Cl **1** *SC* **1.5** *P* **13** *L* **45** # 1

James, David V

Comment Type **TR** *Comment Status* **X**

I believe I was not eligible for this ballot and the status should therefore be nonbinding. Feel free to override this binding note as appropriate.

This document does not meeting the requirements of the IEEE Style Manual. Please do any/all of the following:
1) Perform a careful review with an IEEE Editor or experienced (outside of 802.3) editor.
2) Read the IEEE Style Manual and update the draft accordingly. This can be found at: http://standards.ieee.org/guides/style/2005Style.pdf
3) Read/use descriptive comments and templates, found at: http://grouper.ieee.org/groups/msc/WordProcessors.html

A specific examples is the following from page 13, line 44:
CRU Clock recovery unit
==> CRU clock recovery unit

From past experience, the 802.3 leadership rarely corrects my comments in recirculations, preferring to forward them to the IEEE Editors. With the assistance of the WG Chair, these are then quietly/privately rejected.

In light of that experience, and with less time to waste, the preceding references are viewed as sufficient for any motivated editor to find/correct other style errors. Thus, these have not been identified in detail.

SuggestedRemedy

Review and revise, as suggested.

Proposed Response *Response Status* **O**

Cl **30B** *SC* **30B** *P* **23** *L* **1** # 2

Dawe, Piers

Comment Type **E** *Comment Status* **X**

It would be nice to see 30B in the contents

SuggestedRemedy

per comment

Proposed Response *Response Status* **O**

Cl **30B** *SC* **30B** *P* **23** *L* **6** # 3

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Wrong font

SuggestedRemedy

Fix

Proposed Response *Response Status* **O**

Cl **30B** *SC* **30B** *P* **23** *L* **6** # 4

Dawe, Piers

Comment Type **E** *Comment Status* **X**

What's GDMO? The base document doesn't appear to explain it or even spell out the abbreviation.

SuggestedRemedy

Refer to vice chair. Add to 1.5 Abbreviations, and if appropriate to 1.4 Definitions. Keep aligned with other projects.

Proposed Response *Response Status* **O**

Cl **45** *SC* **45.2.1.6** *P* **17** *L* **10** # 5

Dawe, Piers

Comment Type **E** *Comment Status* **X**

10GBASE-T doesn't have a PMD. To keep in step with P802.3an:

SuggestedRemedy

Change '10GBASE-T PMA/PMD type' to '10GBASE-T PMA type'.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.9** *P* *L* # 6

Dawe, Piers

Comment Type **TR** *Comment Status* **X**

Regarding my D2.0 comment 87: 'Assure ourselves that a complete real stressed eye generator can be made with adequate tolerance and stability, and give the intended/expected results.' I'm now reassured that the complete real stressed eye generator can be made with adequate tolerance and stability - but NOT convinced that we are getting the intended/expected results. This comes down to choice of stressors, powers and Qsq.

SuggestedRemedy

See other comments: in particular, need to put more time into finding a reasonable split-symmetric stressor.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5** *P* **28** *L* **22** # 7

Dudek, Mike

Comment Type **TR** *Comment Status* **X**

Based on John Ewen's presentation in Nashua it appears that LRM will not go further on OM3 than on OM1, and based on the existing Rx stressors the appropriate distance appears to be 220m for both.

SuggestedRemedy

Change the operating range for 50u 1500/500 in table 68-2 from ""300"" to ""220""

Also Change the LRM cell on 50u in table 44-4 from ""300"" to ""220""

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5** *P* **28** *L* **22** # 8

Kolesar, Paul

Comment Type **TR** *Comment Status* **X**

The analysis of Ewen of September 2005 was the first to include the effect of connectors in OM3 channels. The mode power redistribution caused by connections increased the PIE-D penalty for OM3 and resulted in a reduced supportable distance of about 235 m. This coverage will need to be reinvestigated should any change be made to the center launch encircled flux specification.

SuggestedRemedy

Change the operating range to "0.5 to 235".

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.1** *P* **30** *L* **12** # 9

Dawe, Piers

Comment Type **TR** *Comment Status* **X**

Thinking about the maximum loss in a link: OM3 at 300 m uses centre launch only, where the connector offset loss is negligible, while FDDI grade and OM2, at 220 m, have less fiber-attenuation loss than we calculated before (because they are shorter than 300 m). The maximum loss is set by the 220 m links, at 1.83 dB - as we don't deal in hundredths of dB, call that 1.8 dB. Now, do we want to allow less sensitive receivers, or reduce the transmit power and overload requirements? If we have adequate sensitivity, we save (thermal) power by choosing the latter.

SuggestedRemedy

Reduce the transmit OMA max and min, and receiver overload, all by 0.2 dB. Consider reducing the transmit average power min. I don't think it's worth changing the transmit average power max. Consider reducing the transmit peak power. Change entries in table 68-4, compliant signal in channel, in step.

Proposed Response *Response Status* **O**

Cl **68** *SC* **5** *P* **30** *L* **32** # 10

Cunningham, David

Comment Type **TR** *Comment Status* **X**

In Table 68û3ù10GBASE-LRM transmit characteristics
The increased Encircled Flux (EF) specifications of D2.3 (6 um and 30%, 14 um and 86%) were added to the standard by mistake. The D2.2 specifications were (5 um and 30% and 11 um and 86%). However, both are inappropriate for the following reasons:

Dual launch is predicted on launch diversity. This means that the preferred and alternative launches must occupy different mode group power distribution (MGPD) spaces. The purpose of the EF specification is to ensure this launch diversity.

Whilst the D2.3 specification (6 um and 30%, 14 um and 86%) definitely ensures launch diversity for 62MMF for 50MMF there is no diversity because the MGPD substantially overlap. This indicates that the 14 um limit is wrong.

Experiment and theory prove that the D2.2 EF specification is too tight due the variation in the parameters of the MMF of different MMF test cables and reasonable mechanical tolerances of transmit optical subassemblies (TOSA) and the media dependent interface (MDI) connector.

Therefore, the correct EF specification is somewhere between the D2.2 and the D2.3 limits. A worst case tolerance analysis indicates that a more correct specification is: (> 30% at 5 um and > 80% at 11 um). The dual launch 99 percentile PIE_D for this specification is still approximately 4.1 dB. Changing to this specification will ensure launch diversity, increase yield and maintain the 99% PIE_D performance.

SuggestedRemedy

Table 68û3ù10GBASE-LRM transmit characteristics, replace (30% within 6 um radius and 86% within 14 um radius) with (30% within 5 um radius and 80% within 11 um radius).

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.1** *P* **30** *L* **37** # 11

Aronson, Lew

Comment Type **T** *Comment Status* **X**

This comment is dependent on resolution of what appears to be an error in the resolution of comment 68 where it appears a proposal I made to loosen the EF specs to 30% at 6 um and 85% at 14 um was actually accepted.

Assuming that that relaxation was actually defeated (which is NOT reflected in D2.3), I wish to submit a proposal for a lesser releaxation based on much more refined measurements and the still pressing need to allow for reasonable TOSA yields to what is otherwise a very difficult specification. I propose below a new relaxation which should be adequate and which I expect we will be able to show results in an acceptably small change in the distribution of launched mode groups.

SuggestedRemedy

Assuming we have not already change the spec to 30% at 6 um and 86% at 14 um, change the encircled flux requirements for center launch into all fiber types in table 68-3 to:

86% at 12.5 um. Leave the spec of 30% at 5 um unchanged.

Alternately change to:

81% at 11 um. Leave the spec of 30% at 5 um unchanged.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.1** *P* **30** *L* **38** # 12

Kolesar, Paul

Comment Type **TR** *Comment Status* **X**

The Encircled Flux specs in all three instances were changed against the intent of the committee. The committee agreed to investigate the effect of the proposed change before deciding if the specification should be adjusted. This decision should have been captured in the comment data base.

SuggestedRemedy

Revert to the values of D2.2 for all three entries that specify the center launch condition.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.1** *P* **31** *L* **11** # 13

Dawe, Piers

Comment Type **E** *Comment Status* **X**

This needs wordsmithing: 'when the MDI is coupled directly into both 50 um and 62.5 um patch cords.' The MDI can't be coupled into two (transmit side) patch cords at once. And, it's only coincidence that the spec numbers are the same for 50 and 62.5 um: the optics of the two fibers are not the same. Note that footnote g is called from three places.

SuggestedRemedy

Change to 'when the MDI is coupled directly into a patch cord of the appropriate core diameter.'

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.3** *P* **32** *L* **11** # 14

Dudek, Mike

Comment Type **TR** *Comment Status* **X**

This comment is related to the un-satisfied comment 64 on draft 2.2. The link budget is presently broken, due to the allowance for Transmitter implementation penalty in TWDP. A presentation will be given to support this comment.

SuggestedRemedy

The best way of fixing it is to change the stressed receiver sensitivity to -7.0dBm in table 68-5 (This assumes TWDP remains at 4.7dB. Any increase in TWDP above 4.7dB should be accompanied by the same magnitude reduction in the stressed receiver sensitivity, and reduction in TWDP below 4.7dB should be accompanied by the same magnitude increase in the stressed receiver sensitivity.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.3** *P* **32** *L* **11** # 15

Dawe, Piers

Comment Type **TR** *Comment Status* **X**

We have managed to use just one sensitivity level for everything. However, it appears that the lowest power can only happen with offset launch (otherwise there is no connector offset loss - but maybe a little 'parameter mismatch' loss. Also, it appears from simulation that split pulses are associated with center launch (but not in OM3). Therefore, split pulses cannot occur at the overall minimum power. Assuming a connector loss budget of 1.5 dB, 2/3 of which is offset, and assuming (pessimistically) that the other 1/3 (parameter mismatch) can occur even without offset, the test power for the split-symmetric stressor should be increased by 1.0 dB. But in another comment, I show that the transmit power can be reduced by 0.2 dB, leaving 0.8 dB.

SuggestedRemedy

Add another row to this receiver spec table, under 'Stressed sensitivity in OMA', description 'Stressed sensitivity for symmetrical tap weights, in OMA', value -5.7 dBm. Add new footnote a, called from 'Stressed sensitivity for symmetrical tap weights, in OMA' and from 'Symmetrical'. Footnote to say 'The sensitivity for the symmetrical tap weights is -5.7 dBm. For other conditions, the sensitivity is -6.5 dBm.' In 68.6.9.4, change as follows (marked by *...*):

The three ISI impairments defined in Table 68û5 and 68.6.9.2, together with the *three* OMA values (i.e. the *two* stressed *sensitivities* in OMA, and the overload in OMA, *all* specified in Table 68û5) define six discrete signal conditions. With the test system setup as described in 68.6.9.2 and 68.6.9.3, for each case, select the required ISI impairment and set the attenuator and Gaussian white noise source to obtain *the appropriate* OMA, with the appropriate noise, as specified in Table 68û5.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.3** *P* **32** *L* **19** # 16

Dawe, Piers

Comment Type **TR** *Comment Status* **X**

Noticing that split pulses are extremely rare with offset launch, a channel that shows split pulse behavior can't have traditional offset-loss-induced modal noise. It might have another kind of modal noise, but probably less.

SuggestedRemedy

If the modal noise for center launch is much less than the limit (for offset launch), change 'For sensitivity tests' to 'For pre-cursor and post-cursor sensitivity' and change 'For overload tests' to 'For overload tests and sensitivity with symmetrical tap weights' If not, add a third table entry with an intermediate Qsq value.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.3** *P* **32** *L* **25** # 17

Dawe, Piers

Comment Type **TR** *Comment Status* **X**

The symmetrical stressor is too extreme: the Monte Carlo simulations I have done have not shown such a cleanly split pulse.

SuggestedRemedy

Find another stressor of similar PIE-D, but less cleanly split. Specifically, see if the stressor I proposed at the last meeting or another similar to it, have the property of 'fairness to different equalizers'.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.3** *P* **32** *L* **35** # 18

Dawe, Piers

Comment Type **T** *Comment Status* **X**

Considering the concern that there might be a 'hole' in the relation between Tx and Rx jitter specs:

SuggestedRemedy

Double the two spot frequencies (at the same UI) to 80 kHz, 400 kHz. Consider adding a third point on the same line at (800, 0.5).

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.1** *P* **33** *L* **12** # 19

Dawe, Piers

Comment Type **T** *Comment Status* **X**

Half of this change should be undone, because 52.9.1 contains material before 52.9.1.1 that does not apply here

SuggestedRemedy

Change '52.9.1' back to '52.9.1.1 and 52.9.1.2'.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.5** *P* **34** *L* **50** # 20

Popescu, Petre

Comment Type **TR** *Comment Status* **X** *[Editor: Page 43]*

Transmitter random noise is not included in any transmitter measurements
68.6.5 (use CRU to trigger the scope, it tracks "acceptable" levels of low frequency jitter),
8.6.6 (use averaging for waveforms),
68.6.8 (use same CRU as for 68.6.5, and not include random jitter and "equalizable" jitter).

SuggestedRemedy

Replace "A clock recovery unit (CRU) should be used to trigger the scope .. To the end of the paragraph"
with "Transmitter reference clock should be used to trigger the scope".

Proposed Response *Response Status* **W**

Cl **68** *SC* **68.6.6.1** *P* **37** *L* **33** # 21

Dawe, Piers

Comment Type **T** *Comment Status* **X**

Per lindsay_1_0905, I thought we were going to insert something like 'A 14,5 DFE is used in the determination of TWDP. This 14,5 DFE is not intended to represent the equalizer used within an optical receiver, but is intended to provide uniform measurement conditions at the transmitter.' While we are editing this section, we could do something about 'many taps': I suppose it's subjective how many is many.

SuggestedRemedy

Change 'The reference equalizer is a decision feedback equalizer with many taps. The TWDP value is the largest...' to 'The reference equalizer is a decision feedback equalizer with defined tap number and spacing. This is not intended to represent the equalizer used within an optical receiver, but is intended to provide uniform measurement conditions at the transmitter. The TWDP value is the largest...'.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.7** *P* **43** *L* **17** # 22

Dawe, Piers

Comment Type **T** *Comment Status* **X**

One could measure optical field, usually proportional to the square root of power, and get the wrong answer.

SuggestedRemedy

Change 'linear optical units' to 'linear units of optical power'.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.7** *P* **43** *L* **23** # 23

Dawe, Piers

Comment Type **E** *Comment Status* **X**

In '7.5 x 10...', should it be a multiply cross rather than an x?

SuggestedRemedy

Consider changing per comment

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.8** *P* **43** *L* **53** # 24

Puleo, Mario

Comment Type **T** *Comment Status* **X**

In uncorrelated jitter measurements ""the receiver of the system under test should be receiving a signal that is asynchronous to that being transmitted"". In XAUI based modules the only practical way to have the desired pattern (1,2 or PRBS9) at TX output is to set the module in network loopback mode and send that pattern at RX input, then TX and RX path signals are synchronous.

SuggestedRemedy

Remove the sentence, it's quite unlikely that coherent crosstalk from RX to TX can improve TX jitter performance.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.9.3** *P* **46** *L* **53** # 25

Dawe, Piers

Comment Type **T** *Comment Status* **X**

The TWDP values for the stressors are slightly different with a finite equalizer. The split-symmetric stressor should be changed anyway

SuggestedRemedy

I get 4.07 3.90 4.22 dB. Do others agree?

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.9.3** *P* **50** *L* **4** # 26

Dawe, Piers

Comment Type **T** *Comment Status* **X**

The 'time' column has gained a useless trailing zero.

SuggestedRemedy

Remove the fourth decimal of time (always 0).

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.10** *P* **51** *L* **22** # 27

Dawe, Piers

Comment Type **T** *Comment Status* **X**

Has the TWDP for the simple stressed receiver sensitivity changed? I would guess it might have increased by 0.02 dB.

SuggestedRemedy

Ask an expert and change if necessary.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.11** *P* **52** *L* **9** # 28

Dawe, Piers

Comment Type **T** *Comment Status* **X**

Blank line

SuggestedRemedy

Remove

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.8** *P* **53** *L* **6** # 29

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Line spacing in this and next two subclauses seems non standard

SuggestedRemedy

Correct if appropriate

Proposed Response *Response Status* **O**

Cl **68** *SC* **69.9.3** *P* **54** *L* **22** # 30

Kolesar, Paul

Comment Type **TR** *Comment Status* **X**

The benchmarking of the OM2 Monte Carlo results against the spread sheet link model for 10GBASE-LX4 and 1000BASE-LX10 by John Ewen at the September 2005 interim showed equivalence at the 85 percentile level causing the OM2 MC model to appear very pessimistic. However, it is likely that the more sophisticated MC model is more accurate with respect to link percentile than the spread sheet. One explanation is that the MC simulation has uncovered a problem with the launch specification of the 50um OSL patch cord. The OSL patch cord specification allows offsets between 10 and 16 um (13 +/- 3 um). These values are disproportionately low when scaled by core diameter relative to those of the 62.5um OSL patch cord that has an offset range between 17 and 23 um. The equivalent offset range for the 50 um cord when scaled by core size is 13.6 to 18.4 um (16 +/- 2.4 um). The effect of launching at offsets in the low end of the present spec is that low order modes will carry a larger fraction of the signal, and hence impart more of their mode delay characteristics to the signal. These modes delays are the least controlled by the fibers OFL bandwidth measurement and can give rise to lower link percentile. The effect of varying the OSL offset should be explored to find the optimal specification. If found to be sub-optimal, adjust the 50um OSL spec to be optimal.

SuggestedRemedy

Investigate the link percentile as a function of OSL offset for OM2. If the present specification is found to be sub-optimal, specify the optimal range. For example, add the following sentence. The optical center offset between the SMF and 50 um fiber shall be 13.6 < Offset < 18.4 um.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.10.3.4** *P* **58** *L* **12** # 31

Dawe, Piers

Comment Type **E** *Comment Status* **X**

This table and the next will look better if you redo the 'shrink to fit' and take out any line feeds within 'local and national codes for the limitation of electromagnetic...'

SuggestedRemedy

per comment

Proposed Response *Response Status* **O**

Cl **68A** *SC* **99** *P* **2** *L* **46** # 32

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Title change: should 'Manager, Standards Licensing and Contracts,' be 'Manager, Standards Intellectual Property'?

SuggestedRemedy

Check with officers and/or staff editor and change (twice) if agreed.

Proposed Response *Response Status* **O**

Cl **68A** *SC* *P* **60** *L* # 33

Cunningham, David

Comment Type **ER** *Comment Status* **X**

The annex is out of step with the TWDP.

SuggestedRemedy

Search for the number of feed forward taps (50) and replace with 14 throughout Annex.
Search for the number of feedback taps (50) and replace with 5 throughout Annex.

On page 61 line 19 the paragraph regarding OMA and ZERO power needs to be moved to become a bullet under ""The captured waveform is processed as follows:""This paragraph also needs to be reworded to become something like ""The OMA and the ZERO power level of the sampled waveform are calculated.""

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A** *P* **60** *L* **11** # 34

Dawe, Piers

Comment Type **T** *Comment Status* **X**

This annex can be simplified by omitting the concept of 'reference channel' and just starting with a reference SNR. I'm not strongly recommending this change, just offering it in case it's useful.

SuggestedRemedy

Change to: 'The penalty is defined as the difference (in dB) between a reference signal to noise ratio (SNR) and the equivalent signal to noise ratio at the slicer input for the measured waveform after propagation through a simulated fiber channel.'
68A.1 Reference SNR
[Delete the next paragraph and the sentence following] The reference bit error ratio (BER) is given by ...'
Right at the end, bullet 8, delete 'from the reference channel model'.

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.1** *P* **60** *L* **25** # 35

Dawe, Piers

Comment Type **T** *Comment Status* **X**

Error rates are defined per time. Here we mean error ratio.

SuggestedRemedy

Change 'error rate' to 'error ratio', several times. Don't change 'sampled at rate 2/T'.

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.1** *P* **60** *L* **31** # 36

Dawe, Piers

Comment Type **E** *Comment Status* **X**

iwhere

SuggestedRemedy

where

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.2** *P* **60** *L* **50** # 37

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Using the same word for the same thing each time (nice example in 52.9.9.2, '... introduced by the reference receiver, filters, oscilloscope, and BERT. While the details of measurement and test equipment are beyond the scope of this standard...').

SuggestedRemedy

Change 'scope' to 'oscilloscope', several times.

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.1** *P* **60** *L* **54** # 38

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Asking the reader to try to relate the definitions of Q() and Qsq didn't seem helpful to this reader. The footnote's use is to point out that these things are distinct; it doesn't matter if they are related.

SuggestedRemedy

Delete 'Although related in definition, '.

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.2** *P* **61** *L* **19** # 39

Dawe, Piers

Comment Type **E** *Comment Status* **X**

OMA and zero levels are no longer inputs to program

SuggestedRemedy

Delete this bullet

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68a** *P* **61** *L* **20** # 40

Dudek, Mike

Comment Type **TR** *Comment Status* **X**

Annex A is no longer a correct description of the TWDP code.

SuggestedRemedy

Option 1. Rewrite the annex to cover the complete new functionality

Option 2. Correct the annex where it is incorrect but do not document the additional functionality.

Page 61
line 20. Delete the paragraph starting ""the measured OMA...""
Line 40 Change ""100 feed-forward"" to ""14 feed-forward""
Line 41 Change ""50 feedback to 5 feedback
Line 47 Change ""W(-25),(W-24.5).....W(24.5) to W(-7),W(-6.5)...W(6.5)
Line 51 Change ""B(50)"" to ""B(5)""
Line 53 Change ""50 anticausal taps and 50 causal taps (including the tap at K=0"" to ""7 anticausal taps and 7 causal taps (including the tap at K=0""

Option 3

Delete annex 68A and any references to it. On page 37 line 33 however include some additional information. Change ""many taps"" to ""14 T/2 spaced feedforward taps and 5 decision feedback taps""

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.2** *P* **61** *L* **25** # 41

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Would be nicer to count from 1 to N, especially as the code does.

SuggestedRemedy

Change 0 1 N-1 to 1 2 N

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.2** *P* **61** *L* **32** # 42

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Changes following other changes...

SuggestedRemedy

1) The OMA of the waveform is scaled to 1. (Note: Scaling the OMA to 1 sets the ratio of received OMA to N0 to the minimum allowed by the link budget.)
2) The waveform is passed through the simulated fiber channel(s).
3) [as is]
4) The antialiasing filter output signal is sampled at rate 2/T. The sampling instant is optimized within the algorithm.
5) ... with 14 feed-forward taps (at T/2 spacing) and 5 feedback taps. The feed-forward and feedback tap coefficients and correction for ZERO power level are calculated ...
{W(1), W(2), ..., W(14)}
...
{ B(5)}
consists of 14 taps. The sampling instant is optimized against the feed-forward filter. The feedback filter is symbol spaced. ...
{z(1), z(2), ..., z(N)}

Proposed Response *Response Status* **O**

Cl **68A** *SC* **68A.2** *P* **62** *L* **15** # 43

Dawe, Piers

Comment Type **E** *Comment Status* **X**

For consistency

SuggestedRemedy

Change 'bit-error' to 'bit error'.

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **1** *L* **40** # 44

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Time to add abstract and keywords to the front page.

SuggestedRemedy

Per comment

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **10** *L* **21** # 45

Dawe, Piers

Comment Type **E** *Comment Status* **X**

It would be nice to list the subclauses altered in 45.

SuggestedRemedy

Noticing that they are all 45.2.1.something, a title 45.2.1, which will be picked up in the contents, may be enough.

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **12** *L* **16** # 46

Dawe, Piers

Comment Type **E** *Comment Status* **X**

This box contains two things: a part that is to be published, and one that is to be kept - this creates an opportunity for error.

SuggestedRemedy

Consult officers and/or staff editor. Either put the box round just the second part, or use two boxes.

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **3** *L* **3** # 47

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Editor's note and text do not align with 802.3an.

SuggestedRemedy

Consult other officers and get alingned.

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **6** *L* **30** # 48

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Editor's note should remain (following the sentence shown stricken and re-inserted). 'IEEE Std 802.3 will continue to evolve.' should start a new paragraph.

SuggestedRemedy

per comment

Proposed Response *Response Status* **O**

Cl **99** *SC* **99** *P* **7** *L* **2** # 49

Dawe, Piers

Comment Type **E** *Comment Status* **X**

Empty line?

SuggestedRemedy

Remove. Also around line 10.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.6.6** *P* **40** *L* **21** # 50

Abbott, John

Comment Type **TR** *Comment Status* **X**

Symmetric Stressors: Draft 2.3 contains a significant modification to TWDP, enabling penalties for finite equalizers & allowing a basis for review of the stressors. The current stressor set does not adequately mirror the typical pulses from offset launches, which tend to reflect a local alpha error and to be unimodal, near-symmetric, and somewhat Gaussian - pulses which for a given bandwidth have a high PIE-D (PIE-D and PIE(12,5) are nearly equal) and are relatively hard to equalize. The current set of stressors is approximately equivalent to offset BWs on 220m of 700MHz.km and hence are not a worst-case estimate of the installed OM1 base.

Worst-case OM1 fibers are characterized by center perturbations large enough that a center pulse cannot be equalized (an adequate 220 LRM Center Launch pulse cannot be guaranteed or specified by an OFL BW spec of 500MHz.km) ; for these fibers the constraint of 700MHz.km will result in a higher failure rate than typically seen in MM systems in the past. 1000BASE-LX required only 500MHz.km for 550m operation (and had excess margin, actually requiring only

SuggestedRemedy

271MHz.km for 300m); LX-4 requires only 500MHz.km for 300m operation. Thus the 700MHz.km requirement tied to the current stressors is a significantly higher bar for the same OM1 fiber.
~REMEDY: Add a 4th stressor A1=A4 = 0.11; A2=A3= 0.39; This has PIE-D = 4.42, PIE(12,5)=4.48. See presentation abbott_1_1005.pdf Note that although the PIE-D level is higher, there is no additional PIE(12,5) ""penalty"" as with split pulses.

The stressor set should include an additional symmetric stressor, either with A1=A4 and A2=A3, or A1=0, A2=A4 (i.e. a 2-pulse symmetric stressor or a 1-pulse symmetric stressor) which is consistent with an offset BW of approximately 625-650MHz.km (PIE-D = PIE(12,5) = 4.4 to 4.6dB). Two sequences of stressors were constructed varying the relative level of (A1&A4) vs (A2&A3), or (A2&A4) vs A3, and the above recommendation gives a pulse representative of worst case fibers.

If the task force finds a 4th stressor is too burdensome for TP3, this stressor could appear in an informative annex. Or this stressor could replace one of the others. For purposes of TP2 testing, it could be incorporated in the TWDP code without difficulty.

Proposed Response *Response Status* **O**

Cl **68** *SC* **68.5.3** *P* **36** *L* **25** # 51

Abbott, John

Comment Type **TR** *Comment Status* **X**

Referring to Piers Dawe comment 66 in draft 2.2, 9/2005 meeting in Nashua. Piers has identified a potential problem with the split symmetric stressor, because the frequency response is sensitive to the weights.

Piers suggests changing the stressor so that it is less sensitive.

The concern I have is that Piers has identified a specific stressor which can be used for a dynamic test relevant to other parts of this standard. His experience proves that such a test is necessary, and he provides us with a stressor which can be used. At the very least his information should be appended to the informative section about dynamic effects. The test appears to be to take the split symmetric stressor and change the relative weights from A2=0.513 A4=0.487 to A2=0.487 A4=0.513 over a range of frequencies.

Again, a problem with the implementation of LRM in real systems where the modal weights can vary, has been seen experimentally. This supplements similar experimental data previously presented to the task force.

SuggestedRemedy

Take the Piers Dawe comment 66 in draft 2.2 and use it as the basis of a normative dynamic test.

If this remedy is rejected, the author recommends the information be documented in an informative annex, highlighting the problem.

Proposed Response *Response Status* **O**

Cl **68** *SC* **6.6.1** *P* **37** *L* **33** # 52

Tom, Lindsay

Comment Type **ER** *Comment Status* **X**

The text should reflect the change to 14,5 taps.

SuggestedRemedy

Change ""many taps"" to ""14 feedforward taps with T/2 spacing and 5 feedback taps with T spacing.""

Proposed Response *Response Status* **O**

Cl **68** *SC* **6.2** *P* **34** *L* **32** # 53

Tom, Lindsay

Comment Type **T** *Comment Status* **X**

OMA is also determined with the OMA code. A user should be able to use that result and not have to perform a separate OMA measurement.

SuggestedRemedy

Add a new paragraph below the figure: ""Alternatively, the value for OMA can be determined by extracting the variable ""MeasuredOMA"" from the algorithm in clause 68.6.6.1.""

Proposed Response *Response Status* **O**

Cl **68** *SC* **Table 68-3** *P* **30** *L* **29** # 54

Tom, Lindsay

Comment Type **TR** *Comment Status* **X**

LR transmitters are allowed reasonable amounts of DCD and DDJ which can lead to increased TWDP values, particularly for the finite length equalizer in the standard. To allow LR transmitters to be used and to keep costs down for LRM systems, the TWDP limit should be increased.

SuggestedRemedy

Increase the TWDP limit to 5 dB.

Proposed Response *Response Status* **O**