Cl **00** *SC* *P* *L* # **105**

Dawe, Piers Agilent

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

BERT is bit error RATIO (most times) - see definitions 1.5 or manufacturer's literature.

SuggestedRemedy

6 times in clause 52, change rate to ratio. Also clauses 30, 47, 49, 50, 53 or their appendices.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. BERT remains BERT. We assume commenter is referring to BER, not BERT.

Cl **00** *SC* *P* *L* # **124**

Dawe, Piers Agilent

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

Precise words for MDIO PICS varies

SuggestedRemedy

Chief editor please recommend

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. All MMD-capable clauses will list MDIO capabilities in the PICS under "Major capabilities/options". The table entry will be specified as:
Item = MD
Feature = MDIO
Subclause = <applicable to each clause>
Value/Comment = Registers and interface supported
Status = O
Support = Yes [ ], No [ ]

See 47.6.3 as a reference for the required format.

Clause 48 and 52 need to add this entry.

Cl **00** *SC* *P* *L* # **5**

Gaither, Justin Xilinx

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

Loopback support (register 3.0.14) has been (I believe mistakenly) removed in D3.3 for 10GBASE-X PCS MMDs; only the 10GBASE-R MMD is now referred to in this clause. The explicit dependance on 10GBASE-R should be removed and a reference to the relevant subclause in clause 48 should be added. It will then align with the related register definitions in the MMD registers for DTE XGXS (5.0.14) and PHY XGXS (4.0.14)

SuggestedRemedy

Alter the first paragraph of 45.2.3.1.2 to read:
The PCS shall be placed in a loopback mode of operation when bit 3.0.14 is set to a one. When bit 3.0.14 is set to a one, the PCS shall accept data on the transmit path and return it on the receive path. The specific behavior of the 10GBASE-R PCS during loopback is specified in Clause 49.2, and the specific behaviour of the 10GBASE-X PCS duringloopback is specified in Clause 48.3.3. For all other port types when operating at 10Gb/s, the PCS loopback functionality is not applicable and writes to this bit shall be ignored and reads from this bit shall return a value of zero.

Response *Response Status* **Z**

PROPOSED REJECT. Loopback is performed in 10GBASE-X PMA, not in the PCS.

Cl **00** *SC* **52** *P* *L* # **94**

Dawe, Piers Agilent

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

Ludicrous hyphenations. Some of these words could be hyphenated (differently) but you don't need to.

SuggestedRemedy

Remove the following from hyphenation dictionary: implementa-tion sig-nals sta-tus specifica-tions modula-tion tech-niques jit-ter hap-pen pat-tern inter-val extinc-tion proce-dure fre-quency envi-ronmental opti-cal connec-tions sin-gle

Response *Response Status* **C**

REJECT.

Withdrawn by commenter.

Cl **45** *SC* **45.4.1** *P* **238** *L* **32** # **2**

Turner, Ed — Lattice Semiconductor

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

Since positive currents are defined to flow into the circuit, IOH currents are normally negative. The IOH specification in table 45-62 on line 46 at page 238 should have a MAXIMUM value of -4mA. Likewise, the IOL specification on line 48 should have a minimum value of +4mA. (At 0.2V for consistency with the VOL specification range.) The EC7 and EC8 values in table 45.5.5.14 should be adjusted accordingly. The specifications on VI, VIH and VIL in table 45-62 on lines 36 - 40 at page 238 are all in the format normally found in device specifications, where requirements are put on the input signals to the device. In table 45-62 however the object is to have specifications on MDIO receivers, not the input signals to them. That can be changed in several ways. The smallest departure from the present specifications would probably be to remove the VI spec and reword the definitions of VIH and VIL:

VIH	Range of input voltages that must be interpreted as a logic 1.	0.84V	1.5V
VIL	Range of input voltages that must be interpreted as a logic 0.	-0.3V	0.36V

SuggestedRemedy

Change IOH to -4mA MAX, change IOL to +4mA MIN (@0.2V), update EC7, EC8.
Remove VI line.
Change VIH to 0.84V (MIN), 1.5V (MAX)
Change VIL to -0.3V (MIN), 0.36V (MAX)

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **Table 45-11** *P* **205** *L* **38** # **132**

Dawe, Piers — Agilent

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

Table 45-28 formatting

SuggestedRemedy

Make the right hand column much wider

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **Table 45-28** *P* **190** *L* # **133**

Dawe, Piers — Agilent

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

Table 45-11 is spread over two pages

SuggestedRemedy

Make the right hand column much wider and with a minimum of formatting work it should fit on the page

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **Table 45-28** *P* **205** *L* **38** # **134**

Dawe, Piers — Agilent

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

Table 45-28 formatting

SuggestedRemedy

Make the right hand column much wider

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **Table 45-49** *P* **225** *L* **11** # **135**

Dawe, Piers — Agilent

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

Table 45-49 formatting

SuggestedRemedy

Make the table full width, make the "Name" and "Description" columns wider

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.6** *P* **264** *L* **47** # **90**

Robert Grow Intel

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

Loopback is a popular feature, and there has been some confusion if loopback at the XGMII is possible.

SuggestedRemedy

Add a note to 46.1.6"Note -- XGMII signals are specified such that transmit signals may be connected to receive signals to create a loopback path. To do this, TXD<0> is connected to RXD<0> ... TXD<31> to RXD<31>, TXC<0> to RXC<0> ... TXC<3> to RXC<3>, and TXCLK to RXCLK. Such a loopback does not test the Link Fault Signaling state machine, nor any of the error handling functions of the receive RS."

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.4.2** *P* **276** *L* **30** # **37**

Tim Warland Quake Technologies

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

In the subclause title, the word Variables is mis-spelled

SuggestedRemedy

Change Varibles to Variables

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.4.3** *P* **277** *L* **39** # **91**

Robert Grow Intel

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

Missing exit term from state NEW_FAULT_TYPE

SuggestedRemedy

Restore exit condition of UCT from state NEW_FAULT_TYPE

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.4.3** *P* **277** *L* **49** # **93**

Foulds, Chris Intel

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

Condition (b) is not correct. If a fault_sequence is not received within a period of 128 columns, the link_fault variable will actually be cleared.

SuggestedRemedy

1. Leave condition (a) the same.
2. Change condition (b) to the following:
b) Without any intervening fault_sequences of a different value, and
3. Add condition (c) which says the following:
c) Without any intervening period of 128 columns not containing a fault_sequence

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace lettered list with:

Four fault_sequences containing the same fault value have been received with each pair of fault sequences separated by less than 128 columns and no intervening fault_sequences of a different fault value.

[Make grammar match with preceding paragraph.]

Cl **46** *SC* **46.4** *P* **279** *L* **37** # **6**

Gaither, Justin Xilinx

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

The setup and hold time requirements do not properly constraint duty cycle variations of the XGMII clocks

SuggestedRemedy

Specifiy a 40/60 % duty cyle requirement for the TX_CLK and RX_CLK in Figure 46-12.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Add lines to Figure 46-12 to both high and low clock periods from active threshold of certainty region for tpwmin

Add to imbeded table a row consisting of
tpwmin with a value of 2.5ns at the driver

Cl **46** *SC* **Figure 46.9** *P* **277** *L* **842** # **92**

Foulds, Chris — Intel

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

The Link Fault Signaling State Machine is not complete. The main problem is that there is no transition for the condition where a fault sequence is not received (!fault_sequence) and col_cnt is <= 127.

SuggestedRemedy

Add if-else conditions to COUNT and FAULT states for incrementing col_cnt or seq_cnt. Add transition conditions for !fault_seq*col_cnt<128.See included file showing proposed state diagram.

Response *Response Status* **C**

REJECT. Column count is defined as incrementing continously unless reset, so no change is required to increment the counter.

Cl **47** *SC* **47.3.3.4** *P* **336** *L* **34** # **99007**

Baumer, Howard — Broadcom Corp.

Comment Type **TR** *Comment Status* **A** *XAUI (D3.1) NC - Done*

Differential return loss specified as as a flat responce of 10dB from 100MHz to 2.5GHz is unrealistic and cannot be met with pratical and reasonable designs and packages. Also the common mode return loss specifications exculdes pure differential designs, that is a pure 100ohm differential termination will have a 0dB common mode return loss but is a preferable design since it keeps all currents in the signal lines.

SuggestedRemedy

Specify the driver output differential return loss with a nonflat response and remove the common mode return loss requirement. New description to read: "Driver output impedance shall result in a differential return loss better than 10dB from 100MHz to 781.25MHz and reduce 20dB per decade from 781.25MHz to 2.5GHz". The last sentence in this paragraph will then need to read: "The reference impedance for differential return loss measurements is 100ohms." Table 47-1 in subclause 47.3.3 on page 334 will need to be updated with these redefined return loss specifications.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Resolution reached during the formal Clause 47 comment review session was to recognize the problem and accept the suggested remedy as an interim solution. A phone call to the commenter discussing the suggested remedy indicated that a preferrable remedy was to instead specify a driver output differential return loss with a flat response of 5.5 dB but that this was not optimized either. Additional subsequent discussion between multiple parties indicated a preferrable solution as follows. The preferrable solution is also illustrated in a graph in the Clause 47 status report:

Specify the driver output differential return loss with a nonflat response and remove the common mode return loss requirement. New description to read: "Driver output impedance shall result in a differential return loss better than 10dB from 100MHz to 781.25MHz, reduce 20dB per decade from 781.25MHz to 3.5GHz and 20dB per decade from 3.5GHz on". The last sentence in this paragraph reads: "The reference impedance for differential return loss measurements is 100ohms." Table 47-1 in subclause 47.3.3 is updated to reflect the new return loss specifications. PICS item E4 in 47.6.4.3 is updated to reflect the new return loss specifications.

Cl **47** *SC* **47.3.3.4** *P* **336** *L* **34** # **3**

Gaither, Justin — Xilinx

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

I support comment #99007

SuggestedRemedy

Follow the remedy in #99007

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.3.3.6** *P* **339** *L* **3839** # **99008**

Baumer, Howard — Broadcom Corp.

Comment Type **TR** *Comment Status* **R** *XAUI (D3.1) NC - Done*

The current transmit jitter specification allows for the near end random jitter to be has high as 8ps rms and the far end random jitter to be has high as 12.6ps rms. (Since the specification allows Dj=0 and Rj=Tj-Dj(actual) Rj can then equal Tj. For near end Rj=0.35UI=112ps pk-pk which is 8ps rms {112/14}. For the far end Rj=0.55UI=176ps pk-pk which is 12.6ps rms.) This puts an undue burdon on the Receiver to be able to handle this large pure random jitter. A maximum random jitter should be specified.

SuggestedRemedy

Add a maximum random jitter specification that is not based on the determinstic jitter and add the constraint that the sum of the Rj & Dj has to be less than the Tj.Second to last sentence (lines 38-39) modified to read: "The maximum peak to peak random jitter, defined as 14 * rms random jitter, shall be less than 0.22UI. The sum of the measured deterministic and measured peak to peak random jitter shall be less than the total jitter".Table 47-1 in subclause 47.3.3 on page 334 will need to be updated with the maximum random jitter.

Response *Response Status* **U**

REJECT. The working group desires further investigation of an appropriate RJ limit. The editor asks that the commentor determine an RJ limit acceptable to the working group and then resubmitted this comment.

As of November 15, 2001, the commenter has provided no new information during the last 5 months justifying a need for a change, and the committee is satisfied with the current specifications.

Cl **47** *SC* **47.3.4.5** *P* **342** *L* **2937** # **99009**

Baumer, Howard — Broadcom Corp.

Comment Type **TR** *Comment Status* **R** *XAUI (D3.1) NC - Done*

There is no specific random jitter specified for the receiver jitter tolerance. This results in the same problem illustrated in my comment #99008.

SuggestedRemedy

Add the following sentance to subclause 47.3.4.5 between the sentence on specifying Dj and the sentence specifyint Tj: "The maximum peak to peak random jitter, defined as 14 * rms random jitter, shall be less than 0.22UI."

Response *Response Status* **U**

REJECT. See response to #99008.

Cl **47** *SC* **47.4.3** *P* **295** *L* **24** # **48**

Tim Warland — Quake Technologies

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

The CJPAT pattern is described as a transmit function but it is unclear that it is necessary to include the CJPAT generation function"

SuggestedRemedy

Change the text to either indicate the mandatory requirement to generate CJPAT or explicitly indicate that CJPAT is optional. Text could read:"The data pattern for jitter measurements is the CJPAT pattern as defined in Annex 48A. The CJPAT generator shall be implemented in the XAUI transmit function" or "The XAUI transmit function may optionally be implemented in the XAUI transmit function."

Response *Response Status* **Z**

REJECT. Clarification is included in Annex 48A wording, first paragraph: "The patterns may be implemented at a bit, code-group or frame level…..". In addition, CJPAT is defined as a "data pattern in 47.4.3 and not as a (XAUI) transmit function.

Cl **47** *SC* **47.4.3** *P* **295** *L* **25** # **8**

Lindsay, Tom — Stratos Lightwave

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

Clarify what is being measured.

SuggestedRemedy

Modify last sentence of paragraph to read "Jitter measurement for the transmitter (or for calibration of a jitter tolerance setup) shall be performed...

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.4.3** *P* **295** *L* **27** # **49**

Tim Warland — Quake Technologies

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

There is currently no requirement for a XAUI receiver to accept the XAUI CJPAT and to report errors. The detection of errors would facilitate BER calculations but should not necessarily be a compliance requirement

SuggestedRemedy

Two options: Firstly the text could indicate the option not to detect and report errors on the CJPAT. Second option: The text could indicate that the receiver shall monitor and report 10b/8b coding violations in order to accumulate BER statistics data. In either case, the function of the receiver in CJPAT mode must be defined.

Response *Response Status* **Z**

REJECT. Agree with the comment. However, BER monitoring is not a compliance requirement for XAUI.

Cl **47** *SC* **47.4.3.2** *P* **295** *L* **38** # **9**

Lindsay, Tom — Stratos Lightwave

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

With our definition of jitter, hugging the eye template on all 6 sides and all 6 corners is generally not possible, so a better description is required.

SuggestedRemedy

...and adjusting the amplitude until the data eye contacts at least one of the X1 points and at least 2 of the A1/X2 points of the driver's far-end eye template...

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Rewrote the target sentence as follows: "This signal is obtained by first producing the required sum of deterministic and random jitter defined in 47.3.4.6 and then adjusting the signal amplitude until the data eye contacts at least one of the X1 points and at least 2 of the A1/X2 points of the driver's far-end eye template shown in Figure 47–4 and Table 47–2."

Cl **47** *SC* **47.6.4.3** *P* **298** *L* **18** # **10**

Lindsay, Tom — Stratos Lightwave

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

Why is this line here? All jitter requirements are already listed, and this only points to a statement in paragraph 47.4.3 regarding HOW jitter is measured.

SuggestedRemedy

Delete E15.

Response *Response Status* **C**

REJECT. This PICS entry is required to go along with the corresponding jitter measurement compliance requirement in 47.4.3 per resolution of D3.2 comment 56.

Cl **48** *SC* **48.2.5** *P* **311** *L* **50** # **4**

Gaither, Justin — Xilinx

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

This line refers to a timeless state that does not exist any more.

SuggestedRemedy

Remove this and anyother reference to Q_DET_IDLE state

Response *Response Status* **C**

ACCEPT.

Cl **48A** *SC* **48A.3** *P* **332** *L* **3** # **11**

Lindsay, Tom — Stratos Lightwave

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

Clarify what pattern is good for.

SuggestedRemedy

Add to end of 1st sentence ...and deterministic jitter due to high frequency ISI.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.1** *P* **335** *L* # **22**

Lindsay, Tom — Stratos Lightwave

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

Need to clarify scope of Annex. Add 2nd paragraph.

SuggestedRemedy

While jitter specifications are required to be met for all lanes during operation, the methods described in this Annex are written for testing of a single lane. Each lane can be tested with these methods individually or concurrently.

Response *Response Status* **C**

ACCEPT. Will add right before 48B.1.

Cl **48B** *SC* **48B.1.1** *P* *L* # **23**

Lindsay, Tom — Stratos Lightwave

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

Clarify value of BER scan.

SuggestedRemedy

Modify 1st sentence "...within a data eye is not only the fundamental indicator of signal quality, it is a valuable..."

Response *Response Status* **C**

ACCEPT. Will add to 48B.1.

Cl **48B** *SC* **48B.1.3** *P* **337** *L* # **24**

Lindsay, Tom — Stratos Lightwave

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

Section needs clarification and can be combined with 48B.1.5.

SuggestedRemedy

a. Modify the 2nd paragraph of subclause 48B.1.3, page 337, to read "Simple pk-pk is insufficient as the measurement of DJ. An overall weighting function that captures not only the pk-pk but also the shape of the density function is required. This may be known as "effective DJ". For purposes of simplicity, effective DJ in this standard is based on the dual-Dirac function, where it is assumed that the DJ PDF is comprised of a pair of delta functions. Other PDFs... (continue to end of paragraph. Then, complete the paragraph with "All references to DJ in Clauses 47 and 53 should be understood as effective DJ."
b. Delete subclause 48B.1.5, page 338.
c. In the 3rd paragraph of subclause 48B.1.3, page 337, modify the 1st sentence to "An example of effective DJ is duty cycle distortion. Conclude the last sentence of the paragraph to "...two Gaussian functions, one centered at each of the two delta functions."

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.1.4** *P* **338** *L* **2** # **26**

Lindsay, Tom — Stratos Lightwave

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

There is insufficient guidance on how to determine the Q values.

SuggestedRemedy

Modify the line to read "...cumulative probability distribution, adjusted for transition density, e.g., Q=3.94 for BER=10^-5, and Q=5.77 for BER=10^-9, where transition density is assumed to be 0.5.Also, in line 17, the multiplier for RJ will change due to the assumption of TD=0.5 instead of 0.6. Rather than calculate a new exact value, I would suggest being a little conservative by moving closer to the value of 14 that folks are used to using and rounding off. Therefore, change the value to 13.8 instead of 13.73. Either is close enough.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.1.4** *P* **338** *L* **21** # **25**

Lindsay, Tom — Stratos Lightwave

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

Statement requires max value of 1E-6, yet all examples use 1E-5. There is no technical reason why 1E-5 is not appropriate.

SuggestedRemedy

Change value to 1E-5.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.1.6** *P* **338** *L* **36** # **28**

Lindsay, Tom — Stratos Lightwave

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

Too restrictive.

SuggestedRemedy

Remove "output" from the end of the line. High pass filtering is also used to calibrate jitter tolerance setups.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.2** *P* **338** *L* # **29**

Lindsay, Tom — Stratos Lightwave

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

"Jittered" is technically preferred over "jittery".

SuggestedRemedy

Search and replace "jittery" with "jittered" in this subclause.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.2.1** *P* **339** *L* # **31**

Lindsay, Tom — Stratos Lightwave

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

General clean-up.

SuggestedRemedy

1. Figure 48B-3. The DDJ source should be labeled. Add "Long cable or filter for DDJ" above the spiral. Also, remove the gap between the spiral and the straight cable.
2. Line 29. Use "SJ" instead of "SINE".
3. Line 32. Modify to "...modulation from 10 Hz to 20 MHz." 5 MHz SJ frequency range is wrong (see clause 47).
4. Line 32. Modify to "...with a bandwidth greater than 500 MHz." A specific range is confusing and not needed.
5. Line 33. Start a new paragraph at "Amplitude calibration..." Combine this sentence with the 1st sentence of the following paragraph. Remove comma after "allowing".
6. Line 38. Remove sentence. It is understood and does not fit in here.
7. Line 39. The sentence starting with "If the clock..." should be modified to say "If the clock and data recovery circuit of the system under test has a corner frequency...". The should be its own paragraph.8. Line 45. Replace "Where" with "If".
9. Line 46. Modify to "...care should be taken to calibrate and test with a balun to convert...". Note spelling of balun.
10. Line 47. Should be "...used due to the possibility of asymmetric...".
11. Line 49. Remove "calibrating" from the note.
12. Line 53. Add to the end of the note "Note - this footnote is not referring to the suggestion of temporarily substituting SJ for RJ during amplitude calibration, but to the SJ that is required as part of the specifications.
13. Line 36. Modify to "...the RJ portion may be temporarily replaced with an equivalent...". Temporarily is added because RJ should be used during the actual test.
14. Line 54. Modify to "...to add amplification to achieve...". Note spelling of amplification.
15. Line 42. This paragraph must be strengthened. Try "When calibrating the jitter tolerance test setup, the effects of high pass filtering in the time/jitter domain must be understood and included per the specifications. Per subclause 48B.1.6, high pass filtering can have profound effects on pattern dependendent jitter (it will increase measured DJ with patterns such as CJPAT) and also track out jitter below the specified corner frequency."
16. Line 48. Insert another paragraph "After complete, calibration must be verified using the methods described in Annex 48B.3 and iterated as needed until the required specifications are met."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will use editorial license to make changes.

Cl **48B** *SC* **48B.3.1** *P* **340** *L* **17** # **32**

Lindsay, Tom — Stratos Lightwave

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

Remove unnecessary and conflicting words.

SuggestedRemedy

1. Delete the 1st sentence of this paragraph. It is not refer to a specific technique as stated, but is a general concept.
2. Delete the last paragraph of this paragraph. It is not clear without a labeled figured, and it conflicts with the section on BERT scan curve fitting.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will use editorial license to make changes.

Cl **48B** *SC* **48B.3.1.1** *P* **340** *L* # **33**

Lindsay, Tom — Stratos Lightwave

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

General clean-up.

SuggestedRemedy

1. Line 32. Modify to "...the sampling scope or clock the BERT."
2. Line 33. Replace "scope" with "instrument" so that both scope and BERT are included.
3. Line 34. Remove the last 2 sentences. This topic is more completely and clearly spelled out in the specifications.
4. Line 33. Delete the sentence "The golden PLL...". This topic is redundant and described better elsewhere in this Annex.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will use editorial license to make changes.

Cl **48B** *SC* **48B.3.1.2** *P* **340** *L* # **35**

Lindsay, Tom — Stratos Lightwave

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

General clean-up.

SuggestedRemedy

1. Line 51. Delete this paragraph. It is conflicting with the presumed usage of high-pass filtering or Golden PLL.
2. Page 341, line 2. Rewrite the 2nd sentence as "It is not possible to capture the full extent of random jitter's peak to peak value due to the low sampling rate." Delete the rest of the paragraph.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will use editorial license to make changes.

Cl **48B** *SC* **48B.3.1.3** *P* **341** *L* # **36**

Lindsay, Tom — Stratos Lightwave

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

General clean-up.

SuggestedRemedy

1. Line 10. Delete the 1st paragraph. It is not clear and conflicts with the requirement to separate the DJ component.
2. Line 13. Add to end of sentence "...long test times due to the inherent high sampling rate.
3. Line 12. Modify line to "As implied by the jitter model described in subclause 48B.1, a BERT scan approach can provide random and...". Annex A is in the Fibre Channel jitter document.
4. Move the entire subclause 48B.1.4 from pages 337-338 to become an indented subclause (48B.3.1.3.1) within this section.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will use editorial license to make changes.

Cl **48B** *SC* **48B.3.2** *P* **341** *L* **17** # **34**

Lindsay, Tom — Stratos Lightwave

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

Missing.

SuggestedRemedy

Add missing text or delete section.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will add missing text with editorial license.

Cl **50** *SC* *P* *L* # **50001**

Tom Alexander

Comment Type **E** *Comment Status* **A** *In D3.4*

Change all instances of "Bit Error Rate" to "Bit Error Ratio" as required by clause 00 comment.

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* **3.2.2** *P* **383** *L* **53** # **150**

Bottorff, Paul — Nortel Networks

Comment Type **T** *Comment Status* **R** *Duplicate, see comment #151*

The K1 and K2 values should be set to 0 to represent a null channel.

SuggestedRemedy

Replace: "The K1 octet shall be set to 00000001 by the Transmit process. In addition, bits 1 to 5 inclusive of the K2 octet shall be set to 00010 binary."With: "The K1 octet shall be set to 00000000 by the Transmit process. In addition, bits 1 to 5 inclusive of the K2 octet shall be set to 00000 binary."

Response *Response Status* **C**

REJECT.

The suggested remedy is already covered by comment #151.

Cl **50** *SC* **50.3.2** *P* **382** *L* **20** # **38**

Tim Warland — Quake Technologies

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

The footnote could be made more clear for implementation if the following text was added to the last sentence such that it reads"Octets that are undefined and unused by the WIS are indicatedas blank boxes in this figure and are set to 00hex. The S1 byte(which you will have to shade) shown shaded are set to 0Fhex.The Z0 byte (which you will have to hatch) shown hatchedis set to CChex." These changes will make the tables easyto read for implementors and testers.

SuggestedRemedy

Implement change stated above

Response *Response Status* **C**

REJECT.

Providing actual values for the Z0 and S1 octets duplicates the entries in Tables 50-2 and 50-3. Unnecessary duplication should be discouraged, as it leads to unnecessary risk of mistakes and confusion. There is no need to specify any numeric values in a note attached to a figure when these are already well specified in a table on the next page.

Also, no changes were made to the figure in D3.3 (the changebar is a FrameMaker artifact). The commenter can submit this during sponsor ballot.

Incidentally, note that the Z0 and S1 bytes are not present in the figure referenced by the comment, but instead by the next figure. There is possibly some confusion between comments #38 and #39.

Cl **50** *SC* **50.3.2** *P* **382** *L* **40** # **39**

Tim Warland Quake Technologies

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

The footnote could be made more clear for implementation if the following text was added to the last sentence such that it reads"Octets that are undefined and unused by the WIS are indicatedas blank boxes in this figure and shall be set to 00hex."

SuggestedRemedy

Implement change stated above

Response *Response Status* **C**

REJECT.

See response to comment #38.

As with comment #38, the stipulation of the values for the unused octets already occurs in the text, and hence would be duplicated in the figure caption. Unnecessary duplication should be discouraged, as it leads to unnecessary risk of mistakes and confusion.

Also, no changes were made to the figure in D3.3 (the changebar is a FrameMaker artifact). The commenter can submit this during sponsor ballot.

Cl **50** *SC* **50.3.2.2** *P* **383** *L* **5354** # **151**

Alexander, Thomas PMC-Sierra, Inc.

Comment Type **T** *Comment Status* **A** *In D3.4*

This comment is being submitted by the Clause 50 Editor as part of the required resolution to Comment #606 against D3.2 of Clause 50, made by Juergen Rahn.The original comment related to the values set for the APS portions of the K1 and K2 bytes of the Line Overhead, and stated that these values diverged from normal industry-standard practice. Specifically, these values should have been set to all-zeros.As there was some disagreement at the time, the committee directed the interested parties to consult with SONET/SDH experts in the industry and resolve the conflict. These consultations have been made, and a consensus was reached.The general consensus is that these values should be set, as per the original comment, to all-zeros. It was further pointed out by the editor of T1.105.2 that the WIS represents a working (not protection) channel, and the K1/K2 bytes therefore are don't-cares. As per SONET/SDH requirements, don't-care fields should be set to all-zeros.The values in Clause 50 should hence be modified to match.

SuggestedRemedy

Change the value specified for the K1 octet of the Transmit process, as specified on line 53 of page 383, from 00000001 to 00000000. Change the value for bits 1 to 5 inclusive of the K2 octet, as specified on line 54 of page 383, from 00010 to 00000.

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* **50.3.8.1** *P* **391** *L* **3** # **40**

Tim Warland Quake Technologies

Comment Type **T** *Comment Status* **A** *In D3.4*

Change from: "Transmit process shall be.."to: "Transmit process must be..."Since this is not to be included in the PICS.

SuggestedRemedy

See comment text

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "shall be" to "is". Delete PICS item TP2, Line 9, Page 406. Renumber.

Cl **50** *SC* **50.3.8.1** *P* **391** *L* **4** # **136**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *In D3.4*

Square wave test pattern is out of line with LAN PHY, and need not be so. Remember that the square wave is emitted by compliant hardware for clause 52 PMD test purposes but not received by anything in the standard. (In any case, surely "The most significant bit of this pattern shall form the most-significant bit of the 16-bit data-group sent to the PMA, with the other bits in corresponding sequence." is redundant. Who can tell?)

SuggestedRemedy

Change first sentence to: "In the square-wave test pattern mode, the WIS Transmit process shall be disabled or otherwise prevented from processing data, and a square wave as defined in 52.9.1 shall be continuously transferred to the PMA via the PMA Service Interface." Delete the second sentence. Delete the note. Revise PICS TP3, delete TP4. This change is backwards compatible with D3.3: nothing is excluded which is allowed in D3.3.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

This change seems reasonable. Further, it avoids unnecessary invention and ensures that only one square-wave jitter pattern is necessary for multi-mode PHYs.

The editor is given license to wordsmith the proposed text and any associated PICS entries without changing the technical content of the suggested remedy, as well as to take into account the impact of comment #40.

Cl **50** *SC* **50.3.8.2** *P* **392** *L* **1** # **41**

Tim Warland Quake Technologies

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

Change the text in the opening line to remove the shall

SuggestedRemedy

Change from "..Receive and Synchronization processes shall function.."to " Receive and Synchronization processes function....."

Response *Response Status* **C**

REJECT.

Sentence is perfectly fine as it stands. Besides, there isn't even a change bar next to this one.

Cl **50** *SC* **50.3.8.2** *P* **392** *L* **2** # **42**

Tim Warland Quake Technologies

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

Remove the shall statement

SuggestedRemedy

change line from "....and error propagation as per 50.3.5 shall notbe carried..."to " .... and error propagation as per 50.3.5 is not carried out..."

Response *Response Status* **C**

REJECT.

This changes a required aspect of the test pattern generator functionality. The PICS references the SHALL that the commenter is proposing to delete.

Cl **50** *SC* **50.3.8.2** *P* **392** *L* **4** # **43**

Tim Warland Quake Technologies

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

Remove the shall statement

SuggestedRemedy

change line from " ....PRBS generator shall be used..."to "... PRBS generator is used...."

Response *Response Status* **C**

REJECT.

This changes a required aspect of the test pattern generator functionality. The PICS references the SHALL that the commenter is proposing to delete.

Cl **50** *SC* **50.3.8.2.1** *P* **392** *L* **16** # **44**

Tim Warland Quake Technologies

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

Remove the shall statement

SuggestedRemedy

Change the line from ".... the PRBS generator output shall be placed directly.."to "... the PRBS generator is placed directly..."

Response *Response Status* **C**

REJECT.

The SHALL in this sentence relates to the fact that the PRBS output is used as-is in the first half of the SPE, and inverted in the second half of the SPE. This is presently a required aspect of the test pattern generator. The removal of the SHALL would remove this requirement. There is a PICS item associated with this requirement.

Cl **50** *SC* **50.3.8.2.1** *P* **392** *L* **18** # **45**

Tim Warland Quake Technologies

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

Remove the shall statement

SuggestedRemedy

Change the line from "All overhead octets except for J1 shall be set..."to " All overhead octets except for J1 are set ...."

Response *Response Status* **C**

REJECT.

This SHALL statement ensures that the values used for the overhead octets in the TSS are consistent across implementations. This is essential for interoperability during pattern testing. Removal of this SHALL statement (and the associated PICS entry) could lead to conforming implementations failing to interwork.

Cl **50** *SC* **50.3.8.2.1** *P* **393** *L* **12** # **46**

Tim Warland Quake Technologies

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

Remove the shall statement

SuggestedRemedy

Change the text from " The CID pattern shall comprise 9 octets.."to "The CID pattern compromises 9 octets..".

Response *Response Status* **C**

REJECT.

This SHALL statement is the only normative location in the clause that specifies both the size and the location of the CID pattern. Removing it would not be advisable. Also, this would result in the removal of PICS item TP12.

Cl **50** *SC* **50.3.8.2.2** *P* **393** *L* **14** # **47**

Tim Warland Quake Technologies

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

Remove the shall statements

SuggestedRemedy

Change the line from " The pattern shall alternate in consecutive..."to " the pattern alternates in consecutive"

Response *Response Status* **C**

REJECT.

As with comment #46, removal of the SHALL would remove the only normative requirement for the CID pattern to alternate between all-ones and all-zeros. This would also force the removal of PICS item TP13.

Cl **51** *SC* **51.1** *P* **408** *L* **23** # **51**

Tim Warland Quake Technologies

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

The text at line 4 indicates that the serial PMA function is shownshadedin figure 51-1. However, the block is not shaded in the figure.

SuggestedRemedy

Show the PMA function shaded in figure 51-1.

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.1.1** *P* **408** *L* **43** # **50**

Tim Warland Quake Technologies

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

Too many occurances of the word interface. Suggest the textshould read " ...the 10 Gigabit sixteen bit interface (XSBI)."

SuggestedRemedy

Remove the second occurance in "interface" in the sentence

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.1.2** *P* **409** *L* **5** # **52**

Tim Warland Quake Technologies

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

The transmit clock is provided by the PMA client in response to thetransmit source clock provided to the PMA client. The text in bulleta) should say that the PMA provides the transmit source clock tothe PMA client.

SuggestedRemedy

Change bullet a to read " Provide transmit source clock to the PMAclient;"

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.10.4.3** *P* **425** *L* **7** # **69**

Tim Warland Quake Technologies

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

Add a reference to the PICS for PR1

SuggestedRemedy

PR1 should reference sub clause 51.3.2

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.2.1** *P* **409** *L* **34** # **53**

Tim Warland Quake Technologies

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

The PMA_UNITDATA.request is provided from the PMA client to thePMA service interface.

SuggestedRemedy

Add the words "service interface" to the end of the first sentence.

Response *Response Status* **C**

REJECT.

Cl **51** *SC* **51.2.2** *P* **410** *L* **3** # **54**

Tim Warland Quake Technologies

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

The PMA_UNITDATA.indicate is provided from the PMA service interfaceto the PMA client

SuggestedRemedy

add the words "service interface" between "PMA" and "to its client".

Response *Response Status* **C**

REJECT.

Cl **51** *SC* **51.2.3.1** *P* **410** *L* **34** # **55**
Tim Warland Quake Technologies

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

The word "not" should not be capitalized.

SuggestedRemedy

Convert "NOT" to lowercase "not"

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.3.3** *P* **411** *L* **23** # **56**
Tim Warland Quake Technologies

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

the term "to facilitate proper sending" is slightly vague. The functionof the PMA would be better expressed by the term " to facilitateproper deserialization"

SuggestedRemedy

Change the word "sending" to deserialization"

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.4** *P* **412** *L* **46** # **57**
Tim Warland Quake Technologies

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

Figure 51-2 was not updated to reflect the changes required by tables51-2 and 51-3. The figure needs to add the XSBI physical interfaceon top of the PMA service interface.

SuggestedRemedy

Add the XSBI physical interface block to the PMA blocks in figure51-2. The XSBI physical interface block will have the bit mappingdescribed by 51-2 for the transmitter and 51-3 for the receiver. Theexact details are difficult to show in ascii.

Response *Response Status* **C**

REJECT. Figure is clear in showing where the XSBI sits in relation to the PMA and PMA client. Adding another layer in the drawing
will not help the already confused reader.

Cl **51** *SC* **51.4** *P* **413** *L* **24** # **59**
Tim Warland Quake Technologies

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

Just to be perfectly clear on what constitutes a valid PMA_RX_CLK,thetext should say "a valid PMA_RX_CLK is provided as described in 51.7.2

SuggestedRemedy

add the text "as described in 51.7.2" to the end of the paragraph.

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.4** *P* **413** *L* **3** # **58**
Tim Warland Quake Technologies

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

With the instantiation of the XSBI physical interface, the PMA clientnow provides data groups to the XSBI transmit function which latchesthe data.

SuggestedRemedy

Change the word text "..to the PMA transmit function..."to" ... to the XSBI transmit function..."

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.4.1** *P* **413** *L* **47** # **60**
Tim Warland Quake Technologies

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

The xsbi_tx data is provided to the XSBI not the PMA.

SuggestedRemedy

Change the word "PMA" to "XSBI"

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.4.1** *P* **414** *L* **43** # **61**
Tim Warland Quake Technologies

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

Just to be clear on signal flow, the PMA_TXCLK_SRC<P,N> signalis provided by the PMA client.

SuggestedRemedy

Add the words "by the PMA client" to the end of this sentence.

Response *Response Status* **C**

REJECT.
Sentence is clear enough.

Cl **51** *SC* **51.4.1** *P* **415** *L* **11** # **63**

Tim Warland Quake Technologies

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

The xsbi_rx data groups are not necessarily latched and presented tothe PMA client. Latching is an implementation, presenting them inaccordance with this spec is what really matters

SuggestedRemedy

Delete the words "latched and"

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.4.1** *P* **415** *L* **17** # **62**

Tim Warland Quake Technologies

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

The PMA_SI signal is required to be compliant with the LVTTLspecification referenced. It is recommended that this be changedto a shall statement

SuggestedRemedy

Change the text to " This signal shall be compliant with..."Don't forget to update the PICS.

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.6** *P* **417** *L* **14** # **64**

Tim Warland Quake Technologies

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

We don't want implementers to "exchange the differential outputs oftheclocks from input to output". We want to allow implementors the optionto exchange the positive and negative signals of the differential pair.

SuggestedRemedy

Change the text from "exchanging the differential outputs of the clocksfrom input to output"to "exchanging the positive and negative signals of the differentialclockoutputs".

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.6.1** *P* **417** *L* **17** # **66**

Tim Warland Quake Technologies

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

The XSBI transmit interface operates between the XSBI and the PMAclient.

SuggestedRemedy

Change the word PMA to XSBI there are 2 occurances.

Response *Response Status* **C**

REJECT.

Cl **51** *SC* **51.6.2** *P* **419** *L* **35** # **68**

Tim Warland Quake Technologies

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

This paragraph describes an implementation example for phasealignment As such it should not be in the

SuggestedRemedy

Delete this paragraph

Response *Response Status* **C**

ACCEPT.

Cl **51** *SC* **51.6.2** *P* **419** *L* **4** # **67**

Tim Warland Quake Technologies

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

Just to be clear, the PMA_TX_CLK is derived from the PMA_TXCLK_SRCat the PMA client

SuggestedRemedy

add the text "at the PMA client" to the end of the sentence.

Response *Response Status* **C**

REJECT. Text is clear enough.

Cl **51** *SC* **51.7** *P* **420** *L* **4** # **65**

Tim Warland Quake Technologies

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

We don't want implementers to "exchange the differential outputs oftheclocks from input to output". We want to allow implementors the optionto exchange the positive and negative signals of the differential pair.

SuggestedRemedy

Change the text from "exchanging the differential outputs of the clocksfrom input to output"to "exchanging the positive and negative signals of the differentialclockoutputs".

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* *P* *L* # **52002**

Lindsay, Tom

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

Table 52-5 sets a couple of levels for Signal_detect.
a. The FAIL level should be clarified to be average or OMA. I suggest average power.
b. OK refers to Receive sensitivity. I ASSUME this is informative Receive sensitivity, and that therefore it is an OMA value. I also ASSUME it is the Receive sensitivity value in the standard, not the value of a particular receiver. If this is all correct, clarification would help.

SuggestedRemedy

See comment

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Write "-30 dBm average power".
Write "Receiver sensitivity (max) in OMA in Table 52-9, 52-14, or 52-18"
Change three footnotes on tables to read: * Receiver sensitivity is informative."

Cl **52** *SC* *P* **436, 440** *L* # **52001**

Yorks, Jason

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

Footnote on 436 line 51 and 440 line 21 should be associated with Receiver average power (max), respectively, not receive sensitivity.

SuggestedRemedy

Move footnote mark up one line

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* *P* **462** *L* **34** # **52003**

Dawe, Piers

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

Match up 0.4 dB attenuation with channel insertion loss.

SuggestedRemedy

Change channel insertion loss to 6 dB.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **51.8.1** *P* **443** *L* **36** # **73**

Tim Warland Quake Technologies

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

In the equation for B, the e looks like a subscript character

SuggestedRemedy

change (e) from subscript to regular font size.

Response *Response Status* **C**

REJECT. The size is correct.. Looks like a PDF artifact.

Cl **52** *SC* **52.1** *P* **402** *L* **1** # **99001**

Thatcher, Jonathan World Wide Packets

Comment Type **TR** *Comment Status* **A** *Technical Feasibility (D3.0)*

When the Higher Speed Study Group put forth a PAR to 802 and the IEEE standards board for approval to create a standard, we committed that: "10 Gb/s Ethernet technology will be demonstrated during the course of the project, prior to the completion of the sponsor ballot. " This requirement was added to our PAR because, at the time of writing the PAR, there was no evidence that PMD and PMA technology was feasible which simultaneously meet the other four criteria. Feasibility means that technology must be demonstrated with reports and working models; proven technology; reasonable testing and with confidence in reliability. Historically, Ethernet has been successful, in part, because it "leveraged" technology that existed at the time of the writing of the PAR. No such 10 Gigabit PHY technology existed in November 1999. While the time for which this must be completed is still a couple of meeting cycles away, it is not clear that sufficient effort is being made to validate the specifications; measurement procedures; engineering analysis and judgment and to assure that the PMDs individually meet the requirement we set for ourselves in time for the May 2001 cutoff for last technical change.

SuggestedRemedy

DEMONSTRATE the technical feasibility of the technology specified in Clause 52 for each PMD type, 10GBASE-SR/LR/ER/SW/LW/EW, individually while ensuring the attainment of the other 4 criteria. Or, change the requirements/specifications such that this goal can be achieved.

Response *Response Status* **C**

ACCEPT. Technical feasibility has been demonstrated.

Cl **52** *SC* **52.1** *P* **512** *L* **1** # **99004**

Grow, Robert Intel

Comment Type **TR** *Comment Status* **R** *Technical Feasibility (D3.1)*

D3.0 comment #850 is both valid and pertinent. Technical feasibility of the interfaces defined in this clause has not been demonstrated.

SuggestedRemedy

Each PMD type must be demonstrated as technically feasible per our commitment in the five criteria.

Response *Response Status* **Z**

REJECT. No change to the text is suggested by remedy. Ad hoc formed to address technical feasibility.

Cl **52** *SC* **52.1.1.3.3** *P* **431** *L* **3** # **95**

Dawe, Piers Agilent

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

Sentence in wrong subclause : "If the MDIO interface is implemented, then PMD_signal_detect_0 shall be continuously set to the value of SIGNAL_DETECT." isn't an Effect of receipt.

SuggestedRemedy

Move sentence. To 52.1.1.3.2?

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.1.1.3.3** *P* **431** *L* **4** # **96**

Dawe, Piers Agilent

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

Unhelpful sentence.

SuggestedRemedy

Make reference to the subclause where the effect of receipt is specified or described. If same form of words appears elsewhere, fix them too.

Response *Response Status* **C**

REJECT.
While I generally agree with the comment, the proposed resolution does not provide sufficient guidance, and I have nothing better to offer.

Cl **52** *SC* **52.13** *P* **462** *L* **45** # **145**

Doug Coleman Corning Cable System

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

Typographical error - nd 1.0 dB.

SuggestedRemedy

Change nd to and.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.14.1** *P* **462** *L* **45** # **119**

Dawe, Piers Agilent

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

nd

SuggestedRemedy

and

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.14.1** *P* **463** *L* **43** # **143**

Steve Swanson Corning Incorporated

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

The note "Note: It is believed that for 10GBASE-E, type B4 fiber may be substituted for B1.1 or B1.3" is buried below a series of footnotes to Table 52-27 when it applies to the text in lines 9-11.

SuggestedRemedy

Move the footnote above Table 52-27 at line 13.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.14.2.1** *P* **464** *L* **5** # **148**

Doug Coleman Corning Cable System

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

SMF connector insertion and splice loss at 1550 nm is incorrect.

SuggestedRemedy

Change connector insertion and splice loss value to 3.5 dBat 1550 nm.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Set total connector and splice loss for 40 km to 1 dB, and 2 dB for 30 km.

Cl **52** *SC* **52.14.3** *P* **464** *L* **18** # **121**
Dawe, Piers Agilent

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

"The ideal channel attenuation is 9.5 dB." no longer?

SuggestedRemedy

I guess this changes by 1 dB as we changed Rx and not Tx powers. 8.5 dB?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Ideal is 8 dB, lines should be 45 degrees down from 5, 8, 11 dB.

Cl **52** *SC* **52.15** *P* **467471** *L* # **131**
Dawe, Piers Agilent

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

Should there be more in the Value/Comment column?

SuggestedRemedy

Response *Response Status* **C**

REJECT. No remedy suggested.

Cl **52** *SC* **52.15.2.2** *P* **466** *L* **41** # **122**
Dawe, Piers Agilent

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

Uneven text size

SuggestedRemedy

Reset to default for table

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.15.3** *P* **467** *L* # **125**
Dawe, Piers Agilent

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

"O" PICS groups need *

SuggestedRemedy

See 49.3 as an example

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.15.3** *P* **467** *L* # **123**
Dawe, Piers Agilent

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

Add MDIO to PICS?

SuggestedRemedy

"*MDIO MDIO capability 52.3 Device supports the MDIO interface O Yes [ ] No [ ]"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See comment #124.

Cl **52** *SC* **52.15.4.1** *P* **467** *L* **35** # **126**
Dawe, Piers Agilent

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

Uneven text size

SuggestedRemedy

Reset to default for table

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.15.4.1** *P* **467** *L* **4950** # **127**
Dawe, Piers Agilent

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

Both FS6 Signal detect function and FS7 Signal detect behavior seems like overkill

SuggestedRemedy

Merge: FS6 Signal detect behavior

Response *Response Status* **C**

REJECT. Matches the shalls.

Cl **52** *SC* **52.15.4.11** *P* **471** *L* # **130**
Dawe, Piers Agilent

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

Most of these must be optional: transceiver may not have fiber

SuggestedRemedy

Introduce "*INS" major capabilities/options to 52.15.3. Status of most of this group becomes "INS:M"

Response *Response Status* **C**

ACCEPT. Also add "*" for each family option.

Cl **52** *SC* **52.15.4.2** *P* **468** *L* # **128**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **A**
Some of these are mandatory if MDIO is implemented

SuggestedRemedy
Change status to "MDIO:M" where justified by clause

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.15.4.2** *P* **468** *L* **11** # **84**
Ohlen, Peter Optillion

Comment Type **E** *Comment Status* **A**
I think item MR3 refers to the MDIO mapping, not the output power which covered by MR2.

SuggestedRemedy
Change the feature wording of MR3 to:"MDIO mapping for PMD_transmit_disable_0"Also, should the options not be: Yes, N/A ?

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.15.4.2** *P* **468** *L* **811** # **83**
Ohlen, Peter Optillion

Comment Type **E** *Comment Status* **A**
PMD_transmit_disable_0 is defined in section 52.4.7, not in 52.4.5.

SuggestedRemedy
See comment

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.15.4.3-8** *P* **4689** *L* # **129**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **A**
Status are wrong

SuggestedRemedy
For example, status of SR1 should be "SR:M"

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.4.4** *P* **433** *L* **11** # **97**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **A**
Use of brackets

SuggestedRemedy
Remove brackets from outside of expression per D3.2 #322.

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.5** *P* **434** *L* **18** # **98**
Dawe, Piers Agilent

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

SuggestedRemedy
Change "rangse" to "ranges"

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.5.2** *P* **436** *L* **52** # **70**
Tim Warland Quake Technologies

Comment Type **E** *Comment Status* **R**
In the footnotes, the average receive power max is specified to beat least 1dB higher. This should be at MOST 1dB

SuggestedRemedy
Change least to most

Response *Response Status* **C**
REJECT. No. Should be at least.

Cl **52** *SC* **52.5-7,9** *P* *L* # **74**

Ohlen, Peter Optillion

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

The receiver sensitivity is currently specified using the stressed sensitivity, measured with a conditioned input signal. However, the calibration of the conditioned input signal is far from simple as can be done only with fairly low accuracy, especially in the case of scrambled data where it is hard to differentiate between noise and signal shape. While the current method works in principle, measurements of unstressed receiver sensitivity will give more consistent results.

SuggestedRemedy

Make the currently informative receiver sensitivity normative.Changes * footnotes of Tables 52-9,14,18 to:
"* Receiver sensitivity is measured for BER = 1e-12."
Remove p.445:34-35
We also need a section about how we define sensitivity per another comment, proposed to be placed just before 52.9.10.

Response *Response Status* **C**

REJECT. Keep current specifications, with stressed receive sensitivity normative, and unstressed receive sensitivity informative.

14:0:10

Cl **52** *SC* **52.6** *P* **437** *L* # **139**

Savara, Raj Network Elements

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

The technical feasibility for 10Base-L has not been approved by the voters. I believe this is a requirement of the PAR. The jitter spefication with the new stessed eye needs to be proven with more than a single vendor. A report was given at the last interim meeting, but was not approved. What is the minimum requirements for this to be achieved? I would assume meeting the specificaitons over temperature would be required.

SuggestedRemedy

Ask for a feasibility test to be completed over temperature to determine if the specifications as proposed are valid.

Response *Response Status* **C**

REJECT. Technical feasibility has been demonstrated. Temperature performance is not required by the specification. This comment does not address any specific text in the clause, and does not provide a remedy or replacement text.

Cl **52** *SC* **52.6.1** *P* **438** *L* **24** # **99**

Dawe, Piers Agilent

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

Missing period

SuggestedRemedy

"Amplitude. See"

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.6.2 and 52.6.3** *P* **439** *L* **45-52** # **140**

Steve Swanson Corning Incorporated

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

Tables 52-14 and 52-15 are not placed with their respective subclauses.

SuggestedRemedy

Move 52.6.2 to page 440 above Table 52-14. Move 52.6.3 to line 30 on page 440.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. As we iron out such formatting bugs, we can finalize the placement of tables in the text. This really needs to be done ONCE on the final revision, and never before or again.

Cl **52** *SC* **52.6.3** *P* **440** *L* **22** # **71**

Tim Warland Quake Technologies

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

The average power max should be no more than 1dB above the spec.

SuggestedRemedy

Change Least to Most.

Response *Response Status* **C**

REJECT. At least is correct.

Cl **52** *SC* **52.6.3, Table 52-15** *P* **440** *L* **33** # **141**

Steve Swanson — Corning Incorporated

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

Unlike Table 52-10 for 10GBASE-S and Table 52-19 for 10GBASE-E link power budgets, the allocation for penalties + the channel insertion loss for Table 52-15 for 10GBASE-L does not total the link power budget, i.e., 7.17 +2.96 =10.13 dB and the budget is 9.4 dB.

SuggestedRemedy

Based on the footnote, it would appear that the channel insertion loss should be 0.4*10 + 2 =6 dB. It is not clear to me where the 7.17 dB comes from. Clarification is needed. Even if this change is made, 6 + 2.96 = 8.96 still does not agree with 9.4 dB.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #102.

Cl **52** *SC* **52.7.2** *P* **442** *L* **17** # **72**

Tim Warland — Quake Technologies

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

Specify the maximum for damage for the E reciever beingat most 1dB above the maximum sensitivity

SuggestedRemedy

Specify at most 1dB more than max sensitivity as the damage threshold.

Response *Response Status* **C**

REJECT. Should be at least.

Cl **52** *SC* **52.7.2** *P* **442** *L* **4** # **104**

Dawe, Piers — Agilent

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

Per D3.2 #197

SuggestedRemedy

Delete: The sampling instant is defined to occur at the eye center.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.7.3** *P* **442** *L* **38** # **108**

Dawe, Piers — Agilent

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

Why budgets not budget?

SuggestedRemedy

Change budgets to budget - unless we show columns in Table 52-19 for 30 km and 40 km.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. New column added by another comment, so stays budgets.

Cl **52** *SC* **52.7.3, Table 52-19** *P* **442** *L* **49** # **142**

Steve Swanson — Corning Incorporated

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

While the footnote to Table 52-16 on page 441 makes it clear that links longer than 30km for the same link power budget are considered engineered links, the same cannot be said of Table 52-19 - 10GBASE-E link power budgets.

SuggestedRemedy

Add a footnote similar to the one for Table 52-16 to the operating distance of Table 52-19.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #144

Cl **52** *SC* **52.8** *P* **443** *L* # **137**

Dawe, Piers — Agilent

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

The jitter bathtub technique is attractive for proving interoperability but we do not know how to calibrate for DJ. We should not legislate for something that can't be measured. Maybe in the future we will be able to do the bathtub measurement believably, so it would be a pity to throw away the whole thing. For 10GBASE-LX4, where the calibration errors expressed in UI are 1/3 as large, normative may be OK.

SuggestedRemedy

I suggest making the DJ values informative. This leaves us still with a more rigorous methodology for interoperability than other standards. Suppliers and purchasers can negotiate about calibration methods outside the legalistic arena of a standard.

Response *Response Status* **C**

REJECT.
The DJ values are already normative, and W is only a mask shape coefficient. If W becomes informative, then the entire method would lack a critical value and also become informative.

Note - the reviewer does agree that the bathtub method is not easily achievable with the present state of the art and that other methods should be considered.

Cl **52** *SC* **52.8.1** *P* *L* # **111**
Dawe, Piers Agilent

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

BERT is bit error RATIO (here) -see definitions 1.5 or manufacturer's literature.

SuggestedRemedy

6 times in this clause, change rate to ratio. Also clauses 30, 47, 49, 50, 53 or their appendices.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #105

Cl **52** *SC* **52.8.1** *P* **445** *L* **9** # **99010**
Thatcher, Jonathan World Wide Packets

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

There is no specification on the Rx path while doing Tx jitter measurement

SuggestedRemedy

Include requirement for asynchronous Rx valid data under reasonable optical conditions (OMA; rise/fall time; test pattern; etc).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #19 for specific changes.

Cl **52** *SC* **52.8.1.1** *P* **444** *L* **31** # **16**
Lindsay, Tom Stratos Lightwave

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

Word missing

SuggestedRemedy

Insert "jitter" as 2nd word in 1st paragraph.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.8.1.1** *P* **444** *L* **31** # **112**
Dawe, Piers Agilent

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

"Transmitted is tested" ?

SuggestedRemedy

Change to "The transmit jitter is tested" or "The transmitter is tested" ?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Choose "transmitter".

Cl **52** *SC* **52.8.1.1** *P* **444** *L* **31** # **77**
Ohlen, Peter Optillion

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

See remedy

SuggestedRemedy

Change "Transmitted is tested" to"The transmitter is tested"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #112.

Cl **52** *SC* **52.8.1.2** *P* **444** *L* **43** # **85**
Ohlen, Peter Optillion

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

We need to specify which of the test patterns to use.

SuggestedRemedy

New text:The test pattern used to test the transmitter is test pattern 2 defined in 52.9.1 for 10GBASE-R and the mixed frequency test pattern defined in 50.3.8.2 for 10GBASE-W.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Use "The patterns used to test the transmitter are defined in 52.9.1.".

Cl **52** *SC* **52.8.2** *P* **446** *L* **35** # **99011**
Thatcher, Jonathan World Wide Packets

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

There is no specification on the Tx path while doing Rx jitter measurement

SuggestedRemedy

Include requirement for asynchronous Tx valid data (use test pattern?)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #21.

Cl **52** *SC* **52.8-9** *P* **443458** *L* # **116**
Dawe, Piers Agilent

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

Excessive capitalisation of "Golden"

SuggestedRemedy

In most cases outside of diagrams, use lower case "golden fiber", "golden receiver" etc. (many times, use search and replace). Most times it should be "test receiver" etc anyway ?

Response *Response Status* **C**

REJECT. Brief discussion is in order, but reviewer suggests we keep the caps.

Cl **52** *SC* **52.9** *P* **446** *L* # **89**

Ohlen, Peter Optillion

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

Patterns.So far, very limited testing has been performed using test patterns 1&2 that we have specified for 10GBASE-R, and all feasibility studies so far have used PRBS patterns.The testing that has been performed indicates that:
* Test pattern 1 seems to be somewhat more stressful than test pattern 2, although the opposite was intended. However, this seems to be somewhat dependent on the DUT.* The test patterns seem to be less stressful than the standard PRBS-31 which is commonly used.
This behaviour could be due to the short pattern length which gives more discrete spectral lines than longer PRBS words.

SuggestedRemedy

Replace the largely untested patterns 1&2 with the PRBS-31 pattern that was present in D3.0. This implies changes to several sub-sub-clauses in 52.8-9.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Due to a clerical error, the definitions of pattern 1 and 2 are switched in Table 52-23. Change the segment definition.

Cl **52** *SC* **52.9** *P* **455** *L* **25** # **75**

Ohlen, Peter Optillion

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

Rx sensitivity, although not a requirement ofthis standard, is indeed informative and important to many people. Assuch, it should have its own heading so as to appear in the table ofcontents, etc

SuggestedRemedy

Insert following text as a sub-sub-clause before 52.9.10:"Receive sensitivity measurements The receiver sensitivity which is defined for an ideal input signal is informative and not required to be tested. If measured, the test signal should have negligible ISI, fast rise/fall times, low jitter and RIN, etc.Instead, receivers are specified using the normative stressed receiver sensitivity. The stressed sensitivity is measured with a conditioned input signal where both vertical eye closure and jitter have been added according to 52.9.11."I think the current section 52.9.10 will become 52.9.11, but the editor will have to check this and if not change 52.9.11 to the appropriate section.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Insert following text as a subclause before and at the same level as 52.9.10: "Receiver sensitivity measurements
Receiver sensitivity, which is defined for an ideal input signal, is informative and testing is not required. If measured, the test signal should have negligible ISI, fast rise/fall times, low jitter and RIN, etc. Instead, the normative requirement for receivers is stressed receiver sensitivity. Stressed sensitivity is measured with a conditioned input signal where both vertical eye closure and jitter have been added according to 52.9.11."

Remove the short paragraph regarding Receiver sensitivity from 52.9.10, page 455, lines 34-35.

Note1 - I think the current section 52.9.10 will become 52.9.11, but the editor will have to check this and if not change 52.9.11 to the appropriate section.

Note2 - editor, please check for consistency between "Receive" and Receiver" regarding this spec and test. Reviewer prefers the latter.

Decision to change to receiver sensitivity for all instances.!

Cl **52** *SC* **52.9.1** *P* **447** *L* **40** # **78**

Ohlen, Peter — Optillion

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

Sentence refers to the wrong table. The shall is also quite unnecessary as the patterns are clearly defined in the test sections. I think the table is also quite useless for 10GBASE-W implementations.

SuggestedRemedy

Option 1.Change the sentence to:
"An overview of where the different test patterns are used for 10GBASE-R implementations is shown in table 52-14."Option 2.Remove the table as well as the sentence.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Shall is required, so change to: "Compliance shall be specified by the patterns in Table 52-24 for 10GBASE-R and by the patterns specified in section 50.3.8 for 10GBASE-W unless specified otherwise."

In addition, the caption for Table 52-24 should append "for 10GBASE-R" at its end.

Cl **52** *SC* **52.9.10** *P* *L* # **7**

Lindsay, Tom — Stratos Lightwave

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

This comment cleans up residual items from my comment (#633) on D3.2 that merged stressed Rx and jitter tolerance testing into one section.

SuggestedRemedy

1. Figure 52-13, page 456. Need arrowheads into Optical Attenuator and Signal Characterization blocks. Suggest the arrow going into the Signal Characterization block be pulled away from the junction to the Optical Attenuator block just a bit to indicate it is a temporary connection.
2. 52.9.10.2 page 457, line 24. Item f) should be deleted. It is redundant info, and the part about SJ is not correct.
3. 52.9.10.4 page 458, line 30. Title should be "Stressed receiver conformance test procedure".
4. Table 52-24, page 448.
a. Add "calibration" to the end of "Vertical eye closure penalty". Also, relate to subclause 52.9.10 (not 52.9.11).
b. Change Stressed receive "sensitivity"to "conformance".
5. 52.9.10.3, page 458, line 16. Delete the heading and leave the text under 52.9.10.2.
6. 52.8.1, page 444, line 11. Remove the sentence. It is redundant with a statement on line 21 of page 443.
7. 52.9.10.1, page 455. line 50. Should be "This characterization is made using...".
8. 52.8.2.1, page 445, line 40. Modify to "The test method for verification of the signal for receive jitter tolerance testing is defined in...".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Change (2.) 52.9.10.2 page 457, line 24. Change: "before the addition of sinusoidal jitter" to "including sinusoidal jitter" ; also modified by another comment..

Cl **52** *SC* **52.9.10** *P* **455** *L* **34** # **30**

Lindsay, Tom — Stratos Lightwave

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

(Informative) Rx sensitivity, although not a requirement of this standard, is indeed informative and important to many people. As such, it should have its own heading so as to appear in the table of contents, etc.

SuggestedRemedy

Move the short paragraph regarding Receiver sensitivity to a new subclause (such as 52.9.11). Add to the end of the paragraph "See subclause 52.9.10 for a procedure for Stressed Receiver conformance testing."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #75.

Cl **52** *SC* **52.9.10** *P* **455** *L* **38** # **21**

Lindsay, Tom — Stratos Lightwave

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

In response to a previous comment by Jonathan, the Tx output signal conditions during Rx conformance testing should be specified more completely.

SuggestedRemedy

Replace the last sentence with "The output data pattern from the transmitter of the system under test during this test shall be Pattern 2 as defined in subclause 52.9.1."Also, page 457, line 16 - Modify to "The range of signalling speeds specified in..."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace the last sentence with "The output data pattern from the transmitter of the system under test is to be the same pattern defined for this measurement in 52.9.1."Also, page 457, line 16 - Modify to "A signalling speed which satisfies the requirements of ... or "

Cl **52** *SC* **52.9.10.2** *P* **457** *L* **21** # **118**

Dawe, Piers — Agilent

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

Punctuation fest "in 52.8.2.2.; Jitter"

SuggestedRemedy

Clean up. As this is in a ; delimited list, could use The total jitter requirements of 52.8.2.1 including the swept frequency sinusoidal jitter contribution described in 52.8.2.2 (jitter shall be calibrated at the average value of the overall optical waveform: this can be accomplished with AC coupling);

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.9.10.2** *P* **457** *L* **25** # **87**
Ohlen, Peter Optillion

Comment Type **T** *Comment Status* **A**
Test pattern 2 is not used for 10GBASE-W

SuggestedRemedy
Change wording of item (f) to:" ... is measured using the patterns of (a)."

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.9.11** *P* **458** *L* **41** # **88**
Ohlen, Peter Optillion

Comment Type **T** *Comment Status* **A**
10GBASE-W does not use test patterns 1 or 2.

SuggestedRemedy
Add "or the CID test pattern" defined in 50.3.8.2.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE. Change to :"..measurements are made with the test patterns in 52.9.1."

Cl **52** *SC* **52.9.11** *P* **459** *L* **20** # **82**
Ohlen, Peter Optillion

Comment Type **E** *Comment Status* **A**
Change reference to 52.9.10.2 as 52.9.10 is quite a long section. Also, add "penalty" after "vertical eye closure" to avoid confusion (this is the wording used in 52.9.10.2).

SuggestedRemedy
Per comment.

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.9.4** *P* **448** *L* **43** # **80**
Ohlen, Peter Optillion

Comment Type **E** *Comment Status* **A**
Wordsmithing.

SuggestedRemedy
Remove "a data pattern consisting of"

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.9.4** *P* **448** *L* **46** # **114**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **A**
Obsolete note about square wave

SuggestedRemedy
Remove note.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE. See #79.

Cl **52** *SC* **52.9.4** *P* **448** *L* **46** # **17**
Lindsay, Tom Stratos Lightwave

Comment Type **E** *Comment Status* **A**
Sentence is not correct across all variations allowed by the square wave pattern.

SuggestedRemedy
Remove sentence.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE. See #79.

Cl **52** *SC* **52.9.4** *P* **448** *L* **46** # **79**
Ohlen, Peter Optillion

Comment Type **E** *Comment Status* **A**
The note is not neccessary and as it currently reads wrong.

SuggestedRemedy
Remove the note.

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.9.6.3** *P* **451** *L* **42** # **115**
Dawe, Piers Agilent

Comment Type **E** *Comment Status* **A**
Was this "shall" meant to be removed with the others in 52.9.6 per D3.2 #545?

SuggestedRemedy
replace "shall be" with "is".

Response *Response Status* **C**
ACCEPT.

Cl **52** *SC* **52.9.7** *P* **452** *L* **45** # **81**

Ohlen, Peter Optillion

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

The definition of input data for TX testing could be more explicit. This applies to 52.9.7 and 52.9.9.1.

SuggestedRemedy

Replace the present paragraphs on p.452:45-46 and p.454:24-25 with the following paragraph (at both places):"Compliance to the transmitter eye mask has to be met while any reasonable combination of signal conditions is input to the optical receiver of thesystem under test. These signal conditions may include the ranges ofdata patterns, signalling speed, jitter, optical power, rise/fall times,etc. at the receiver input that are allowed by this standard."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #19.

Cl **52** *SC* **52.9.7** *P* **452** *L* **45** # **19**

Lindsay, Tom Stratos Lightwave

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

In response to a previous comment by Jonathan, the Rx input signal conditions during transmitter eye mask testing should be specified more completely.

SuggestedRemedy

Replace the present paragraph with "Compliance to the transmitter mask of the eye shall be assured while any allowable combination of signal conditions is input to the optical receiver of the system under test. These signal conditions may include the ranges of data patterns, signalling speed, jitter, optical power, rise/fall times, etc. at the receiver input that are allowed by this standard."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace the present paragraph with "Compliance to the transmitter mask of the eye is to be met while any allowable combination of signal conditions is input to the optical receiver of the system under test. These signal conditions may include the ranges of data patterns, signalling speeds, jitter, optical power, rise/fall times, etc. at the receiver input that are allowed by this standard."

Cl **52** *SC* **52.9.9.1** *P* **453** *L* **17** # **86**

Ohlen, Peter Optillion

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

There is not information on the test patterns for 10GBASE-W.

SuggestedRemedy

Replace the second sentence of this sub-sub-clause with:"The transmitter (Tx) of the system under test is tested for conformance using test pattern 2 defined in 52.9.1 for 10GBASE-R and the mixed frequency test pattern defined in 50.3.8.2 for 10GBASE-W.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace with: "The transmitter (Tx) of the system under test is tested for conformance using the pattern defined in 52.9.1".

Cl **52** *SC* **52.9.9.1** *P* **454** *L* **22** # **117**

Dawe, Piers Agilent

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

Similar to D3.2 # 645: delete pointless reference to "ground"

SuggestedRemedy

Truncate sentence after "coupling".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Page number corrected.

Cl **52** *SC* **52.9.9.1** *P* **454** *L* **24** # **20**

Lindsay, Tom Stratos Lightwave

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

In response to a previous comment by Jonathan, the Rx input signal conditions during transmitter jitter testing should be specified more completely.

SuggestedRemedy

Replace the present paragraph with "Compliance to the transmitter jitter requirements shall be assured while any allowable combination of signal conditions is input to the optical receiver of the system under test. These signal conditions may include the ranges of data patterns, signalling speed, jitter, optical power, rise/fall times, etc. at the receiver input that are allowed by this standard."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Replace the present paragraph with "Compliance to the transmitter jitter requirements is to be met while any allowable combination of signal conditions is input to the optical receiver of the system under test. These signal conditions may include the ranges of data patterns, signalling speed, jitter, optical power, rise/fall times, etc. at the receiver input that are allowed by this standard."

Cl **52** *SC* **52.9.9.1** *P* **454** *L* **25** # **18**

Lindsay, Tom — Stratos Lightwave

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

Missing word

SuggestedRemedy

Insert "be" after "should".

Response *Response Status* **C**

REJECT. Paragraph removed.

Cl **52** *SC* **52.9.9.2** *P* **455** *L* **6** # **52004**

Tom Lindsay

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

Reference in line 6, page 455 of 52.9.9.2 should be to Table 52-27 (not 52-24).

SuggestedRemedy

See Comment

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Figure 52-3** *P* **435** *L* **35** # **1**

Tim, Warland — Quake

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

Missing closing parenthesis on "Minimum transmit OMA (dBm)"

SuggestedRemedy

Re-instate the close bracket

Response *Response Status* **C**

REJECT. Can't do without newly calculated triple trade off curves due to formatting irregularities in Excel. Please resubmit with new TTC at Sponsor ballot to correct formatting error.

Cl **52** *SC* **Table 52-14** *P* **440** *L* **1317** # **100**

Dawe, Piers — Agilent

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

Consistency of receive characteristics per D3.2 #362

SuggestedRemedy

Change receive sensitivity from 0.0477 (-13.23) to 0.055 (-12.6) Change VECP from 1.78 to 2.2.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-15** *P* **440** *L* **31** # **101**

Dawe, Piers — Agilent

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

Why budgets not budget?

SuggestedRemedy

Change budgets to budget

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-15** *P* **440** *L* **3839** # **102**

Dawe, Piers — Agilent

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

Consistency of link power budgets per D3.2 #362

SuggestedRemedy

Change Channel insertion loss from 7.17 to 6.2 Change Allocation for penalties from 2.96 to 3.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Resolved by PMD motions

Cl **52** *SC* **Table 52-16** *P* **441** *L* **8** # **76**

Ohlen, Peter — Optillion

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

The footnote could benefit from some more clarity. Table 52-27 states that the attenuation for 1550nm B1 SMF links should be 11dB by reference to 52.14.3. The footnotes says the attenuation should be less than that. We know that we have the 0.35 dB/km from the fiber standard in mind, not the 11 dB. Others could be confused.

SuggestedRemedy

Change the second sentence of the footnote to:The fiber cable attenuation for such links needs to be less than that of standard B1 SMF fiber as specified in 52.14.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Note "attenuation" and "loss" are synonyms. Remedy is not complete because there is no 0.35 dB/km anywhere in the text (and shouldn't it be 0.3 dB/km at 1550 nm?). Also, how come the baleful "with the exceptions noted in Table 52-27" has crept back to p463? As I have pointed out before, this table is not a table of exceptions to IEC 60793-2, most of it is in agreement. Change to "The fiber optic cable shall meet the requirements of IEC 60793-2 and the requirements of Table 52-27 where they differ.

Cl **52** *SC* **Table 52-16** *P* **441** *L* **9** # **103**

Dawe, Piers Agilent

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

fiber fiber

SuggestedRemedy

Change "B1 SMF fiber" to "B1 single mode fiber"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Write out both types of B1 fiber.

Cl **52** *SC* **Table 52-18** *P* **442** *L* **24** # **106**

Dawe, Piers Agilent

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

Consistency of receive characteristics. Per 3.1.16a with VECP=3dB and NomSens OMA=-13.4, stressed receive sensitivity should be 0.091 (-10.4) not -9.4.

SuggestedRemedy

Change stressed receive sensitivity from -9.4 to 0.091 (-10.4).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Change stressed receive sensitivity from -9.4 to 0.093 (-10.3).

Cl **52** *SC* **Table 52-18** *P* **442** *L* **24** # **107**

Dawe, Piers Agilent

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

Kill the spurious hundredths per resolution a long time ago.

SuggestedRemedy

Change 0.1148 (-9.40) to 0.115 (-9.4) or 0.091 (-10.4) if another comment is accepted

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-19** *P* **442** *L* **43** # **144**

Doug Coleman Corning Cable System

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

The October interim meeting in Los Angeles agreed that a 40 kmoperating length would be an engineered length without any guidance on linkpower budget.

SuggestedRemedy

Adjust the operating length to 30 km. Insert footnote fromTable 52-16 for 40 km operating lengths.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. If this table is informative, it might be unhelpful to lose sight of the 40 km objective. Let us consider showing both 30 km and 40 km columns. 30 km column would read 15.0 30 9.9 5.1. (modified by another motion)

Insert the footnote as suggested but instead of "* Links longer than 30 km for the same link power budget are considered engineered links. Attenuation for such links needs to be less than that of B1 SMF fiber as specified in Table 52-27."

change to

"* Links longer than 30 km are considered engineered links. Attenuation for such links needs to be less than that guaranteed by B1 single mode fiber."

Change note, table 52-16 similarly title of table 52-19 can now remain as "budgets".

See also motions related to power budgets.

Cl **52** *SC* **Table 52-19** *P* **442** *L* **43** # **109**

Dawe, Piers Agilent

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

Why budgets not budget?

SuggestedRemedy

Change budgets to budget - unless we show columns in Table 52-19 for 30 km and 40 km.

Response *Response Status* **Z**

REJECT. Withdrawn

Cl **52** *SC* **Table 52-19** *P* **442** *L* **5053** # **110**

Dawe, Piers Agilent

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

Consistency of link power budgets per D3.2 #362. Per 3.1.16a with VECP=3dB and NomSens OMA=-13.4, at 1565 nm as stated, channel insertion loss is 10.9 not 11.0 and allocation for penalties is 4.1 dB not 4.0.

SuggestedRemedy

Change Channel insertion loss from 11.0 to 10.9. Change allocation for penalties from 4.0 to 4.1 dB.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-20** *P* **444** *L* **58** # **138**

Dawe, Piers Agilent

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

Random jitter of 1.5 ps RMS when all (high) frequencies of jitter are included may be too little in practice. At sensitivity, performance is dominated by DJ, and Rx RJ, not Tx RJ. As this comment doesn't relate to a change in D3.3 it could be held over again.

SuggestedRemedy

At least for 10GBASE-L, consider raising sigma from 0.015 UI to around 0.02 UI.

Response *Response Status* **C**

REJECT. As during comment resolution after D3.2, must stabilize on test methods first. Actual test data is also encouraged.

Cl **52** *SC* **Table 52-21** *P* **446** *L* **12** # **12**

Lindsay, Tom Stratos Lightwave

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

Note is not clear.

SuggestedRemedy

Modify note to "...Upper frequency bound for 0.05 UI added sine jitter should be at least 10 times the loop bandwidth of the receiver being tested."

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-22** *P* **447** *L* **21** # **113**

Dawe, Piers Agilent

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

an the

SuggestedRemedy

delete: an

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-26** *P* **462** *L* **25** # **146**

Doug Coleman Corning Cable System

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

The October interim meeting in Los Angeles agreed that a 40 kmoperating length would be an engineered length without any guidance on linkpower budget.

SuggestedRemedy

Adjust the table operating length to 30 km. Insertfootnote from Table 52-16 for 40 km operating lengths.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Add second column under 1550 nm for 30km, differing only with dispersion = 546 ps/nm (all common values merged).

Cl **52** *SC* **Table 52-26** *P* **462** *L* **45** # **120**

Dawe, Piers Agilent

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

Connections loss still wrong.

SuggestedRemedy

Use footnotes symbols for 850, 1310, 1550 respectively. Then have three footnotes replacing the two "Channel insertion loss" ones. Now "Channel insertion loss at 850 um is calculated using cable length, maximum attenuation, two connections at 0.75 dB each and the "Additional Insertion Loss Allowed" from Table 52-10." and "Channel insertion loss at 1310 nm is calculated using cable length, maximum attenuation, and two connections at 1 dB each." Third note, 1550, as is. Alternatively, refer to 52.14.2.1 ?

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Have three separate footnotes. Make language regarding connector loss identical (using 1550 nm version as template).

Cl **52** *SC* **Table 52-26** *P* **462** *L* **48** # **147**

Doug Coleman — Corning Cable System

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

Current text addresses 40 km length. Text needs to be adjustedfor 30 km.

SuggestedRemedy

Modify text as follows - ... two connections at 1.0 dBeach and multiple splices of negligible attenuation.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Footnote common to both 30km and 40 km columns: "Channel insertion loss at 1550 nm includes cable, connectors and splices". 11.0 dB is channel insertion loss for both columns.

Cl **53** *SC* *P* *L* # **27**

Lindsay, Tom — Stratos Lightwave

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

Since Annex 48B assumes a nominal transition density of 0.5 instead of 0.6, and CJPAT may be closer to 0.5 than 0.6, the curve factor should be changed. 2 places.

SuggestedRemedy

Page 484, line 42, AND page 486, line 15: change -1.67 to -1.75 (will match clause 52).

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.1** *P* **446** *L* **1** # **99002**

Jonathan Thatcher — World Wide Packets

Comment Type **TR** *Comment Status* **A** *Technical Feasibility (D3.0)*

When the Higher Speed Study Group put forth a PAR to 802 and the IEEE standards board for approval to create a standard, we committed that: "10 Gb/s Ethernet technology will be demonstrated during the course of the project, prior to the completion of the sponsor ballot. " This requirement was added to our PAR because, at the time of writing the PAR, there was no evidence that PMD and PMA technology was feasible which simultaneously meet the other four criteria. Feasibility means that technology must be demonstrated with reports and working models; proven technology; reasonable testing and with confidence in reliability. Historically, Ethernet has been successful, in part, because it "leveraged" technology that existed at the time of the writing of the PAR. No such 10 Gigabit PHY technology existed in November 1999. While the time for which this must be completed is still a couple of meeting cycles away, it is not clear that sufficient effort is being made to validate the specifications; measurement procedures; engineering analysis and judgment and to assure that the PMD meets the requirement we set for ourselves in time for the May 2001 cutoff for last technical change.

SuggestedRemedy

DEMONSTRATE the technical feasibility of the technology specified in Clause 53 for the 10GBASE-LX4 PMD, while ensuring the attainment of the other 4 criteria. Or, change the requirements/specifications such that this goal can be achieved.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.8.2.3** *P* **487** *L* # **15**

Lindsay, Tom — Stratos Lightwave

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

Clause 52 has redefined the frequency range for added sine jitter.

SuggestedRemedy

Follow direction of clause 52 D3.3 and any modification resulting from D3.3 balloting. SJ should be swept to at least 10 times the Rx loop bandwidth.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.9.10** *P* **492** *L* # **13**

Lindsay, Tom — Stratos Lightwave

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

The jitter and stressed Rx testing sections in clause 52 have been combined. This approach should be adopted for clause 53 as well. (This was a huge change).

SuggestedRemedy

Refer to subclause 52.9.10 of D3.3 and any modification resulting from D3.3 balloting. The change was in response to comment 633 during D3.2 balloting.

Response *Response Status* **C**

REJECT.

Clause 53 has the same methodology as clause 52, however, it has been written differently. Clause 53 may revisit this issue later if it is concluded that the subclause needs clarification.

Cl **53** *SC* **53.9.4** *P* **488** *L* # **10001**

Eric Grann

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

Clause 53 needs a subclause on the measurement of the extinction ratio. When the minimum extinction ratio was added in the last draft, an optical measurement was not implemented.

SuggestedRemedy

Add new subclause 53.9.4 that reads

"53.9.4 Extinction ration measurements

Extinction ratio shall be measured using the methods specified in TIA/EIA-526-4A. The extinction ratio is measured under fully modulated conditions."

Also add the PIC that corresponds to this shall statement

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Figure 53-3** *P* **485** *L* # **14**

Lindsay, Tom — Stratos Lightwave

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

Clause 52 has modified the bathtub curve range to be below 1E-6.

SuggestedRemedy

Modify bathtub curves to match clause 52.This change should also be applied to Figure 53-4.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Table 53-13** *P* **500** *L* **28** # **149**

Doug Coleman — Corning Cable System

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

Modal BW wavelength omitted.

SuggestedRemedy

Insert 1300 nm as the modal BW wavelength.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Table 53-14** *P* *L* # **10002**

Eric Grann

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

Note in Table 53-14 needs to be adjusted to match clause 52. This should have be done in the last draft.

SuggestedRemedy

Add second statement to 2nd note in Table 53-14

"Using 0.5 dB/km may not support operation at 10 km."

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Table 53-8** *P* **483** *L* # **10003**

Eric Grann

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

The VECP was not entered correctly from the new link model.

SuggestedRemedy

Change 0.8 to 1.0dB

Response *Response Status* **C**

ACCEPT.