuring stressed receiver sensitivity. They are not characteristics of the receiver."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment r01-17

Cl **95** *SC* **95.8.1** *P* **115** *L* **11** # r01-75

Dawe, Piers J G — Mellanox Technologie

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

We now allow any valid 100GBASE-SR4 signal for stressed receiver sensitivity. By the same logic, it will be suitable, and convenient, for TxVEC and VECP.

SuggestedRemedy

In Table 95-10, change the remaining "3 or 5" (two instances at present) to "3, 5 or valid 100GBASE-SR4 signal". Do not remove the table: the thrid column, related subclause, is very useful.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
See comment r01-42

See also response to comment r01-17 which removes the VECP row.

Cl **95** *SC* **95.8.1** *P* **117** *L* **11** # r01-42

Petrilla, John — Avago Technologies

Comment Type **TR** *Comment Status* **A**

The test patterns appropriate for TxVEC and VECP measurements should be the same as for the Tx optical waveform, Stressed Rx sensitivity, etc.

SuggestedRemedy

In Table 95-10, change the Pattern entry for TxVEC to "3, 5 or valid 100GBASE-SR4

Response *Response Status* **C**

ACCEPT.
See also comment r01-75

Cl **95** *SC* **95.8.4** *P* **118** *L* **4** # r01-36

Petrilla, John — Avago Technologies

Comment Type **E** *Comment Status* **A**

It would be helpful in understanding the first sentence of 95.8.4 if the phrase, " as defined in" was repeated befor the reference to 68.6.2

SuggestedRemedy

Change, "if measured as defined in 52.9.5 for measurement with a square wave (8 ones, 8 zeros) test pattern or 68.6.2 ...", to "if measured as defined in 52.9.5 for measurement with a square wave (8 ones, 8 zeros) test pattern or as defined in 68.6.2 ..."

Response *Response Status* **C**

ACCEPT.
This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

However, the changes suggested are an improvement to the draft that makes the draft easier to understand.
Make the changes as per the Suggested Remedy.

Cl **95** *SC* **95.8.5.1** *P* **118** *L* **13** # r01-26

Dudek, Michael — QLogic Corporation

Comment Type **TR** *Comment Status* **A**

TxVEC is more than a measure of the optical transmitter's vertical eye closure. It includes the estimated effect of a worst case fiber. A better name and description should be used.

SuggestedRemedy

Change "TxVEC is a measure of each optical transmitter's vertical eye closure". To "TDeC is an estimate of the vertical eye closure produced by the optical transmitter at the output of a worst case fiber." Replace "TxVEC" with "TDeC" throughout the document. Also use "SeC" as the variant of the test with the wider bandwidth being proposed by another comment for Stressed Receiver Sensitivity calibration. Note that my thoughts are that TDeC stands for Transmitter and Dispertion eye Closure (but people could interpret the e as estimated instead) SeC is Stressed eye Closure.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

After making the changes due to comment r01-17, replace "TxVEC" with "TDEC" throughout the document where it refers to the test on the transmitter. Also change TxVEC to "SEC" as the variant of the test with the wider bandwidth and M=0 for Stressed Receiver Sensitivity conditions calibration with editorial license.

A straw poll of the Task Force was taken:
I would support the changing to the names:
A) TDEC, SEC
B) TEC, SEC
A 5, B 4

See also comment r01-76

Cl **95** *SC* **95.8.5.1** *P* **118** *L* **40** # r01-44

Le Cheminant, Greg

Comment Type **T** *Comment Status* **R**

95.8.5 introduces the concept of a receiver that emulates a receiver and a worst case channel with a specfic bandwidth. 95.8.5.1 then specifies the response to be fourth order Bessel Thomson and a specific bandwidth. For consistency in implementation and to avoid incorrect interpretation in how to emulate a worst case channel (a new concept), the filter response should be further defined by requiring a filter tolerance

SuggestedRemedy

complete the sentence "...bandwidth of 12.6 GHz." by adding:
with filter tolerances as specified for STM-64 in ITU-T G.691."

Response *Response Status* **C**

REJECT.

An exact bandwidth and response is defined, and compensation for any error is allowed. This avoids a situation where two measurements (with disparate results) using different (but within tolerance) filters can both be claimed to be using reference filters.

The principle of reducing the bandwidth of the measurement to emulate the channel was also used in Clause 86.

Cl **95** *SC* **95.8.5.2** *P* **118** *L* **47** # r01-45

Le Cheminant, Greg

Comment Type **T** *Comment Status* **R**

The TxVEC result is based on measurements of the eye diagram using pattern 3 or 5 as well as an OMA measurement based on a square wave pattern. Without some significant complexity in triggering the oscilloscope, a unique oscilloscope configuration and trigger is required for each measurement. TxVEC uses a special frequency response not intended for the OMA measurement. The current test process could be incorrectly interpreted as using one setup for both measurements.

SuggestedRemedy

If the existing text is followed precisely, correct results are obtained. However, if line 50 is placed ahead of 47, no one should incorrectly believe the TxVEC setup is implied for use with the OMA measurement.

Response *Response Status* **C**

REJECT.
The warning is appreciated, but it seems strange to have a TxVEC section begin with an OMA measurement section, and as noted, if the existing text is followed precisely, correct results are obtained.
Also, the OMA measurement can be done with a 12.6 GHz bandwidth.

Cl **95** *SC* **95.8.5.2** *P* **119** *L* **12** # r01-7

King, Jonathan

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

For consistency use the phrase 'histogram window"

SuggestedRemedy

change "outer boundary of the histogram" to "outer boundary of the histogram window"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment r01-17

Cl **95** *SC* **95.8.5.2** *P* **119** *L* **2** # r01-37

Petrilla, John Avago Technologies

Comment Type **TR** *Comment Status* **A**

For best results the attributes "average optical power (Pave) and the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC", should all be measured from one eye diagram. If this does not occur, certainly, at least the same test pattern should be used.

SuggestedRemedy

Change, "The average optical power (Pave) and the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC, are measured using Pattern 3 or Pattern 5." to "The average optical power (Pave) and the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC, are measured using only one of the patterns for TxVEC in Table 95-10."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change:
"The average optical power (Pave) and the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC, are measured using Pattern 3 or Pattern 5."
to:
"The average optical power (Pave), the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC, are all measured using the same test pattern selected from those identified for TxVEC in Table 95-10."

See also comment r01-78

Cl **95** *SC* **95.8.6** *P* **116** *L* **48** # r01-76

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

To avoid confusion, we need a pair of distinct but obviously related names for TxVEC (successor to TDP) used for transmitter specs and TxVEC (successor to VECP) used for SRS calibration.

SuggestedRemedy

Use distinct names e.g. ETDP, ESP (estimated signal penalty), or ETDI and EI (...impairment), or xyz12, xyz19.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.5 in clean version)

See comment r01-26.

Cl **95** *SC* **95.8.6.2** *P* **117** *L* **41** # r01-79

Dawe, Piers J G — Mellanox Technologie

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

"The average optical power of the eye diagram" could be misinterpreted. We should be clear that this is the average of the whole signal, not of the 0 and 1 in the eye measurement procedure. The crossing points are explained in the next sentence.

SuggestedRemedy

Consider changing "The average optical power (Pave) and the crossing points of the eye diagram, and" to "The average optical power (Pave) of the whole signal, the crossing points, and".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.5.2 in clean version)

See comment r01-37

Cl **95** *SC* **95.8.6.2** *P* **117** *L* **41** # r01-78

Dawe, Piers J G — Mellanox Technologie

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

We should make it clear that that Pave, crossing points, and the histograms, are all measured with the same test pattern. Also as the patterns are identified in Table 95-10, we should refer to it.
Deleting redundant "and".

SuggestedRemedy

Change
The average optical power (Pave) and the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC, are measured using Pattern 3 or Pattern 5.
to
The average optical power (Pave), the crossing points of the eye diagram, and the four vertical histograms used to calculate TxVEC, are all measured using the same one of the patterns identified for TxVEC calibration in Table 95-10.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.5.2 in clean version)

See response to comment r01-37

Cl **95** *SC* **95.8.6.2** *P* **117** *L* **41** # r01-77

Dawe, Piers J G — Mellanox Technologie

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

"the time average of the eye diagram crossing points, as measured at Pave" could be clearer.

SuggestedRemedy

Change to "the average of the crossing times, as measured at Pave"
or "the average of the signal's crossing times, as measured at Pave"
or "the average of all the crossing times, as measured at Pave"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.5.2 in clean version)

Change
"the time average of the eye diagram crossing points, as measured at Pave"
to
"the average of the eye diagram crossing times, as measured at Pave"

Cl **95** *SC* **95.8.6.2** *P* **118** *L* **6** # r01-80

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

According to 1.4.409 and http://www.atis.org/glossary/definition.aspx?id=468, unit interval doesn't need capitals. The base document follows this 46/60.

SuggestedRemedy

Change Unit Interval to unit interval

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.5.2 in clean version)

Change 'Unit Interval' to 'unit interval' in Figure 95-4

Cl **95** *SC* **95.8.7** *P* **120** *L* **15** # r01-81

Dawe, Piers J G — Mellanox Technologie

Comment Type **T** *Comment Status* **R**

There is no point trying to find what the signal would have been without receiver noise; it's not representative of how the signal is used, as well as any difficulty in doing it.

SuggestedRemedy

If both masks are used at 1.5e-3 hit ratio, this is not important. Otherwise, consider changing "for any excess reference receiver noise." to "for any difference between the reference receiver noise and 17 uW RMS."
Review mask coordinates and hit ratios.

Response *Response Status* **C**

REJECT.

The transmitter eye mask is defined with 1.5e-3 hit ratio.
For the SRS test eye mask the accuracy of the mask test is not critical for preventing excessive eye closure

Cl **95** *SC* **95.8.8.1** *P* **121** *L* **50** # r01-38

Petrilla, John — Avago Technologies

Comment Type **T** *Comment Status* **R**

Since retimers are an essential element in 100GBASE-SR4 links, it seems appropriate to include the warning from FC-MSQS-2 regarding sinusoidal stresses.

SuggestedRemedy

Add after the phrase, "care should be taken to avoid harmonic relationships between the sinusoidal interferers, the sinusoidal jitter, the signaling rate, and the pattern repetition rate.", the following sentence, "Phase modulation introduced by sinusoidal jitter is not recommended as many CDRs do not perform well with the jitter statistics produced by sinusoidal phase modulation."

Response *Response Status* **C**

REJECT.
There's a limit to sinusoidal jitter tolerance vs frequency

Cl **95** *SC* **95.8.8.2** *P* **122** *L* **44** # r01-9

King, Jonathan

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

The fraction of TxVEC of the stressed conformance signal that must be produced using low pass filtering is too high.

SuggestedRemedy

Change " greater than two thirds of the dB value of" to " greater than half of the dB value of"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See response to comment r01-28

Cl **95** *SC* **95.8.8.2** *P* **122** *L* **45** # r01-28

Dudek, Michael QLogic Corporation

Comment Type **TR** *Comment Status* **A**

The "recipe" to create the stressed sensitivity signal does not work. If the low pass filter is narrow enough to create 2/3 of the VECP wihout the additional interfers and sinusoidal jitter then increasing the jitter from this low value to 0.55UI J4 and 0.41UI of J2 will cause the resultant VECP to be much more than the required VECP. This is equally true if the metric is changed from VECP to the modified version of TxVEC proposed in another comment.

SuggestedRemedy

Reduce the J2 and J4 values in table 95-7 to values close to the Dj and Rj values used for 40GBASE-SR4 and 100GBASE-LR4, J2 =0.3, J4 = 0.37 and reduce the factor of 2/3 to half on line 45.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Define the bandwidth of the fourth-order Bessel-Thomson filter to be 19.3 GHz with editorial license.

In 95.8.8.2, change:
"...greater than two thirds of the dB value of the VECP should be created by..."
to:
"...at least 2.5 dB of SEC should be created by..."

Also, in Table 95-7 change:
Stressed eye J2 Jitter from 0.41 UI to 0.39 UI
Stressed eye J4 Jitter from 0.55 UI to 0.53 UI

See also comments r01-9, r01-73, and r01-90

Cl **95** *SC* **95.8.8.2** *P* **122** *L* **47** # r01-29

Dudek, Michael QLogic Corporation

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

A fixed amount of sinusoidal jitter is part of the test and therefore it can't be in an "or" statement. Also the Gaussian noise and sinusoidal amplitude interer 1 will also create additional VECP

SuggestedRemedy

Change "Any remaining VECP must be created with sinusoidal interferer 2 or sinusoidal jitter" to "The sinusoidal jitter will add some VECP, and any remaining VECP should be created with sinsoidal interfers 1 and 2 and the Gaussian noise generator."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This was discussed in the MMF ad hoc, as documented in http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See response to comment r01-17

Cl **95** *SC* **95.8.8.2** *P* **123** *L* **36** # r01-27

Dudek, Michael QLogic Corporation

Comment Type **TR** *Comment Status* **A**

The use of the clean clock in Figure 95-5 is a problem for calibrating the SRS input signal including VECP (or replacment), J2 and J4 if there is significant jitter below 10MHz.

SuggestedRemedy

In Figure 95-5 replace the clean clock with a CRU as is shown in Figure 95-3. Add to the end of the paragraph on line 41. "The clock recovery unit (CRU) has a corner frequency of 10 MHz and a slope of 20 dB/decade. On line 42 page 123 change the sentence "Sinusoidal jitter amplitude below 10 MHz may be calibrated by measuring the jitter on the oscilloscope, while transmitting the square wave pattern." to "Sinusoidal jitter amplitude may be calibrated by replacing the CRU in figure 95-5 with a clean clock and measuring the jitter on the oscilloscope, while transmitting the square wave pattern." and on line 48 delete "above 10MHz" On page 124 line23 delete everything in the paragraph starting with "The clock output"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See response to comment r01-17

[Editor's note added after comment resolution completed.
The response to Comment r01-17 was:
ACCEPT IN PRINCIPLE.

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

Implement the changes in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf as amended by other comments.

Also, swap the order of the two paragraphs starting: "The sinusoidal amplitude interferers may be set at any frequency between 100 MHz..." and "Sinusoidal jitter is added as specified in Table 95–11..."
]

Cl **95** *SC* **95.8.8.2** *P* **123** *L* **45** # r01-8

King, Jonathan

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

The MMF ad hoc agreed that TxVEC should be the main metric of the stressed receiver conformance test signal, not VEC.

SuggestedRemedy

In 95.8.8.2: Delete the sixth indented paragraph and modify the fifth indented paragraph describing the iteration of adjustable features, to be consistent with using TxVEC target value as the main metric of the stressed receiver conformance signal, and make other changes in section 95.8.8.2 needed for consistency, as shown in king_02_0814_optx

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See response to comment r01-17

Cl **95** *SC* **95.8.8.2** *P* **123** *L* **50** # r01-17

Dudek, Michael QLogic Corporation

Comment Type **TR** *Comment Status* **A**

With the adoption of the scope based TxVEC transmitter specification metric it is possible to better correlate the receiver test with the Transmitter specification. The existing TxVEC specification for the stressed receiver sensitivity is only a maximum value and is calculated with a wider bandwidth than the transmitter is measured with but with the same specification value. It is not providing any useful purpose.

SuggestedRemedy

Use this modified "TxVEC" (or other better name see other comment) as the main criterion for the stressed receiver calibration. Delete the VECP row in table 95-7 and replace VECP with TxVEC (or the better name) in the rest of the text. Change the sentence on line 50 page 124 to say "should be the value" rather than "should not exceed the value" (For detailed implementations see the work of the MMF ad hoc. Note that the Vertical eye closure penalty calibration name in Table 95-10 should be replaced with this version of TxVEC). It would also be better to give this modified "TxVEC" it's own name and create a new subclause immediately after the TxVEC subclause describing it rather than having its description on page 123 line 50.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This was discussed in the MMF ad hoc, as documented in http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

Implement the changes in http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf as amended by other comments.

Also, swap the order of the two paragraphs starting: "The sinusoidal amplitude interferers may be set at any frequency between 100 MHz..." and "Sinusoidal jitter is added as specified in Table 95–11..."

Cl **95** *SC* **95.8.8.2** *P* **123** *L* **53** # r01-30

Dudek, Michael QLogic Corporation

Comment Type **TR** *Comment Status* **A**

This modified TxVEC is supposed to emulate the output of the fiber and therefore the effects of Mode Partition noise and modal noise should not be being added into the measurement as this causes the stressed signal to be less stressful.

SuggestedRemedy

Add to the end of the sentence "and M is set equal to zero."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment r01-87

[Editor's note added after comment resolution completed.
The response to Comment r01-87 was:
ACCEPT IN PRINCIPLE.
(applies to 95.8.8.2 in clean version)

For the modified TxVEC used for SRS calibration, set the noise term M to zero
]

Cl **95** *SC* **95.8.8.5** *P* **125** *L* **1** # r01-39

Petrilla, John Avago Technologies

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

In note a of Table 95-11, the term "sine jitter" is used. This is the only occurrence of this term. Unless this is a different type of jitter, it would be less confusing to the reader to used the term "sinusoidal jitter" to be consistent with the first sentence of this sub-clause.

SuggestedRemedy

Change "sine jitter" to "sinusoidal jitter"

Response *Response Status* **C**

ACCEPT.

Cl **95** *SC* **95.8.9** *P* **120** *L* **20** # r01-82

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

conformance test signal, stressed receiver conformance signal, stressed eye conformance signal, conformance signal

SuggestedRemedy

Scrub the SRS section for consistent terminology.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8 in clean version)

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

see response to comment r01-17

Cl **95** *SC* **95.8.9.1** *P* **120** *L* **36** # r01-83

Dawe, Piers J G — Mellanox Technologie

Comment Type **T** *Comment Status* **R**

The bandwidth of the Gaussian noise has a significant effect on the pulse shrinkage. This ambiguity should be removed.

SuggestedRemedy

State whether the frequency content extends above the Nyquist frequency (could call it a "white" noise generator), or not.

Response *Response Status* **C**

REJECT.
(applies to 95.8.8.1 in clean version)

The difference between high and low bandwidth Gaussian interferers is largely removed by the calibration of the SEC, J2 and J4 values.

Cl **95** *SC* **95.8.9.1** *P* **120** *L* **36** # r01-84

Dawe, Piers J G — Mellanox Technologie

Comment Type **T** *Comment Status* **R**

Should we allow people to use the Gaussian jitter that's built into some pattern generators? Does it cause pulse shrinkage jitter in the same way that this Gaussian noise generator does?

SuggestedRemedy

?

Response *Response Status* **C**

REJECT.
(applies to 95.8.8.1 in clean version)

The difference between external Gaussian interferers and built-in Gaussian jitter is largely removed by the calibration of the SEC, J2 and J4 values.

Cl **95** *SC* **95.8.9.1** *P* **120** *L* **52** # r01-85

Dawe, Piers J G — Mellanox Technologie

Comment Type **T** *Comment Status* **R**

The first low pass filter response is specified as fourth-order Bessel-Thomson, while the second one, which is possibly more important, is not, except for this sentence: "...overshoot and undershoot should be minimized.".

SuggestedRemedy

Consider specifying the second filter response as fourth-order Bessel-Thomson.

Response *Response Status* **C**

REJECT.
(applies to 95.8.8.1 in clean version)

The output of the second filter is defined by its effect on the output signal.
It may be implemented in any way that contributes to producing the correct stress.

Cl **95** *SC* **95.8.9.2** *P* **122** *L* **23** # r01-88

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A**

It would be easier to follow if these things were listed in the same order as they appear in Figure 95-5.

SuggestedRemedy

Change
sinusoidal interferers, sinusoidal jitter, and Gaussian noise generator
to
sinusoidal jitter, sinusoidal interferers, and Gaussian noise generator
Two instances.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8.2 in clean version)

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See also response to comment r01-17

Cl **95** *SC* **95.8.9.2** *P* **122** *L* **26** # r01-89

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

Non-printing character at the end of many of these indented paragraphs

SuggestedRemedy

Remove if practicable.

Response *Response Status* **C**

ACCEPT.

(applies to 95.8.8.2 in clean version)

Cl **95** *SC* **95.8.9.2** *P* **122** *L* **28** # r01-90

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

Creating 2/3 of the vertical eye closure (VECP or TxVEC) doesn't seem compatible with the jitter specs and other constraints.

SuggestedRemedy

Consider taking one of the sinusoidal interferers or Gaussian noise out of this list.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8.2 in clean version)

see response to comment r01-28

[Editor's note added after comment resolution completed.
The response to Comment r01-28 was:
Define the bandwidth of the fourth-order Bessel-Thomson filter to be 19.3 GHz with editorial license.

In 95.8.8.2, change:
"...greater than two thirds of the dB value of the VECP should be created by..."
to:
"...at least 2.5 dB of SEC should be created by..."

Also, in Table 95-7 change:
Stressed eye J2 Jitter from 0.41 UI to 0.39 UI
Stressed eye J4 Jitter from 0.55 UI to 0.53 UI

See also comments r01-9, r01-73, and r01-90
]

Cl **95** *SC* **95.8.9.2** *P* **122** *L* **30** # r01-91

Dawe, Piers J G — Mellanox Technologie

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

Any remaining VECP must be created with sinusoidal interferer 2 or sinusoidal jitter.

SuggestedRemedy

Any remaining TxVEC must be created with a combination of sinusoidal jitter, sinusoidal interferers, and Gaussian noise.
If the list includes all these things, consider deleting the sentence.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8.2 in clean version)

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See also response to comment r01-17

Cl **95** *SC* **95.8.9.2** *P* **122** *L* **7** # r01-87

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

Should the modified TxVEC used for SRS calibration have noise term M set to zero? Setting it to zero is more realistic, not doing so is consistent with previous PMD specs and gives a clearer measure of signal stress.

SuggestedRemedy

Whatever is decided, check that the SRS OMA is consistent with the decision, remembering that TxVEC (even with M) does not contain quite all of the expected transmission penalty.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8.2 in clean version)

For the modified TxVEC used for SRS calibration, set the noise term M to zero

Cl **95** *SC* **95.8.9.2** *P* **122** *L* **7** # r01-86

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **A**

As in comment D3.0/48, 55, 57, 59, VECP is not a penalty. For a consistent standard, the SRS eye should be calibrated with a similar metric to the transmitter spec. This also has the significant advantage that TxVEC addresses measurement consistency with scope noise.

SuggestedRemedy

Revise Table 95-7, Table 95-10, 95.8.8.1 and 95.8.8.2 as in king_01_0814_rev2_mmf.pdf or successor, but see other comments for name of metric called TxVEC in that document, value for that metric, and setting of noise term M.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8.2 in clean version)

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

See response to comments r01-17 and r01-26

[Editor's note added after comment resolution completed.
The response to Comment r01-17 was:
ACCEPT IN PRINCIPLE.

This was discussed in the MMF ad hoc, as documented in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf

Implement the changes in
http://www.ieee802.org/3/bm/public/sep14/king_02_0914_optx.pdf as amended by other comments.

Also, swap the order of the two paragraphs starting: "The sinusoidal amplitude interferers may be set at any frequency between 100 MHz..." and "Sinusoidal jitter is added as specified in Table 95–11..."

The response to Comment r01-26 was:
ACCEPT IN PRINCIPLE.

After making the changes due to comment r01-17, replace "TxVEC" with "TDEC" throughout the document where it refers to the test on the transmitter. Also change TxVEC to "SEC" as the variant of the test with the wider bandwidth and M=0 for Stressed Receiver Sensitivity conditions calibration with editorial license.

A straw poll of the Task Force was taken:
I would support the changing to the names:
A) TDEC, SEC

B) TEC, SEC
A 5, B 4

See also comment r01-76
]

Cl **95** *SC* **95.8.9.3** *P* **123** *L* **16** # r01-92

Dawe, Piers J G — Mellanox Technologie

Comment Type **T** *Comment Status* **R**

D3.0 comments 26 and 36 pointed out that scope noise will affect jitter and eye mask measurments, more than for 10G lanes. The most significant effect will be on J4.

SuggestedRemedy

State that jitter is defined as if measured at +3 dBm OMA (the maximum for a service signal) with 19 uW RMS scope noise.
Review mask coordinates and hit ratios.

Response *Response Status* **C**

REJECT.
(applies to 95.8.8.3 in clean version)

The data presented in:
http://www.ieee802.org/3/bm/public/sep14/dawe_02a_0914_optx.pdf shows that the effect of 19 uW RMS scope noise at +3 dBm OMA is small.

The proceedure calibrates the signal before setting the level for the SRS test.

The draft already contains the warning:
"Care should be taken when characterizing the test signal because excessive noise/jitter in the measurement system will result in an input signal that does not fully stress the receiver under test."

Cl **95** *SC* **95.8.9.4** *P* **123** *L* **29** # r01-93

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

"The use of the word will is deprecated and shall not be used when stating mandatory requirements; will is only used in statements of fact." The text concerned may be correct but it should be hypothetical - we are telling the reader not to do something because it would not be satisfactory.

SuggestedRemedy

Consider changing "system will result in an input signal that does not" to "system would result in an input signal that would not".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
(applies to 95.8.8.4 in clean version)

This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

However, the changes suggested are an improvement to the draft that would otherwise need to be made during the publication process.

Change "system will result in an input signal that does not"
to "system would result in an input signal that does not"

Cl **95** *SC* **95.8.9.5** *P* **123** *L* **42** # r01-94

Dawe, Piers J G — Mellanox Technologie

Comment Type **E** *Comment Status* **A** *Bucket*

In the clean version, the table footnote has become separated from the table.

SuggestedRemedy

Hold them together if practicable.

Response *Response Status* **C**

ACCEPT.
(applies to 95.8.8.5 in clean version)

Cl **95** *SC* **95.8.9.5** *P* **123** *L* **47** # r01-95

Dawe, Piers J G — Mellanox Technologie

Comment Type **TR** *Comment Status* **R**

The two sinusoidal interferers ("bounded" stress) cause pulse shrinkage. With Bessel-Thomson filters, only the 0.05 SJ causes bounded non-pulse-shrinkage jitter; and this component seems smaller than realistic.

SuggestedRemedy

Increase the SJ condition above 10 MHz from 0.05 UI to 0.1 UI or a range. If it is not desired to increase SJ at low frequencies, use the formula in Clause 52, modified for this clause's signalling rate.

Response *Response Status* **U**

REJECT.

This comment does not apply to the changes between IEEE P802.3bm/D3.1 and IEEE P802.3bm/D3.0 or the unsatisfied negative comments from the initial ballot. Hence it is not within the scope of the recirculation ballot.

The limit to SJ above 10MHz is consistent with some other clauses.
Allowing a range would build uncertainty into measurements.
Large amounts of SJ can be problematic for CDRs and are not representative of a real system.

Cl **95** *SC* **95.9.2** *P* **125** *L* **13** # r01-14

Anslow, Peter — Ciena Corporation

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

There is a discrepancy between 95.9.2 and PICS item CES2 as to what the Hazard Level should be.
95.9.2 says Hazard Level 1M while CES2 says Hazard Level 1.
During discussion of this in the MMF Ad Hoc call of 21 August 2014, evidence was shown that 100GBASE-SR4 as per D3.1 can be very close to the upper power limit for Hazard level 1 defined by IEC 60825-2 2007 prior to any fault conditions existing. See presentation linked to from
http://www.ieee802.org/3/bm/public/mmfadhoc/meetings/index.html
Despite a new version of IEC 60825-1 having been issued in 2014 which may allow higher powers in general, for "optical fibre communication systems" this refers to IEC 60825-2

SuggestedRemedy

Make no change to 95.9.2 since this refers to "Hazard Level 1M laser requirements as defined in IEC 60825-1 and IEC 60825-2"
In 95.12.4.5, item CES2 change "Laser safety--IEC Hazard Level 1" to "Laser safety--IEC Hazard Level 1M" and change "Conforms to Hazard Level 1 laser requirements ..." to "Conforms to Hazard Level 1M laser requirements ..."

Response *Response Status* **C**

ACCEPT.
See also comment r01-41