Cl **00** *SC* *P* *L* # **148**

Booth, Brad Intel

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

As per recommendation of IEEE editor: equation numbering should include clause number. For example, in Clause 44, equation (1) should be (44-1).

SuggestedRemedy

Fix.

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* *P* *L* # **328**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "network management functions." The phrase "network management" should be hyphenated, as it is an adjectival phrase modifying the noun "functions."

SuggestedRemedy

Put a hyphen between "network" and "management."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **327**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "half duplex operation." The phrase "half duplex" should be hyphenated, as it is an adjectival phrase modifying the noun "operation."

SuggestedRemedy

Put a hyphen between "half" and "duplex."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **324**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "collision detect signal." The phrase "collision detect" should be hyphenated, as it is an adjectival phrase modifying the noun "signal."

SuggestedRemedy

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **147**

Booth, Brad Intel

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

As per recommendation of IEEE editor: footnotes in tables should be lowercase letters, not numbers.

SuggestedRemedy

Change.

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* *P* *L* # **49000**

Pat Thaler

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

Existing 802.3 uses octet almost exclusively. (There are 4 instances of byte all of which look like errors in consistancy.) 802.3ae uses a mix of byte and octet often with both appearing on the same page or in the same paragraph.

SuggestedRemedy

All instnaces of byte should be converted to octet unless there is a suitable reason to retain byte (e.g. if it is part of a name from another standard).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Replace byte with code-group, octet or symbol where appropriate.

Cl **00** *SC* *P* *L* # **330**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "media access mechanism." The phrase "media access" should be hyphenated, as it is an adjectival phrase modifying the noun "mechanism."

SuggestedRemedy

Put a hyphen between "media" and "access."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **332**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "frame check sequence field." The phrase "frame check sequence" should be hyphenated, as it is an adjectival phrase modifying the noun "field."

SuggestedRemedy

Put hyphens between "frame," "check," and sequence."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **329**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "frame check sequence generation." The phrase "frame check sequence" should be hyphenated, as it is an adjectival phrase modifying the noun "generation."

SuggestedRemedy

Put hyphens between "frame," "check," and sequence."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **149**

Booth, Brad Intel

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

As per IEEE editor recommendation: copyright year should be 2002.

SuggestedRemedy

Update.

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* *P* *L* # **33**

Jay Warrior Agilent

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

Note: This is a re-submission to ensure that this is recognized as a “technical required” comment. The syntax used in the state diagrams is undefined, imprecise and open to ambiguous interpretation. In particular Figures 48-6 to 48-9 and 49-10 are particularly egregious violaters. These appear to be normative and need to be corrected. Principally:
1) Use of non standard (*,+) symbols to represent logic operations, particularly since some of the “logical” statements operate on numeric values
2) Lack of sufficient parentheses to disambiguate logical expressions
3) Mixture of syntax (e.g. ++ to indicate auto-increment, but left arrow to indicate assignment)

SuggestedRemedy

1) Add a definition section to the introductory boilerplate, specifying the syntax to be used, or alternatively referencing a standard syntax. (I would suggest “C”). You may also have to add a note about “lazy evaluation” if you use autoincrements as part of a computed condition.
2) Revise each of the state diagrams so that the transition triggering conditions and actions are unambiguous and consistent with the chosen syntax.

Response *Response Status* **C**

REJECT.

All clauses with state diagrams point to 21.5 as a reference for the "boilerplate" material. Commenter agrees that this text satisfies his concern.

Cl **00** *SC* *P* *L* # **322**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "frame check sequence." The phrase "frame check" should be hyphenated, as it is an adjectival phrase modifying the noun "sequence."

SuggestedRemedy

Put a hyphen between "frame" and "check."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **321**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "carrier sense signal." In each case the phrase "carrier sense" should be hyphenated, as it is an adjectival phrase modifying the noun "signal."

SuggestedRemedy

Hyphenate "carrier" and "sense."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **300**

Maus, Kyle AITG

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

The phrase "media independent" shoud be hyphenated, as it is an adjectival phrase modifying the noun "interface."

SuggestedRemedy

Put a hyphen between "media" and "independent."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **320**

Maus, Kyle AITG

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

Throughout the document there are instances of "half duplex mode." In each case the phrase "half duplex" should be hyphenated, as it is an adjectival phrase modifying the noun "mode."

SuggestedRemedy

Put a hyphen between "half" and "duplex."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* *P* *L* # **254**

Booth, Brad Intel

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

As per IEEE editor: all figures and tables must have the appropriate permissions and identifications if any have been taken from another source.

SuggestedRemedy

Editors to ensure that required permissions and identifications have been obtained.

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* *P* *L* # **52010**

David Kabal

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

Return loss is ambiguous

SuggestedRemedy

Specify:
Optical return loss tolerance, Transmitter reflectance, and Receiver reflectance for 10GBASE-S/L/E.

Reflectance should be negative.
Return loss tolerance should be positive.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Add only footnote to Table 52-12: Return loss is defined looking into the transmitter.

Cl **00** *SC* **4.1.2.1.1** *P* **14** *L* **50** # **323**

Maus, Kyle AITG

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

Throughout the document there are instances of the phrase "full duplex mode." The phrase "full duplex" should be hyphenated, as it is an adjectival phrase modifying the noun "mode."

SuggestedRemedy

Put a hyphen between "full" and "duplex."

Response *Response Status* **C**

REJECT.

This terminology has been used in 802.3 for many years and has become the accepted terminology.

Cl **00** *SC* **52.4** *P* **443** *L* # **270**

Lindsay, Tom Stratos Lightwave

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

There is no explanation of what is meant by "local". Some think it means detected locally, others think it means caused locally. I would like this clarified, as I have already seen it cause significant confusion and debate.

This applies to PMD local fault, PMD transmit local fault, and PMD receive local fault.

SuggestedRemedy

I do not have a remedy, but would like one to be determined and clarified in the document. I personally prefer the concept of caused locally, although this is opposite of the position expressed by Pat Thaler.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add as first paragraph to 46.3.4 (with some degree of latitude):
Link fault signaling operates between the remote RS and the local RS. Faults detected between the remote RS and local RS are received by the local RS as local fault. Only an RS signals remote fault.

Also all Editors to search and change:
Register bits and fault detection that use the term "local fault" to indicate a fault or failure condition that is detected in that sublayer should remove the term "local" and use the term "fault" only. Exceptions are descriptions of the local fault messaging or function.

Cl **00** *SC* **General** *P* *L* # **336**

Grow, Robert Intel

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

Capitilization is inconsistent and generally not in harmony with with IEEE style. While the IEEE Style Guide doesn't specifically address this, only proper nouns are to be consistently capatilized. An inspection of IEEE Std. 802.3, 2000 Edition indicates that IEEE editors have ignored the proliferation of capitalization, and generally maintained the inconsistency introduced by editorial teams of major projects. While some may consider this inconsistency one of the charming idosynchrocies of the standard, I do not see a reason to perpetuate the "charm" in this revision.

Subclause 1.5 is a reasonable starting point for candidate offenses. In this subclause the acronym expansion is not capatilized but in many cases, this is the only place where the expansion isn't capitalized (e.g., AIS, BIP, SAUI, XGMII, XSBI, etc.)

SuggestedRemedy

Get an opinion from the IEEE Editor on capitalization of expanded acronyms, and search and destroy inconsistencies per recommended IEEE Style.

Response *Response Status* **C**

ACCEPT.

Cl **00** *SC* **Intro** *P* **3** *L* **3** # **89**

Thompson, Geoffrey Nortel

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

When the Standard is published in PDF there still needs to be some way to assure that the special characters print correctly on the customer's printer

SuggestedRemedy

Include the "Special symbols and operators (Line 20 thru line 9 of the next page) in issued published PDF version of the final Standard. (I would suggest that it go at the end of the book.)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add an editor's note to request that the IEEE Editor perform this function prior to publication of the Standard.

Cl **01** *SC* **1.1** *P* **6** *L* **8** # **90**

Thompson, Geoffrey Nortel

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

The removal of the half duplex requirement from the 10 Gigabit amendment to 802.3 is not justification for removing the specification of CSMA/CD as the shared media access method for Ethernet/802.3.

SuggestedRemedy

Change revision of introductory sentence to read:"This is a comprehensive International Standard for Local and Metropolitan Area Networks (LANs and MANs), employing CSMA/CD as the shared media access method and the 802.3 (Ethernet) protocol and frame format for data communication."

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **1.1.1.1** *P* **2** *L* **24** # **333**

Sharam Hakimi Consultant

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

This section refers to section 4.2.7 for allowable configuration for half duplex operation. One would need to go through the code to figure this information out.

SuggestedRemedy

I would suggest the following table either at 1.1.1.1 or 4.2.7 so that the reader can easily access this information

Speed	Media Type options half	Full	copper	fiber
10Mb	X	X	X	X
100Mb	X	X	X	X
1000Mb	X	X	X	X
10000Mb		X		X

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the reference in 1.1.1.1 from 4.2.7 to 4.4.2 which already includes a table with the relevant information.

Cl **01** *SC* **1.1.2.2** *P* **7** *L* **1** # **337**

Grow, Robert Intel

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

Inconsistent capalitization. Capitalization of gigabit in f), g) and h) varies and is inconsistent with other uses in Clause 1 (i.e., 1.4 and 1.5).

SuggestedRemedy

Fix per IEEE editor recommendation on capitalization of expanded acronyms. Pending that determination, capapitalization of "10 Gigabit ..." is consistent with the majority of the document.

Response *Response Status* **C**

ACCEPT.

Will capitalize "gigabit" in this subclause.

Cl **01** *SC* **1.2.1** *P* **4** *L* **14** # **296**

Maus, Kyle AITG

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

The comma after the word "ports" is not needed.

SuggestedRemedy

Delete the comma.

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **1.3** *P* **4** *L* **?** # **343**

Jonathan Thatcher World Wide Packets

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

Reference to TIA-445-203 on page 445 is missing.
Reference to TIA/EIA-455-175A on page 455 line 37 is missing
Reference to TIA/EIA-455-127 on page 458 line 49 is missing
Etc.
FOTP-107 on page 461.41

SuggestedRemedy

Add appropriate reference; intimidate committee into scrubbing for all missing references.

Response *Response Status* **C**

REJECT.

In this committee intimidation tactics are rarely successful.

The comment has merit. However, it is rejected due to insufficient information.
As an expert in this area the commenter is strongly encouraged to resubmit the comment during the next recirculation with the following information:
- A comprehensive list of all missing references.
- A full title of the referenced document.
- Date of the referenced document.

Cl **01** *SC* **4** *P* **6** *L* **35** # **297**
Maus, Kyle AITG

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

There is an unnecessary comma after the word "symbols."

SuggestedRemedy

Remove the comma.

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **4** *P* **6** *L* **40** # **298**
Maus, Kyle AITG

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

There is an unnecessary comma after the word "pattern."

SuggestedRemedy

Remove the comma.

Response *Response Status* **C**

ACCEPT.

Cl **01** *SC* **4** *P* **6** *L* **45** # **299**
Maus, Kyle AITG

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

The phrase "125 microsecond" shoud be hyphenated, as it is an adjectival phrase modifying the noun "frame."

SuggestedRemedy

Add a hyphen between "125" and "microsecond"."

Response *Response Status* **C**

ACCEPT.

Cl **02** *SC* **2.1** *P* **10** *L* **12** # **301**
Maus, Kyle AITG

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

There is an unnecessary comma after the word "implementation."

SuggestedRemedy

Remove the comma.

Response *Response Status* **C**

ACCEPT.

Cl **02** *SC* **2.3.1.2** *P* **10** *L* **41** # **310**
Maus, Kyle AITG

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

The phrase "mac service data unit" should have underscores connecting each word. Due to the way Acrobat underlines, I can't tell if the underscores exist.

SuggestedRemedy

If there are no underscores between the words "mac," "service," "data," and "uinit," then put them in place.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.2** *P* **10** *L* **43** # **311**
Maus, Kyle AITG

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

The phrase "mac service data unit" should have underscores connecting each word. Due to the way Acrobat underlines, I can't tell if the underscores exist.

SuggestedRemedy

If there are no underscores between the words "mac," "service," "data," and "uinit," then put them in place.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.2** *P* **10** *L* **44** # **312**
Maus, Kyle AITG

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

The second instance of the phrase "frame check sequence" should have underscores between each word. Due to the way Acrobat underlines, I can't tell if there are underscores linking these words.

SuggestedRemedy

If they do not currently exist, underscores should be placed between "frame," check," and "sequence."

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.2** *P* **10** *L* **45** # **313**

Maus, Kyle AITG

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

The phrase "frame check sequence" should have underscores between each word. Due to the way Acrobat underlines, I can't tell if there are underscores linking these words.

SuggestedRemedy

If they do not currently exist, underscores should be placed between "frame," check," and "sequence."

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **11** # **303**

Maus, Kyle AITG

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

The phrase "user priority parameter" should be hyphenated, as "user priority" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there is an underscore linking "user" and "priority;" if there is, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "user" and "priority" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **13** # **304**

Maus, Kyle AITG

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

The phrase "access priority parameter" should be hyphenated, as "access priority" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there is an underscore linking "access" and "priority;" if there is, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "access" and "priority" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **15** # **305**

Maus, Kyle AITG

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

The phrase "frame check sequence parameter" should be hyphenated, as "frame check sequence" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there are underscores linking "frame," "check," and "sequence;" if there are, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "frame" and "check" and "parameter" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **20** # **306**

Maus, Kyle AITG

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

The phrase "frame type parameter" should be hyphenated, as "frame type" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there is an underscore linking "frame" and "type;" if there is, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "frame" and "type" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **22** # **307**

Maus, Kyle AITG

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

The phrase "mac action parameter" should be hyphenated, as "mac action" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there is an underscore linking "mac" and "action;" if there is, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "mac" and "action" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **24** # **308**

Maus, Kyle AITG

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

The phrase "user priority parameter" should be hyphenated, as "user priority" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there is an underscore linking "user" and "priority;" if there is, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "user" and "priority" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **26** # **309**

Maus, Kyle AITG

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

The phrase "access priority parameter" should be hyphenated, as "access priority" is an adjectival phrase modifying the noun "parameter." Due to the way Acrobat underlines, I can't tell if there is an underscore linking "access" and "priority;" if there is, then no hyphenation is required.

SuggestedRemedy

If there is no underscore between "access" and "priority" then put a hyphen between these words.

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **5** # **302**

Maus, Kyle AITG

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

The phrase "bit transmission" should be hyphenated, as it is an adjectival phrase modifying the noun "order."

SuggestedRemedy

Put a hyphen between "bit" and "transmission."

Response *Response Status* **C**

ACCEPT.

Cl **02** *SC* **2.3.1.5** *P* **11** *L* **5** # **314**

Maus, Kyle AITG

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

The phrase "frame check sequence" should have underscores between each word. Due to the way Acrobat underlines, I can't tell if there are underscores linking these words.

SuggestedRemedy

If they do not currently exist, underscores should be placed between "frame," check," and "sequence."

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.2.2** *P* **11** *L* **49** # **315**

Maus, Kyle AITG

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

The phrase "frame check sequence" should have underscores between each word. Due to the way Acrobat underlines, I can't tell if there are underscores linking these words.

SuggestedRemedy

If they do not currently exist, underscores should be placed between "frame," check," and "sequence."

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.2.5** *P* **12** *L* **11** # **316**

Maus, Kyle AITG

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

The phrase "frame check sequence" should have underscores between each word. Due to the way Acrobat underlines, I can't tell if there are underscores linking these words.

SuggestedRemedy

If they do not currently exist, underscores should be placed between "frame," check," and "sequence."

Response *Response Status* **C**

REJECT.

The undescrores do exist. Try to zoom in/out in the acrobat window and you will be able to see them.

Cl **02** *SC* **2.3.2.5** *P* **12** *L* **12** # **317**

Maus, Kyle AITG

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

The phrase "special bit transmission order" should be hyphenated, as the phrase "bit transmission" is an adjectival phrase modifying the noun "order."

SuggestedRemedy

Put a hyphen between "bit" and "transmission."

Response *Response Status* **C**

ACCEPT.

Cl **04** *SC* **4.1.2** *P* **14** *L* **8** # **318**

Maus, Kyle AITG

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

The comma after the word "descriptive" is unnecessary.

SuggestedRemedy

Remove the comma.

Response *Response Status* **C**

ACCEPT.

Cl **04** *SC* **4.1.2.1.1** *P* **14** *L* **26** # **319**

Maus, Kyle AITG

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

The phrase "minimum frame size" should be hyphenated, as it is an adjectival phrase modifying the noun "requirement."

SuggestedRemedy

Put hyphens between "minimum," "frame," and "size."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Hyphenating multiple words looks weird. The word "minimum" is already an adjective and therefore does not require a hyphen. I will insert a hyphen between "frame" and "size" though.

Cl **04** *SC* **4.1.2.1.2** *P* **15** *L* **33** # **325**

Maus, Kyle AITG

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

The phrase "octet boundary" should be hyphenated, as it is an adjectival phrase modifying the noun "alighment."

SuggestedRemedy

Put a hyphen between "octet" and "boundary."

Response *Response Status* **C**

ACCEPT.

Cl **04** *SC* **4.2.2.3** *P* **16** *L* **34** # **326**

Maus, Kyle AITG

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

The phrase "shared state" should be hyphenated, as it is an adjectival phrase modifying the noun "variables."

SuggestedRemedy

Put a hyphen between "shared" and "state."

Response *Response Status* **C**

ACCEPT.

Cl **04** *SC* **4.2.3.2.2** *P* **19** *L* **26** # **334**

Sharam Hakimi Consultant

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

In this line “A larger value of interframe spacing is used for” the value belongs to the variable interFrameSpacing as per the previous paragraph.

SuggestedRemedy

It should either change to “ A larger value of interFrameSpacing is used ” or “ A larger value for inter frame spacing is used”.

Response *Response Status* **C**

ACCEPT.

Will replace "of" with "for" between "value" and "interframe".

Cl **04** *SC* **4.2.7.2** *P* **23** *L* **25** # **331**

Maus, Kyle AITG

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

The word "its" is not necessary, as is the semicolon.

SuggestedRemedy

End with a closing brace (}) after the word "variable."

Response *Response Status* **C**

REJECT.

The remainder of the sentence is on line 27.

Cl **04** *SC* **4.4.2** *P* **40** *L* **42** # **335**

Sharam Hakimi Consultant

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

It seems that for 100Mb the minimum possible spacing has been dropped.

SuggestedRemedy

Add the possible minimum packet spacing for 100Mb also.

Response *Response Status* **C**

REJECT.

No infromation has been dropped.
This portion of the draft has been reformatted from multiple to a single subclause, with no additional changes. No minimum possible interframe spacing has been defined for 100Mb/s operation.

Cl **04** *SC* **4.4.2.2, 4.4.2.3, 4.4.2.4** *P* **41** *L* **23, 31, 39** # **31**

Shimon Muller Sun Microsystems, Inc

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

Typos in editing instructions.

SuggestedRemedy

Replace 4.4.2.1 with 4.4.2.2, 4.4.2.3, 4.4.2.4.

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* *P* *L* # **50009**

Tom Alexander

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

Change Clause 30 to incorporate the resolution to Comment #96.

SuggestedRemedy

Perform the following changes:

1. In 30.8.1.1.8 and 30.8.1.1.9, replace the entire text with the contents of 30.8.1.1.23 and 30.8.1.1.24, respectively, but:
(a) replace all references to J1 with J0, and make references into Clause 50.3.2.3 instead of 50.3.2.1.; and
(b) change references to Clause 45 to point into 45.2.2.10 and 45.2.2.11 rather than 45.2.2.13 and 45.2.2.14 respectively.

2. In Annex 30B, fix the GDMO definition for J0 to be an OCTET_STRING rather than INTEGER.

3. Editorial license is granted to fix the PICS as appropriate.

Response *Response Status* **C**

ACCEPT.

Cl **30** *SC* **30.8.1.1.12** *P* **63** *L* **52** # **18**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:
At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 52, at the end of the section labeled "BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.13** *P* **64** *L* **10** # **19**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 10, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.14** *P* **64** *L* **21** # **20**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 21, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.15** *P* **64** *L* **33** # **21**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 33, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.16** *P* **64** *L* **44** # **22**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 44, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.17** *P* **65** *L* **1** # **23**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 1, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.20** *P* **65** *L* **43** # **24**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 43, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.21** *P* **66** *L* **2** # **25**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 2, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.22** *P* **66** *L* **12** # **26**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 12, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.26** *P* **67** *L* **8** # **27**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 8, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.27** *P* **67** *L* **20** # **28**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 20, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.28** *P* **67** *L* **30** # **29**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 30, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.4** *P* **62** *L* **14** # **14**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 14, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.5** *P* **62** *L* **26** # **15**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 26, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.6** *P* **62** *L* **37** # **16**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 37, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **30.8.1.1.7** *P* **62** *L* **48** # **17**

Geoffrey Garner Lucent Technologies

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

See comment on performance monitoring for Clause 30, Subclause 8 and its subclauses, pp. 61-67;the current comment gives the precise location for the new sentence in the current subclauses:At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the following sentence to line 48, at the end of the section labeled"BEHAVIOUR DEFINED AS:"
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

See comment #13

Cl **30** *SC* **8 (and its subclauses)** *P* **61-67** *L* # **13**

Geoffrey Garner Lucent Technologies

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

At present, the WIS performance monitoring attributes are always accumulated, regardless ofwhether the system is availableor unavailable. Typically (i.e., as defined in T1.231 and T1.416), attributes such as CVs,ESs, SESs, SEFSs, etc. are inhibited whena system is unavailable. The philosophy behind this is that attributes such as CVs, ESs,SESs, SEFSs, etc. are intended to indicatethe performance of a system over short time scales (e.g., 1 second or less). It is usefulto distinguish between bit error performancedegradation and long periods of unavailability due to fiber cuts or system failures.To make this distinction, the above attributesshould be inhibited when the system is unavailable. The precise definition ofunavailability is given in the suggested remedy below,and is consistent with T1.231 and T1.416.

SuggestedRemedy

Add the respective new subclauses given below and modify the respective subclauses asindicated below.
New Subclauses:
0.8.1.1.14A aLineUASs
ATTRIBUTE APPROPRIATE SYNTAX:
Generalized nonresetable counter. This counter has a maximum increment rate of 1 count per second independent of speed of operation, except at the time of transition fromavailable time to unavailable time (when the counter increases by 10) and at the timeof transition from unavailable time to available time (when the counter decreases by 10).
BEHAVIOUR DEFINED AS:
Increment counter by one in an "Unavailable Second" (UAS). The Line becomes unavailableat the onset of 10 contiguous Line SESs. The 10 Line SESs are included in unavailabletime. Once unavailable, the Line becomes available at the onset of 10 contiguousseconds with no Line SESs. The 10 seconds with no Line SESs are excluded fromunavailable time.Some parameter counts are inhibited during unavailability -- see Clause 30.8.2.30.8.1.1.17A aFarEndLineUASs
ATTRIBUTE APPROPRIATE SYNTAX:
Generalized nonresetable counter. This counter has a maximum increment rate of1 count per second independent of speed of operation, except at the time of transitionfrom available time to unavailable time (when the counter increases by 10) and at thetime of transition from unavailable time to available time (when the counter decreases by 10).
BEHAVIOUR DEFINED AS:
Increment counter by one in an "Unavailable Second" (UAS). The Far End Line becomes unavailable at the onset of 10 contiguous Far End Line SESs. The 10 Far End Line SESs are included in unavailable time. Once unavailable, the Far End Line becomes availableat the onset of 10 contiguous seconds with no Far End Line SESs. The 10 seconds with no Far End Line SESs are excluded from unavailable time.Some parameter counts are inhibited during unavailability -- see Clause 30.8.2.30.8.1.1.22A aPathUASs
ATTRIBUTE APPROPRIATE SYNTAX:
Generalized nonresetable counter. This counter has a maximum increment rate of 1 countper second independent of speed of operation, except at the time of transition from available time to unavailable time (when the counter increases by 10) and at the timeof transition from unavailable time to available time (when the counter decreases by 10).
BEHAVIOUR DEFINED AS:
Increment counter by one in an "Unavailable Second" (UAS). The Path becomesunavailable at

the onset of 10 contiguous Path SESs. The 10 Path SESs are includedin unavailable time. Once unavailable, the Path becomes available at the onsetof 10 contiguous seconds with no Path SESs. The 10 seconds with no Path SESsare excluded from unavailable time.Some parameter counts are inhibited during unavailability -- see Clause 30.8.2.30.8.1.1.28A aFarEndPathUASs
ATTRIBUTE APPROPRIATE SYNTAX:
Generalized nonresetable counter. This counter has a maximum increment rate of 1 countper second independent of speed of operation, except at the time of transition fromavailable time to unavailable time (when the counter increases by 10) and at thetime of transition from unavailable time to available time (when the counterdecreases by 10).
BEHAVIOUR DEFINED AS:
Increment counter by one in an "Unavailable Second" (UAS). The Far End Path becomesunavailable at the onset of 10 contiguous Far End Path SESs. The 10 Far End PathSESs are included in unavailable time. Once unavailable, the Far End Path becomesavailable at the onset of 10 contiguous seconds with no Far End Path SESs.The 10 seconds with no Far End Path SESs are excluded from unavailable time.Some parameter counts are inhibited during unavailability -- see Clause 30.8.2.30.8.2 Inhibiting Behaviour of WIS Performance Monitoring AttributesFor a given monitored entity (i.e., section, line, or path), the accumulation ofcertain attributes is inhibited during periods of unavailability or during SESs.Inhibiting on a given monitored entity (such as a path) is not explicitly affectedby conditions on any other monitored entity (such as a line).
The inhibiting rules are as follows:
- UAS attribute counts shall not be inhibited
- All other attribute counts for Line, Far End Line, Path, and Far End Path shall be inhibited during UAS. Inhibiting shall be retroactive to the onset ofunavailable time and shall end retroactively to the end of unavailable time
- The CV attribute (i.e., section or line BIP error or path block error) counts shall be inhibited during SESs.
For sections, where no UAS attribute is defined, there shall be no inhibiting ofattribute counts except for the CV attributes as described in this subclause. End New Subclauses:
Add the following sentence to Subclauses 30.8.1.1.4 (aSectionSESs),
30.8.1.1.5 (aSectionESs), 30.8.1.1.6(aSectionSEFSs),
30.8.1.1.7 (aSectionCVs), 30.8.1.1.12 (aLineSESs),
30.8.1.1.13 (aLineESs), 30.8.1.1.14 (aLineCVs),
30.8.1.1.15 (aFarEndLineSESs), 30.8.1.1.16 (aFarEndLineESs),
30.8.1.1.17 (aFarEndLineCVs), 30.8.1.1.20 (aPathSESs),
30.8.1.1.21 (aPathESs), 30.8.1.1.22 (aPathCVs),
30.8.1.1.26 (aFarEndPathSESs), 30.8.1.1.27 (aFarEndPathESs),
30.8.1.1.28 (aFarEndPathCVs) (the precise location is given in the following 16 comments):
This attribute is subject to inhibiting -- see Subclause 30.8.2.

Response *Response Status* **U**

REJECT.

Although we understand the reasoning behind the request, the Clause 30 management objects specified are sufficient to manage this IEEE 802.3 interface. It was never intended for this interface to duplicate the full functionality, or directly interoperate with, SONET/SDH specified transmission, client interfaces or management systems. The counters requested by this comment are appropriate as derivative higher level counters associated with an application specific SONET/SDH MIB.

The Clause 30 descriptions are intended to be low level management objects, which are linked to hardware features defined by IEEE P802.3. These are intended to be used to construct an application specific MIB out of any management language. The scope of the project as defined in the approved IEEE P802.3ae Project Authorization Request states '.. minimal augmentation of its operation, physical layer characteristics and management parameters ..'. Accepting the commenter's suggested remedy would exceed the scope by adding derivable application specific MIB objects and more complex object behaviours.

M: Grow
S: Bynum

Y: 16 N:0 A: 0

Cl **30** *SC* **Annex 30A** *P* **70** *L* **11** # **95**

David Law 3Com

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

Please add the OBJECT IDENTIFIER to Clause 30A not that the draft has reached the Sponsor ballot stage.

SuggestedRemedy

Add the OBJECT IDENTIFIER to Clause 30A.

Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.1.2** *P* **81** *L* **24** # **118**

Thomas Mathey Independent

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

Missing value.

SuggestedRemedy

Replace the text for aRateControlAbility "???" with the actual arc value.
This also applies to: aRateControlStatus.

Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.15** *P* **134** *L* **25** # **120**

Thomas Mathey Independent

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

There are at least 31 places in this section were the text "???" needs to be replaced with the actual arc value.

SuggestedRemedy

Replace the text "???" with the actual arc value.

Response *Response Status* **C**

ACCEPT.

Cl **30A** *SC* **30A.4.1** *P* **88** *L* **26** # **119**
Thomas Mathey Independent

Comment Type **T** *Comment Status* **A**
Missing value.

SuggestedRemedy
Replace the text "??" with the actual arc value.

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

Cl **31** *SC* **31B.3.2.6** *P* **157** *L* **1-40** # **30**
Shimon Muller Sun Microsystems, Inc

Comment Type **E** *Comment Status* **A**
The parameters specified for the MA_CONTROL.request primitive and the TransmitFrame function do not conform to their definitions.

SuggestedRemedy
Delete "phys_Address" from MA_CONTROL.request.
Add "frame_check_sequence" to TransmitFrame.

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

Cl **31B** *SC* **31B.4.6** *P* **158** *L* **39** # **121**
Thomas Mathey Independent

Comment Type **E** *Comment Status* **A**
The text on lines 39 to end of table for the three right hand columns is one line feed too high.

SuggestedRemedy
Add line feeds.

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

Cl **44** *SC* **44.1.2** *P* **162** *L* **24** # **145**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Missing a comma.

SuggestedRemedy
Insert a comma between "10 Gb/s" and "and".

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

Cl **44** *SC* **44.1.3** *P* **162** *L* **45** # **338**
Grow, Robert Intel

Comment Type **E** *Comment Status* **A**
Inconsistent capitilization.

SuggestedRemedy
Unless a general change not capatilizing acronym expansions is implemented, capitilize gigabit near the end of this line for consistency with the majority of 802.3ae uses.

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Change to have full name outside parantheses and abbreviation inside, using proper capitalization.

Cl **44** *SC* **44.1.3** *P* **162** *L* **45** # **146**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Capitalize lower case g.

SuggestedRemedy
Change "gigabit" to "Gigabit".

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

Editor to check Clause 1 for similar condition.

Cl **44** *SC* **44.1.4.1** *P* **163** *L* **34** # **355**
Jonathan Thatcher World Wide Packets

Comment Type **E** *Comment Status* **A**
Change to "through its 32 bit wide transmit and receive data paths." Or, make it "36" bit wide data and control path...

SuggestedRemedy
Had to give the chief editor a tweak of some kind :-)

Response *Response Status* **C**
ACCEPT IN PRINCIPLE.

Use "data paths".

Cl **44** *SC* **44.1.4.4** *P* **164** *L* **31** # **150**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Missing comma.

SuggestedRemedy
Insert comma after "method".

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

Cl **44** *SC* **44.1.4.4** *P* **164** *L* **35** # **151**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Missing comma.

SuggestedRemedy
Insert comma after "method".

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

Cl **44** *SC* **44.1.4.4** *P* **164** *L* **39** # **152**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Missing comma.

SuggestedRemedy
Insert comma after "data".

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

Cl **44** *SC* **44.3** *P* **165** *L* **32** # **122**
Thomas Mathey Independent

Comment Type **E** *Comment Status* **R**
The foward reference to 47.2.2 for XAUI round-trip delay constraint could be more direct as 47.2.2 then points to 48.5.

SuggestedRemedy
Replace reference 47.2.2 with 48.5.

Response *Response Status* **C**
REJECT.

Although 47.2.2 references 48.5 for the value, the shall and statement about interconnect are in 47.2.2.

Cl **44** *SC* **Table 44-1** *P* **165** *L* **23** # **153**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Table numbering is incorrect.

SuggestedRemedy
Change second Table 44-1 to 44-2, change 44-2 to 44-3, and change 44-3 to 44-4.

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

Cl **44A** *SC* **44A.3** *P* **171** *L* **34** # **356**
Jonathan Thatcher World Wide Packets

Comment Type **E** *Comment Status* **R**
Recommend changing "Synchronizer" to "Synchronizer and Gearbox" Ditto Figure 44A-4

SuggestedRemedy
Per comment

Response *Response Status* **C**
REJECT.

There is no synchronizer in Figure 44A-3, but believe that commenter was referring to 44A-2. Figures were made to match Figure 49-4 in a previous edit, and preference is to maintain that consistency.

Cl **44A** *SC* **Figure 44A-1** *P* **170** *L* **14** # **154**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Clarify XGXS labels.

SuggestedRemedy
Change XGXS labels on Figures 44A-1, 44A-2, 44A-3 and 44A-4 to label the top XGXS as "DTE XGXS" and the bottom XGXS as "PHY XGXS".

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

Cl **45** *SC* *P* *L* # **155**

Booth, Brad Intel

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

Clause 45 uses the term 10Gb/s.

SuggestedRemedy

Change to be 10 Gb/s.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* *P* *L* # **50008**

Tom Alexander

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

Change Clause 45 to incorporate the resolution to Comment #96.

SuggestedRemedy

Perform the following changes:

1. In Table 45-11 in 45.2.2, change J0 Tx and Rx (2.35 and 2.36) to occupy 16 register slots each instead of 1.

2. Change 45.2.2.10 and 45.2.2.11 to look identical to 45.2.2.13 and 45.2.2.14, except that all references to J1 are replaced by J0, and the reference into Clause 50 is to 50.3.2.3 instead of 50.3.2.1.

3. Editorial license is granted to maintain consistency without altering technical content, such as adjusting the PICS.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45** *P* *L* # **71**

Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **A** *PRBS31*

Please add text for MDIO-based use of a PRBS31 pattern generator and/or BER counter in the PCS. I guess it can be optional; it is possible, if not convenient for all, to count errors in mission mode.

SuggestedRemedy

Please add text for MDIO-based use of optional pattern generator and BER counter using PRBS31.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See resolution to #70.

Cl **45** *SC* **45.2** *P* **177** *L* **21** # **157**

Booth, Brad Intel

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

Incorrect statement about unsupported bits.

SuggestedRemedy

Change "... unsupported bits in supported registers and..." to "... unsupported register bits, and...".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2** *P* **177** *L* **7** # **49001**

Pat Thaler

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

There are a number of multi-bit fields in the registers (generally counters, seeds and Sonet octets). There isn't any statement on how the bits in multi-bit fields are assigned to register bits.

SuggestedRemedy

Normal 802.3 practice would be for bit 0 to be the LSB through this is reversed for Sonet so we may need to reverse it for the Sonet octets. Add a statement that multi-bit fields put the LSB in the lowest numbered register bit for the field.

Also, for the seed values (45.2.3.13 and 45.2.3.14), add the following statement: For each seed register, seed bits are assigned to register bits in order with the lowest numbered seed bit for that register being assigned to register bit 0.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
For all multi-bit fields specify that the lowest numbered bit of the field in the register is the LSB. Note that for the WIS octet fields this means that bit 8 of the corresponding field in the WIS frame maps to the lowest numbered bit of the field in the register.

Cl **45** *SC* **45.2.1.1.1** *P* **179** *L* **50** # **159**

Booth, Brad Intel

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

"Should" is too close to being a "shall".

SuggestedRemedy

Change "should" to "may".

Response *Response Status* **C**

REJECT.
Should is an acceptable term to recommend an action without requiring it and is used elsewhere in the base standard. See IEEE style guide.

Cl **45** *SC* **45.2.1.1.1** *P* **179** *L* **53** # **160**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
End of sentence is confusing.

SuggestedRemedy
Change to read "... after exiting from reset or low power mode."

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

Cl **45** *SC* **45.2.1.1.2** *P* **180** *L* **5** # **162**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Unnecessary "in".

SuggestedRemedy
Change "in, in" to "in".

Also make change in 45.2.2.1.3 (pg. 192, line 19), 45.2.3.1.3 (pg. 207, line 15), 45.2.4.1.3 (pg. 220, line 39), and 45.2.5.1.3 (pg. 227, line 51).

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

Cl **45** *SC* **45.2.1.1.2** *P* **180** *L* **6** # **163**
Booth, Brad Intel

Comment Type **E** *Comment Status* **R**
Need a comma and "should" needs to be changed.

SuggestedRemedy
Change to read "... implementation specific, and any interface signals may not be relied upon."

Make change also in 45.2.2.1.3 (pg. 192, line 20), 45.2.3.1.3 (pg. 207, line 16), 45.2.4.1.3 (pg. 220, line 40) and 45.2.5.1.3 (pg. 227, line 52).

Response *Response Status* **C**
REJECT.
Should is an acceptable term to recommend an action without requiring it and is used elsewhere in the base standard. See IEEE style guide.

Cl **45** *SC* **45.2.1.1.2** *P* **180** *L* **9** # **161**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Add note.

SuggestedRemedy
Insert note from 45.2.1.1.1 in 45.2.1.1.2.

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

Cl **45** *SC* **45.2.1.1.3** *P* **180** *L* **17** # **164**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Unnecessary text.

SuggestedRemedy
Remove "bits 15 through 0 of".

Make change also in 45.2.2.1.4 (pg. 192, line 31), 45.2.3.1.4 (pg. 207, line 27), 45.2.4.1.4 (pg. 220, line 51) and 45.2.5.1.4 (pg. 228, line 39).

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

Cl **45** *SC* **45.2.1.1.4** *P* **180** *L* **31** # **165**
Booth, Brad Intel

Comment Type **TR** *Comment Status* **A**
Missing a "shall".

SuggestedRemedy
Change to read "... and shall return a value of zero when read."

Response *Response Status* **C**
ACCEPT.
And add corresponding PICS entry.

Cl **45** *SC* **45.2.1.1.4** *P* **180** *L* **32** # **166**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Missing a comma.

SuggestedRemedy
Insert a comma after "51.8".

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

Cl **45** *SC* **45.2.1.10** *P* **189** *L* **51** # **177**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
May implies may not.

SuggestedRemedy
Remove "or may not".

Change also in 45.2.2.8, 45.2.3.8, 45.2.4.7, 45.2.5.7, and 45.2.6.3.

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

Cl **45** *SC* **45.2.1.2.2** *P* **181** *L* **39** # **167**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Unnecessary text.

SuggestedRemedy
Remove the statement "as defined in the introductory text of 45.2."

Remove also in 45.2.1.7.4, 45.2.1.7.5, 45.2.2.2.1, 45.2.2.2.2, 45.2.2.9.1, 45.2.2.9.2, 45.2.2.9.3, 45.2.2.9.4, 45.2.2.9.5, 45.2.2.9.6, 45.2.2.9.7, 45.2.2.9.8, 45.2.2.9.9, 45.2.2.9.10, 45.2.2.9.11, 45.2.3.2.2, 45.2.3.7.2, 45.2.3.7.3, 45.2.3.12.1, 45.2.3.12.2, 45.2.4.2.2, 45.2.4.6.2, 45.2.4.6.3, 45.2.5.2.2, 45.2.5.6.2, and 45.2.5.6.3.

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

Cl **45** *SC* **45.2.1.2.3** *P* **181** *L* **45** # **168**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Specify the actual bit.

SuggestedRemedy
Change to read "... using the low power bit 1.0.11."

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

Cl **45** *SC* **45.2.1.5** *P* **182** *L* **30** # **169**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Specify the actual bit.

SuggestedRemedy
Change to read "Bit 1.5.0 is used to indicate...".

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

Cl **45** *SC* **45.2.1.6.1** *P* **182** *L* **39** # **170**
Booth, Brad Intel

Comment Type **T** *Comment Status* **A**
There is no compliance requirements.

SuggestedRemedy
Change both "may" to "shall", and add corresponding PICS entry.

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

Cl **45** *SC* **45.2.1.7.14** *P* **187** *L* **1** # **171**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Specify the actual bit.

SuggestedRemedy
Change to read "... loopback bit 1.0.0."

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

Cl **45** *SC* **45.2.1.8** *P* **187** *L* **8** # **172**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Specify the actual bit.

SuggestedRemedy
On line 8, change to read "... disable ability bit 1.8.8."
On line 11, change to read "... function shall use bit 1.9.0 to control the function."
On line 12, change to read "... writes to bits 1.9.4:1 and...".

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

Cl **45** *SC* **45.2.1.8.5** *P* **188** *L* **25** # **173**

Booth, Brad Intel

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

The explanation for this bit is a bit confusing.

SuggestedRemedy

Change to read as follows:
When bit 1.9.0 is set to one, the PMD shall disable output on all the transmit paths. When bit 1.9.0 is set to zero, the PMD shall enable output on all transmit paths.

PMD types that use only a single wavelength and have implemented transmit disable use this bit to control the function.

For multiple wavelength PMD types, transmission will be disabled on all lanes when this bit is set to one. When this bit is set to zero, the lanes are individually controlled by their corresponding transmit disable bits 1.9.4:1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to read as follows:
When bit 1.9.0 is set to one, the PMD shall disable output on the transmit path. When bit 1.9.0 is set to zero, the PMD shall enable output on the transmit path.

For single wavelength PMD types, transmission will be disabled when this bit is set to one. When this bit is set to zero, transmission is enabled.

For multiple wavelength PMD types, transmission will be disabled on all lanes when this bit is set to one. When this bit is set to zero, the lanes are individually controlled by their corresponding transmit disable bits 1.9.4:1.

Cl **45** *SC* **45.2.1.9** *P* **188** *L* **37** # **174**

Booth, Brad Intel

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

Description is a confusing.

SuggestedRemedy

Change to read as follows:
The assignment of bits in the 10G PMD receive signal OK register is shown in Table 45-10. The 10G PMD receive signal OK register is mandatory. PMD types that use only a single wavelength indicate the status of the receive signal OK using bit 1.10.0 and return a value of zero for bits 1.10.4:1. PMD types that use multiple wavelengths indicate the status of each lane in bits 1.10.4:1 and the logical AND of those bits in bit 1.10.0.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.9.1** *P* **188** *L* **43** # **175**

Booth, Brad Intel

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

Read only bit cannot be set, only read.

SuggestedRemedy

Change both "set to" to "read as".

Also applies to 45.2.1.9.2, 45.2.1.9.3, and 45.2.1.9.4.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.9.5** *P* **189** *L* **35** # **176**

Booth, Brad Intel

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

Description is confusing.

SuggestedRemedy

Change to read as follows:
When bit 1.10.0 is read as a one, the signal is OK on all PMD receive paths. When bit 1.10.0 is read as a zero, the signal is not OK on all PMD receive paths.

Single wavelength PMD types indicate the status of their receive path signal using this bit.

Multiple wavelength PMD types indicates the global status of the lane-by-lane signal OK indications. This bit is read as a one when all the lane signal OK indications are one; otherwise, this bit is read as a zero.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change the proposed :

When bit 1.10.0 is read as a zero, the signal is not OK on all PMD receive paths.

To:

When bit 1.10.0 is read as a zero, the signal is not OK on at least one of the PMD receive paths.

Cl **45** *SC* **45.2.2.1** *P* **191** *L* **3** # **178**

Booth, Brad Intel

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

Should in second sentence is too close to implying a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bit of the WIS Control 1 register be chosen so that...".

Response *Response Status* **C**

REJECT.
8 ball.
It has been highly recommended that highly recommended should not be used. See IEEE style guide.

Cl **45** *SC* **45.2.2.17.1** *P* **203** *L* **36** # **182**

Booth, Brad Intel

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

Numeric value less than ten.

SuggestedRemedy

Change "1" to "one".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.2.2.3** *P* **193** *L* **24** # **179**

Booth, Brad Intel

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

Missing a comma.

SuggestedRemedy

Insert a comma between "feature" and "then".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.2.5** *P* **194** *L* **43** # **180**

Booth, Brad Intel

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

Specify the actual bit.

SuggestedRemedy

Change to read "Bit 2.5.0 is used to indicate...".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.2.6** *P* **194** *L* **49** # **181**

Booth, Brad Intel

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

Should is close to implying a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bith of the 10G WIS Control 2 register be chosen so that...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.3.1** *P* **205** *L* **54** # **183**

Booth, Brad Intel

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

Should might imply a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bit of the PCS Control 1 register be chosen so that...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.3.1.2** *P* **206** *L* **54** # **184**

Booth, Brad Intel

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

Word not required.

SuggestedRemedy

Remove "Clause".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.10** *P* **213** *L* **26** # **191**

Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the value for each bit of the 10GBASE-X PCS test control register be chosen...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.3.11.1** *P* **214** *L* **39** # **192**

Booth, Brad Intel

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

Unknown variables used.

SuggestedRemedy

Change to read as follows:
When read as a one, bit 3.32.12 indicates that the 10GBASE-R PCS 64B/66B receiver has lock and the BER is < 10-4. When read as a zero, bit 3.32.12 indicates that either the 64B/66B receiver does not have lock or the BER is >= 10-4.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Use the text :
When read as a one, bit 3.32.12 indicates that the PCS is in a fully operational state. When read as a zero, bit 3.32.12 indicates that the PCS is not fully operational. This bit is a reflection of the state of the PCS_status variable defined in 49.2.14.1.

Cl **45** *SC* **45.2.3.12.2** *P* **215** *L* **47** # **193**

Booth, Brad Intel

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

Incorrect latch direction.

SuggestedRemedy

Change "low" to "high".

Response *Response Status* **C**

ACCEPT.
See resolution to #123.

Cl **45** *SC* **45.2.3.12.2** *P* **215** *L* **47** # **123**

Thomas Mathey Independent

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

The text "This bit is a latching low version" is in conflict with the text in Table 45-38 as "Latched high BER", line 44 text "The latched hilgh BER", and text on page 367, line 52 "A latch high view".

SuggestedRemedy

Change text from: "This bit is a latching low version" to "This bit is a latching high version".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.12.3** *P* **215** *L* **51** # **194**

Booth, Brad Intel

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

Explanation is confusing.

SuggestedRemedy

Change to read as follows:
The BER counter is a six bit count as defined by the ber_count variable in 49.2.14.2. The BER counter shall be implemented as a non-roll-over counter such that when the counter reaches its maximum value of 63, it does not roll to zero. The BER counter shall clear to zero when read via the MDIO.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Change to read as follows:
The BER counter is a six bit count as defined by the ber_count variable in 49.2.14.2.

Add the non rollover counter text from subclause 32.5.3.2.6 referenced in #197.

Cl **45** *SC* **45.2.3.12.4** *P* **216** *L* **6** # **195**

Booth, Brad Intel

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

Explanation is confusing.

SuggestedRemedy

Change first sentence to read "The errored blocks counter is an eight bit count defined by the errored_block_count counter specified in 49.2.14.2."
Change second to last sentence to read "The errored blocks counter shall clear to zero when read via the MDIO."
Remove last sentence.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.16** *P* **218** *L* **33** # **197**

Booth, Brad Intel

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

No conformance requirements.

SuggestedRemedy

Change second sentence in paragraph to read "The counter shall be implemented as a non-roll-over counter with a maximum value of 65 535. The test pattern error counter shall clear to zero when read via the MDIO."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Copy text that relates to counter from 32.5.3.2.6.
And add associated PICS entries.

Cl **45** *SC* **45.2.3.2.1** *P* **207** *L* **43** # **185**

Booth, Brad Intel

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

Read only values cannot be set.

SuggestedRemedy

Change both "set to" to "read as".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.2.3** *P* **208** *L* **25** # **186**

Booth, Brad Intel

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

Specify actual bit.

SuggestedRemedy

Change to read "... controlled using the low power bit 3.0.11."

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.6** *P* **209** *L* **48** # **187**

Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bit of the 10G PCS Control 2 register be chosen...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.3.6.1** *P* **210** *L* **16** # **188**

Booth, Brad Intel

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

Lack of conformance requirements.

SuggestedRemedy

Change to read as follows:
The PCS type shall be selected using bits 1 through 0. The PCS type abilities of the 10G PCS are advertised in bits 3.8.2:0. A 10G PCS shall ignore writes...

Response *Response Status* **C**

ACCEPT.
And add associated PICS entry.

Cl **45** *SC* **45.2.3.7.4** *P* **211** *L* **31** # **189**

Booth, Brad Intel

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

Clarify information.

SuggestedRemedy

Change to read "... is able to support operation with a WIS in a 10GBASE-W PHY."

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.3.7.6** *P* **211** *L* **44** # **190**

Booth, Brad Intel

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

Information not required.

SuggestedRemedy

Remove text in parantheses.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4.1** *P* **218** *L* **42** # **198**
Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bit of the PHY XS Control 1 register be chosen..."

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.4.1.2** *P* **219** *L* **47** # **200**
Booth, Brad Intel

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

Unnecessary word.

SuggestedRemedy

Remove "Clause".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4.8.3** *P* **224** *L* **47** # **203**
Booth, Brad Intel

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

Specify the actual bit.

SuggestedRemedy

Change to read "... loopback bit 4.0.14."

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.4.9** *P* **225** *L* **49** # **204**
Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Changed to read "It is highly recommended that the default values for each bit of the 10G PHY XGXS test control register be chosen so that...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.4.9.1** *P* **226** *L* **19** # **124**
Thomas Mathey Independent

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

In reference to register 4.25.2 and 5.25.2 , both use the same text "pattern testing is enabled on the transmit path". Either p234/line 3 is incorrect, or p226/line 19 is incorrect. For a PHY XGXS, only the receive path using register set 4 has a XGMII which can source patterns.

SuggestedRemedy

Change p226 text from "transmit path" to "receive path" on both line 19 and 20.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.5.1** *P* **226** *L* **39** # **205**
Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bit of the DTE XS Control 1 register be chosen so that...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.5.1.1** *P* **226** *L* **52** # **206**
Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change last sentence to read "All other register bits may be ignored."

Response *Response Status* **C**

REJECT.
See #159.

Cl **45** *SC* **45.2.5.1.2** *P* **227** *L* **38** # **208**
Booth, Brad Intel

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

Unnecessary word.

SuggestedRemedy

Remove "Clause".

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.5.1.3** *P* **227** *L* **52** # **209**

Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change to read "... signal may not be relied upon."

Response *Response Status* **C**

REJECT.
See #163.

Cl **45** *SC* **45.2.5.9** *P* **233** *L* **30** # **210**

Booth, Brad Intel

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

Should implies a shall.

SuggestedRemedy

Change second sentence to read "It is highly recommended that the default value for each bit of the 10G DTE XGXS test control register be chosen so...".

Response *Response Status* **C**

REJECT.
See resolution to comment #178.

Cl **45** *SC* **45.2.6** *P* **234** *L* **17** # **211**

Booth, Brad Intel

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

Each address should be represented on its own.

SuggestedRemedy

There is only a saving of a page and a half of text, but seperating these two registers will help in preventing confusion for those less familiar with the draft (or standard).

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.3** *P* **235** *L* **47** # **212**

Booth, Brad Intel

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

Table number is split.

SuggestedRemedy

Insert character to keep table number whole.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Advice on which character to insert !

Cl **45** *SC* **45.5.5.13** *P* **255** *L* **1** # **214**

Booth, Brad Intel

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

Both 45.5.5.13 and 45.5.5.14 have their entries listed as mandatory, but they're only mandatory if there is a physical instantiation of the MDIO.

SuggestedRemedy

Insert the following sentence in 45.2, pg. 177, line 12, after "The electrical interface is specified in 45.4.":
A physical instantiation of the MDIO interface shall comply with the management frame structure and the electrical interface requirements as specified in 45.3 and 45.4, respectively.

Insert PICS option entry. Use the option in 45.5.5.13 and 45.5.5.14.

Response *Response Status* **Z**

PROPOSED ACCEPT.
(comment withdrawn)

Cl **45** *SC* **45.5.5.3** *P* **241** *L* **6** # **213**

Booth, Brad Intel

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

Items MM1 to MM8 are general rules of thumb and do not need to be represented in each section of the PICS.

SuggestedRemedy

Cut MM1 to MM8 and paste in a new section after 45.5.5.1, and change all status to M.

Delete WM1 to WM8, RM1 to RM8, PM1 to PM8, DM1 to DM8 and VS1 to VS4.

Response *Response Status* **C**

REJECT.
Whilst this would save space, this would make the PICS more difficult for people to use.

Cl **45** *SC* **Figure 45-1** *P* **176** *L* **36** # **156**

Booth, Brad Intel

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

Figure is requires clarification.

SuggestedRemedy

The breaks to seperate MMDs and MACs don't break all the connections. Change to break the connections, or switch to using dots as in Figure 44A-1.

Two wires originate from STA and go to all MMDs, but there is no labeling other than poorly placed MDIO. Place an MDIO label on the MDIO wire and an MDC label on the MDC wire.

Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **Table 45-2** *P* **178** *L* **27** # **158**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Use register address full value.

SuggestedRemedy
Change "1.2,3" to "1.2, 1.3", "1.5,6" to "1.5, 1.6" and "1.14,15" to "1.14, 1.15".

Response *Response Status* **C**
ACCEPT.
Apply elsewhere

Cl **45** *SC* **Table 45-40** *P* **217** *L* **1** # **196**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Table is in middle of paragraph.

SuggestedRemedy
Change float characteristics of the table.

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

Cl **45** *SC* **Table 45-43** *P* **219** *L* **1** # **199**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Table is in the middle of a paragraph.

SuggestedRemedy
Change the table's float characteristics.

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

Cl **45** *SC* **Table 45-44** *P* **220** *L* **1** # **201**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Table is in the middle of a note.

SuggestedRemedy
Change the table's float characteristics.

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

Cl **45** *SC* **Table 45-47** *P* **223** *L* **1** # **202**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Tables 45-47 and 45-48 segment text on line 51 from previous page.

SuggestedRemedy
Change tables' float characteristics.

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

Cl **45** *SC* **Table 45-51** *P* **227** *L* **1** # **207**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Table breaks up the flow.

SuggestedRemedy
Change to float characteristics of the table.

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

Cl **46** *SC* **46.1** *P* **262** *L* **42** # **215**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Note doesn't make sense in this location.

SuggestedRemedy
Move note to after paragraph in 46.3.

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

Cl **46** *SC* **46.1** *P* **262** *L* **49** # **216**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Unnecessary word.

SuggestedRemedy
Remove "interface" after "XGMII".

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

Cl **46** *SC* **46.1** *P* **262** *L* **54** # **217**

Booth, Brad Intel

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

Add periods to the end of the bullet items.

SuggestedRemedy

See comment.

Response *Response Status* **C**

REJECT.
The punctuation is consistent with IEEE Style Manual 11.2. "Closing punctuation should be omitted in lists of short items or phrases."

Cl **46** *SC* **46.1.1** *P* **263** *L* **10** # **218**

Booth, Brad Intel

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

Swap words.

SuggestedRemedy

Change "serial MAC" to "MAC serial".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.1** *P* **263** *L* **19** # **219**

Booth, Brad Intel

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

Wording is confusing.

SuggestedRemedy

Change bullet g) to read as follows:
When the XGMII is optionally extended with XAUI, two XGMIIs logically exist (see Figure 46-1). The transmit path signals are from the RS to the DTE (top) XGXS of the XAUI via one XGMII and from the PHY (bottom) XGXS to the PCS via the other XGMII. The receive path signals are from the PCS to the PHY XGXS of the XAUI via one XGMII and from the DTE XGXS to the RS via the other XGMII. The descriptions of the XGMII as between the RS and the PCS are therefore equally applicable between the RS and the DTE XGXS or the PHY XGXS and the PCS.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.3** *P* **263** *L* **44** # **220**

Booth, Brad Intel

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

Include European SDH.

SuggestedRemedy

Change to read "STS-192/SDH-64".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.3** *P* **263** *L* **48** # **221**

Booth, Brad Intel

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

Missing a period.

SuggestedRemedy

Need a period at the end of last sentence.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.4** *P* **264** *L* **11** # **357**

Jonathan Thatcher World Wide Packets

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

Remove "Notes" column from Table 46-1

SuggestedRemedy

Good job Bob.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.4** *P* **264** *L* **2** # **222**

Booth, Brad Intel

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

There is no conformance requirement on the delay time.

SuggestedRemedy

Change last sentence to read "The maximum cumulative MAC Control, MAC and RS round-trip (sum of transmit and receive) delay in bit time as specified in 1.4 and pause-quanta as specified in 31B.2 shall meet the values specified in Table 46-1."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
"The maximum cumulative MAC Control, MAC and RS round-trip (sum of transmit and receive) delay shall meet the values specified in Table 46-1. Delay in bit time is as specified in 1.4 and in pause-quanta as specified in 31B.2 ."

Add PICS item: G2, Cumulative MAC Control, MAC and RS round-trip delay, 46.1.4, Per Table 46-1, M, Y [ ]

Renumber current PICS item G2.

Cl **46** *SC* **46.1.6** *P* **264** *L* **45** # **223**

Booth, Brad Intel

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

No conformance requirement on the receive path.

SuggestedRemedy

Change sentence to read "... into four lanes, as shall the 32 RXD and...".

Response *Response Status* **C**

ACCEPT. (No PICS change necessary.)

Cl **46** *SC* **46.1.6** *P* **264** *L* **52** # **224**

Booth, Brad Intel

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

Missing a comma.

SuggestedRemedy

Add a comma between "RXC" and "respectively".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.7** *P* **265** *L* **17** # **225**

Booth, Brad Intel

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

Grammar police. :-)

SuggestedRemedy

Change sentence to read "... at 10 Gb/s; therefore, PLS service...".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.1.7.1.2** *P* **265** *L* **37** # **226**

Booth, Brad Intel

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

Break into two sentences.

SuggestedRemedy

Put a period after "DATA_COMPLETE". Change "and" to "It".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.1.1** *P* **269** *L* **48** # **227**

Booth, Brad Intel

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

Need space between value and unit of measurement.

SuggestedRemedy

Change to be "156.25 MHz".

Change also in 46.3.2.1.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.1.4** *P* **272** *L* **4** # **228**

Booth, Brad Intel

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

Use of semi-colon.

SuggestedRemedy

Change to read "... specified in Clause 4; however, the frequency...".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **46.3.4** *P* **276** *L* **22** # **230**

Booth, Brad Intel

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

Figure number split across lines.

SuggestedRemedy

Insert symbol to keep number on one line.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. The broken text is a Framemaker cross reference. Might be possible to fix in the IEEE style tempates, punt to the IEEE editor.

Cl **46** *SC* **46.5.3** *P* **281** *L* **20** # **339**

Grow, Robert Intel

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

Inconsistent capitilization.

SuggestedRemedy

Unless a general change not capatilizing acronym expansions is implemented, capitilize "Gigabit Media Independent Interface" near the end of this line for consistency with the majority of 802.3ae uses.

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **Figure 46-9** *P* **277** *L* **41** # **125**

Thomas Mathey Independent

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

The figure uses the word "machine", which is the sole instance of diagram as machine in base standard or P802.3ae.

SuggestedRemedy

Change from "machine" to "diagram".

Response *Response Status* **C**

ACCEPT.

Cl **46** *SC* **Table 46-5** *P* **276** *L* **15** # **229**

Booth, Brad Intel

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

Missing opening parantheses.

SuggestedRemedy

Change to read "(i.e., <7:0>)".

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* *P* *L* # **234**

Booth, Brad Intel

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

Use correct symbol in Clause 47.

SuggestedRemedy

Switch from typed +/- to the symbol form as listed on page iii.

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **3.4.5** *P* **292** *L* **40** # **4**

Gaither, Justin Xilinx

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

Input impedance should be specified the same as the output impedance.

SuggestedRemedy

Change text similar to the way output impedance is specified.

Response *Response Status* **U**

REJECT. Input impedance spec is not considered to be a problem according to test data supplied indicating a valid spec problem with output impedance. Recevier test data indicates that a flat 10 dB input return loss was achievable.

The impact of loosening transmitter return loss as agreed to for D4.0 comment resolutions results in an increase in return loss contribution to deterministic jitter from 0.03 UI to 0.049 UI. The additional impact of loosening receiver return loss ar requested by this comment would result in a return loss contribution of 0.072 UI of deterministic jitter. This amount of additional jitter is excessive (blows the jitter budget) in light of the absence of proof of an existing problem with the current input impedance spec.

If evidence is received indicating that the current receiver return loss spec is not acheivable, then other driver and/or receiver parameters must be adjusted in order to maintain a working jitter budget.

Cl **47** *SC* **47.1.1** *P* **287** *L* **14** # **231**

Booth, Brad Intel

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

Add location of 10GBASE-X information.

SuggestedRemedy

Change to read "... PCS and PMA specified in Clause 48."

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.2** *P* **287** *L* **48** # **232**

Booth, Brad Intel

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

Unnecessary words.

SuggestedRemedy

Remove both "interface" after "XAUI".

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.2.1** *P* **288** *L* **4** # **233**

Booth, Brad Intel

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

Unnecessary word.

SuggestedRemedy

Remove "interface" after "XAUI" and "XGMII".

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.3.3.4** *P* **290** *L* **31** # **37**

Thaler, Pat Agilent Technologies

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

The driver output impedance spec has multiple problems:

the spec was loosened in draft 3.4 without analysis of the impact of that on received signal.

the text is unclear:
does "reduce 20 dB per decade from 781.25 MHz to 3.5 GHz and reduce 20 dB per decade again from 3.5 GHz to the third harmonic of the signal" mean that one reduces 40 dB per decade from 3.5 GHz to the third harmonic of the signal. If not, why doesn't it just say "reduce 20 dB per decade from 781.25 MHz to the third harmonic of the signal"? What is "better than?" Text of similar sections 23.5.1.2.6 and 32.6.1.4.1 is more clear and this text should be rewritten to be similar to those sections including the equation for return loss vs. frequency. The "third harmonic" does not translate into a defined frequency. When sending random data, the spectrum will have first and third harmonic energy spread over a range of frequencies. When sending specific data patterns, the position of the harmonics will depend upon the data being sent. For example sending stream of D21.5 or D10.2 produces a spectrum with a fundamental at 1.56 GHz. Perhaps the author meant the peak of the second hump in the spectrum of random data but a specfic number should be used instead.

text is incorrect and self contradictory:
Starting at 10 dB and reducing 20 dB per decade above 781.25 MHz results in hitting 0 dB return loss at about 2.5 GHz and a return _gain_ of 3 dB at 3.5 GHz. Return loss should not be allowed to go negative - the parts won't be doing that. The text says that the 3.5 GHz break point was chosen to get 3 dB return loss at the 3rd harmonic, but the 3 dB return loss point is about 1.7 GHz and the text implies that the third harmonic is above 3.5 GHz.

SuggestedRemedy

Present analysis to show that the spec doesn't produce excessive noise or modify the spec to reduce the noise.
Modify the spec so that the return loss stays positive.Rewrite the text to be similar to that of 23.5.1.2.6 or 32.6.1.4.1 and specify an actual frequency in place of "the third harmonic".To give a start on the analysis: A stream of D21.5 or D10.2 characters puts all the fundamental energy at 1.56 GHz. Return loss at that frequency is 3.98 dB.
Interconnect loss is specified at 7.5 dB which is stated to cover an interconnect length of approx 50 cm so loss/cm is about 0.15 dB.
The worst case interference occurs when the signal hits an impedence mismatch in the path about 1/4 wave length from the transmitter, bounces back to the transmitter where it is reflected back to the impedance mismatch in the path out of phase with the transmit signal. The noise is then attenuated below the original signal level by the path mismatch return loss, 1/2 wavelength of path attenuation, and the transmitter return loss. 1/2 wavelength is 9.6 cm at the speed of light. The FR4 path is slower than the speed of light, but it might also have less than maximum attenuation per cm so as an approximation I will use the 9.6 cm length to calculate the path attenuation. I am using the +/- 10% path impedance tolerance for the calculation rather than the larger connector to path impedance tolerance under the assumption that the connector's effect on the reflection will largely cancel out because the connector is physically small.
+/- 10% attenuation mismatch loss 20 dB
path attenuation 1.44 dB
transmit attenuation @ 1.66 GHz 3.98 dB

total 25.42 dB

So the reflection from will add noise at about 5% of the received signal level.

There is also the jitter from the reflection between the transmitter and the receiver. If the path has the full 7.5 dB of attenuation then the reflection will experience the following attenuation:
receiver mismatch 10 dB
path attenuation 15 dB
transmit attenuation @ 1.66 GHz 3.98 dB
total 28.98 dB

Which is another 3.5%. The two reflections can occur at the same time and can add.Can our budget tolerate the additional jitter?Also the reflection over a short link should be considered. In this case, the transmitter and receiver are separated by 1/4 wavelength distance:
receiver attenuation 10 dB
path attenuation 1.44 dB
transmit attenuation @ 1.66 GHz 3.98 dB
total 15.42 dB
or 17%

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Replaced text with the following equation for transmit return loss as follows:

Sdd11 = -10 dB for 312.5 Mhz < Freq (f) < 625 Mhz, and
-10 + 10*log(f/625) dB for 625 Mhz <= Freq (f) = < 3.125 GHz

Made the corresponding change to the "Differential output return loss minimum" parameter in table 47-1, Driver Characteristics.

Note that the return loss spec embodied in the equation above is different from that currently specified in D4.0.

The impact of loosening transmitter return loss results in an increase in return loss contribution to deterministic jitter from 0.03 UI to 0.049 UI. This increase is considered to meet the existing XAUI jitter budget.

Cl **47** *SC* **47.3.3.5** *P* **290** *L* **43** # **268**

Lindsay, Tom Stratos Lightwave

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

Template (mask) alignment requires locating to the mean (see clause 47.4.2 and Figure 47-7), yet the mean of real jitter distributions is not always halfway between the peaks. This implies that if jitter is asymmetric, pk-pk jitter must be reduced - basically, peak jitter (from the mean) is being specified, not pk-pk as currently written.

SuggestedRemedy

Insert a new sentence "...component of 0.37UIp-p. Note that these values assume symmetrical jitter distributions about the mean. If a distribution is not symmetrical, its peak to peak total jitter value must be less than these total jitter values to claim compliance to the template requirements per the methods of 47.4.2. Jitter specifications include..."

Response *Response Status* **U**

ACCEPT. Inserted the following: "...component of +/- 0.185 UI from the mean. Jitter specifications include...".

Also changed three other occurances of "p-p" to halve the stated value and state instead "from the mean" in 47.3.3.5. Made the corresponding change to the "Output Jitter" parameter in table 47-1, Driver Characteristics.

Cl **47** *SC* **47.3.5.1** *P* **293** *L* **51** # **235**

Booth, Brad Intel

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

Missing ohm symbol.

SuggestedRemedy

Insert ohm symbol after "100".

Also applied in 47.3.5.2.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Changed to 100 (ohm symbol) +/- 10%.

Cl **47** *SC* **47.4.1** *P* **294** *L* **17** # **236**

Booth, Brad Intel

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

Missing equation number.

SuggestedRemedy

Insert equation number.

Response *Response Status* **C**

ACCEPT.

Cl **47** *SC* **47.4.3.2** *P* **295** *L* **39** # **269**

Lindsay, Tom — Stratos Lightwave

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

Since waveforms may not be symmetrical about the crossing and average values, and jitter distributions may not be symmetrical about the mean, it may be difficult to develop a tolerance signal that contacts all the points of the template (mask). This was recognized for D4.0, but in hindsight, I don't like the change we/I made. It's too vague, and could lead to understress by either suppliers or customers and subsequent fingerpointing. (Note - the change in D4.0 was from my comment; sorry I don't recall the comment number).

SuggestedRemedy

"...data eye contacts the 6 points of the driver's template shown in Figure 47-4 and Table 47-2. Note that for this to occur, the test signal must have vertical waveform symmetry about the average value and have horizontal symmetry (including jitter) about the mean of the zero crossing. If these symmetries are not achieved, then some portions of the test signal will encroach into the template and provide overstress of the receiver, and/or some points of the template may not be contacted, resulting in understress of the receiver. Eye template..."

Response *Response Status* **C**

ACCEPT.

Cl **48** *SC* *P* **300** *L* **1** # **126**

Thomas Mathey — Independent

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

The purpose of this comment is to add a mapping between management register bits and state diagram variables.

In the base standard, various clauses and text provide a mapping between management variables and state diagram variables. For example, in 100 base, Table 28-7 is provided for state diagram to MII; in 1000 base, table 37-8 in clause 37.2.5, titled Management function requirements is provided; in 10G base, table 52-3 & 52-4 are provided.

SuggestedRemedy

Add new section, 48.2.x, located just before 48.2.5 as in other clauses.

48.2.x Management function requirements
The 10GBASE-X. sublayer supports a set of required and optional management objects to permit it to be controlled by the Station Management entity (STA). Access to management objects within the 10GBASE-X. sublayer is accomplished by means of a set of registers within the MDIO register space as defined in 45.2.4 and 45.2.5. The details of the register bit allocations and general usage are given in Clause 45. Table 48-x describes how PCS state diagram variables map to management register bits.

(Most of above text is copy/paste/edit from 50.3.10 Management interface, and 50.3.10.1)

Table 48-x PCS state diagram variable to management register mapping, 10G PHY XGXS

State diagram variable	Management register bit
reset	4.0.15 Reset
align_status	4.8.10 Receive local fault
sync_status	4.24.12 PHY XGXS lane alignment status
lane_sync_status<3>	4.24.3 Lane 3 sync
lane_sync_status<2>	4.24.2 Lane 2 sync
lane_sync_status<1>	4.24.1 Lane 1 sync
lane_sync_status<0>	4.24.0 Lane 0 sync

Table 48-x PCS state diagram variable to management register mapping, 10G DTE XGXS
Mostly a copy from above text but for register set 5

(above table format is an attempt to copy/paste from Table 37-8)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will add appropriate table and/or text to indicate proper mapping of management register bits to state diagram variables.

Cl **48** *SC* **48.1.6** *P* **302** *L* **45** # **238**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Clarification required.

SuggestedRemedy
Insert "10GBASE-X" before "PMA".

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

Cl **48** *SC* **48.2.1** *P* **303** *L* **50** # **239**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
XGMII is not the service interface.

SuggestedRemedy
Change to read "An instantiation of the PCS service interface...".

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

Cl **48** *SC* **48.2.3** *P* **305** *L* **17** # **240**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Unnecessary wording.

SuggestedRemedy
Remove text after "... to that specified in Clause 36."

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

Cl **48** *SC* **48.2.4.2** *P* **307** *L* **51** # **241**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Keep with associated text.

SuggestedRemedy
Keep text with the bullets.

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

Cl **48** *SC* **48.2.4.2.1** *P* **309** *L* **30** # **243**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Incorrect figure reference.

SuggestedRemedy
Believe the correct figure is Figure 48-3.

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

Cl **48** *SC* **48.2.4.2.3** *P* **309** *L* **53** # **244**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Keep with corresponding text.

SuggestedRemedy
Keep with corresponding bullets on next page.

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

Cl **48** *SC* **48.2.4.2.3** *P* **310** *L* **20** # **245**
Booth, Brad Intel

Comment Type **E** *Comment Status* **A**
Shall applies to bullets, so "may" need to be removed.

SuggestedRemedy
Change "may be" to "are" in bullet items b), e) and g).

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

Cl **48** *SC* **48.2.4.3.1** *P* **310** *L* **42** # **127**
Thomas Mathey Independent

Comment Type **T** *Comment Status* **A**
For the sentence
"Normally, the three data characters will be the preamble pattern, but the PCS neither checks nor alters their contents except to ensure that they are data characters.";
this may be correct. However, i can find no additional supporting text or state diagram for the text "except to ensure that they are data characters".

SuggestedRemedy
Delete text "except to ensure that they are data characters".

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

Cl **48** *SC* **48.2.5.1.3** *P* **314** *L* **29** # **128**

Thomas Mathey Independent

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

The variable "LFAULT" is actually a constant, and is used only in Figure 48-9 to send a local fault code the XGMII on the receive path. This constant is similar to LBLOCK_R in 49.2.13.2.1. In addition, there may need to be a requirement to identify a constant for a transmit LF as well as for a receive LF code point, as is done in clause 49.

SuggestedRemedy

Move "LFAULT" from variable to constant. Change name to "LFAULT_R". Edit all places where text is used.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will move LFAULT to constant. Name will remain the same.

Cl **48** *SC* **48.2.5.1.3** *P* **315** *L* **51** # **129**

Thomas Mathey Independent

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

The state diagram in Figure 48-6 makes no allowance for transmission of LF codes due to detection of local fault conditions on the transmit path as the state diagram only looks for variable Q_det. Q_det is only dependent upon variable TX. The variable TX is limited to XGMII Transmit Data and Control signals which precludes the transmission of LF codes due to PCS detection of a fault condition on the transmit path.

SuggestedRemedy

Change definition of variable TX from
"Alias for TXD<31:0> and TXC<3:0> representing the XGMII Transmit Data and Control signals."
to
"Alias for either TXD<31:0> and TXC<3:0> representing the XGMII Transmit Data and Control signals, or the Local Fault ordered_set as defined in 46.3.4 when a local fault condition is detected on the transmit path."

Response *Response Status* **C**

ACCEPT.

Cl **48** *SC* **48.3.3** *P* **326** *L* **22** # **248**

Booth, Brad Intel

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

Space required between words.

SuggestedRemedy

Insert a space between "may" and "be".

Response *Response Status* **C**

ACCEPT.

Cl **48** *SC* **48.3.3.2** *P* **326** *L* **35** # **130**

Thomas Mathey Independent

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

While in loopback, the present text does not specify the transmitter output. This is at odds with the 64/66 PCS and the WIS which both specify a square wave output while in loopback to keep the receivers from chattering. This comment adds a square wave, 5 bits high and 5 bits low for 8b/10b PCS while in loopback.

SuggestedRemedy

Change line 35 text from
"While in loopback mode, the transmitter output is not defined."
to
"While in loopback mode, the transmitter output is a square wave, 5 bits high and 5 bits low.

Note-This signal can be generated by the K28.7 code-group as described in Annex 48A.2.

Response *Response Status* **C**

REJECT. This is consistent with the loopback mode of the PMD. This is a diagnostic mode, and operational characteristics of the transmitter or receiver are not important in this mode.

Cl **48** *SC* **Figure 48-1** *P* **301** *L* **1** # **237**

Booth, Brad Intel

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

Figure is in middle of paragraph.

SuggestedRemedy

Change float properties of figure.

Response *Response Status* **C**

ACCEPT.

Cl **48** *SC* **Figure 48-7** *P* **321** *L* **1** # **247**

Booth, Brad Intel

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

Transition codes differ from previous state machine.

SuggestedRemedy

Change from using numbers to using letters.

Also applies to Figure 48-8.

Response *Response Status* **C**

ACCEPT.

Cl **48** *SC* **Table 48-4** *P* **308** *L* **33** # **242**

Booth, Brad Intel

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

This information is not relevant to IEEE P802.3ae.

SuggestedRemedy

Remove the information related to 10GFC.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Will modify note to reference INCITS T11.

Cl **48** *SC* **Table 48-5** *P* **310** *L* **1** # **246**

Booth, Brad Intel

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

Table is in the middle of a paragraph.

SuggestedRemedy

Change float properties to prevent this.

Response *Response Status* **C**

ACCEPT.

Cl **48A** *SC* *P* **339** *L* # **131**

Thomas Mathey Independent

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

This annex uses a mixture of fonts.

SuggestedRemedy

Change all fonts to style determined by Chief Editor. In addition, many of the equations use a font size which is very small, suggest an increase in size.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See response to comment 250 for changes to fonts.

Cl **48A** *SC* **48A.5** *P* **335** *L* # **266**

Lindsay, Tom Stratos Lightwave

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

The pattern has 3 problems. Since this is a required pattern, these must be addressed.
a. The 4 lanes are in phase which is artificial and may cause errorenous results for jitter and amplitude if crosstalk is present.
b. The pattern requires 10B documentation for physical layer testing with test equipment (BERTs, TIA, etc.).
c. 10B analysis will show that disparity rolls among the lanes, meaning that the actual 10B test pattern must be twice as long as currently shown.

SuggestedRemedy

All 3 problems can be fixed with the pattern sent separately (it does not fit nicely into this box...).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Accept a change to the current CJPAT so that the running disparity at the end of all lanes will be the same as at the beginning of the pattern on all lanes. Additionally, the 10B codes will be put into the draft.

Cl **48B** *SC* *P* *L* # **250**

Booth, Brad Intel

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

Inconsistent font style.

SuggestedRemedy

Incorrect font style in 48B.1.1, 48B.1.2, 48B.1.3, 48B.2.1, 48B.3, 48B.3.1, 48B.3.1.1, 48B.3.1.2, 48B.3.1.3 and 48B.3.1.3.1.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* *P* *L* # **249**

Booth, Brad Intel

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

Equations require numbering.

SuggestedRemedy

Assign numbering to the equations used in Annex 48B.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* *P* **348** *L* # **255**
Booth, Brad Intel

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

Page has the incorrect format.

SuggestedRemedy

This page has a right page format when it should have a left page format. Fix.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.3.1.3.1** *P* **344** *L* **52** # **251**
Booth, Brad Intel

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

Note is in incorrect format.

SuggestedRemedy

Apply Note format to the note.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B.3.2.1** *P* **345** *L* **45** # **267**
Lindsay, Tom Stratos Lightwave

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

The figure shows the tap for the golden PLL coming from one side. This will unbalance the data_pair.

SuggestedRemedy

The simplest remedy will be to add a second input to the golden PLL from Data(negative). This implies the golden PLL has a differential input.

Also, insert text at line 30: "...is shown). The Golden PLL in Figure 48B-4 is shown with a differential input; other approaches are possible, but it is important that the balance of the data signals is not disturbed and that both phases are included in clock recovery. A Golden PLL..."

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B3.2** *P* **345** *L* **9** # **132**
Thomas Mathey Independent

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

Text has "space" and "," reversed.

SuggestedRemedy

Change from "measurements ,an" to "measurements, an"

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **48B3.2** *P* **346** *L* **7** # **133**
Thomas Mathey Independent

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

line 7: Spelling of "estimage"
line 11: spelling of teh
line 13: use of XXX vs actual figure number
line 48: spelling of teh

SuggestedRemedy

Correct.

Response *Response Status* **C**

ACCEPT.

Cl **48B** *SC* **Figure 48B-3** *P* **342** *L* **24** # **253**
Booth, Brad Intel

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

As per IEEE editor: figures must have the appropriate permissions and identifications if taken from another source. This figure seems to have the appearance of being taken from another source.

SuggestedRemedy

Either indicate the permissions and identifications of the source, or re-draw to eliminate confusion.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Diagram will be redrawn.

Cl **48B** *SC* **Figure 48B-5** *P* **346** *L* **17** # **252**

Booth, Brad Intel

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

As per the IEEE editor: figure should be in grayscale.

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. As per comment 253, the figure will be redrawn in grayscale.

Cl **49** *SC* *P* *L* # **262**

Booth, Brad Intel

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

Consistent spelling of "service interface".

SuggestedRemedy

Switch "Service Interface" to "service interface" to be consistent throughout the clause.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* *P* *L* # **260**

Booth, Brad Intel

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

Improper use of micro symbol.

SuggestedRemedy

Change "us" to the correct microsecond symbol throughout Clause 49.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49** *P* *L* # **70**

Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **A** *PRBS31*

Please add text for pattern generator and BER counter using PRBS31. I guess it can be optional; it is possible, if not convenient for all, to count errors in mission mode.

SuggestedRemedy

Please add text for optional pattern generator and BER counter using PRBS31.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Resolution for comments #70, 71, 72

Add optional PRBS31, generator and checker, to 10GBASE-R PCS and WIS. PRBS31 generator and checker text will come from D3.0.

For 10GBASE-R add an ability bit to register 32 and control bits for generator and checker to register 42. Re-use the error counter as for the other test pattern.

Add ability bit and control bits to WIS in registers 8 and 7, respectively. Reference PRBS31 test pattern in Clause 49. Add error counter to WIS.

Cl **49** *SC* **49** *P* *L* # **76**

Dawe, Piers Agilent

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

If clause 52 learns to live without the square wave then it need not be mandatory in clause 49.

SuggestedRemedy

Please make changes as necessary following clause 52.

Response *Response Status* **Z**

REJECT.

Cl **49** *SC* **49.1.5** *P* **353** *L* **33** # **261**

Booth, Brad Intel

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

Description is a bit confusing.

SuggestedRemedy

Change 2nd, 3rd and 4th sentences to read as follows:
Some (such as the PMA service interface) use an abstract service model to define the operation of the interface. The PCS service interface has an optional physical instantiation, XGMII, which is defined in Clause 46.

Response *Response Status* **C**

REJECT. Brad, what you say was my initial view, but reading clause 46 reveals that XGMII is used regardless of whether the interface is physically instantiated. Required functions are part of the XGMII definition rather than be segregated into a functional PCS service interface definition. Therefore, the changes you suggest should not be made unless there are corresponding changes made in clause 46. By the way, the current form is consitant with what was done for MII and GMII.

See 46.1.2, 46.1.7, 46.3 for examples. Note that the 46.1.7 describes the PLS service interface entirely in terms of how it maps to XGMII rather than PCS service interface.

As clause 46 stands, XGMII is the PCS service interface and XGMII has an optional physical instantiation which matches what clause 49 says.

Cl **49** *SC* **49.2.1** *P* **354** *L* **40** # **257**

Booth, Brad Intel

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

There is a distinction between PCS service interface and the XGMII.

SuggestedRemedy

Change heading to read "49.2.1 PCS service interface", and change last sentence to read "The PCS service interface is defined in Clause 46."

Response *Response Status* **C**

REJECT. See 261

Cl **49** *SC* **49.2.12** *P* **364** *L* **7** # **39**

Thaler, Pat Agilent Technologies

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

The text does not make it clear what the test_pattern_error_count counts.

SuggestedRemedy

Replace:
The first mismatch in a window will not increment the test pattern error counter. Any subsequent mismatch in a window indicates an error and will increment the test pattern error counter.

With:
The test pattern error counter counts blocks with a mismatch corrected to remove the effect of loading a new seed. The first block with a mismatch in a window will not increment the test pattern error counter. Any subsequent block with a mismatch in a window indicates an error and will increment the test pattern error counter.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.13.1** *P* **364** *L* **26** # **259**

Booth, Brad Intel

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

Editor's note should be removed now.

SuggestedRemedy

Remove editor's note.

Response *Response Status* **C**

ACCEPT.

Cl **49** *SC* **49.2.8** *P* **362** *L* **33** # **135**

Thomas Mathey Independent

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

There is no mapping provided between the MDIO register bit assignments and the scrambler bit positions. Clause 45 provides a hint in that register 3.38.15:0 maps to scrambler bits 0-15, but there should be more explicit guidance given in Clause 49.

SuggestedRemedy

Add text just prior to last paragraph in 49.2.8 as follows:

Management registers 3.41 through 3.38 are mapped to scrambler bits as follows (see 45.2.3.15):
registers bits 3.38.15 through 3.38.0 are assigned to scrambler bits 0 through 15;
registers bits 3.39.15 through 3.39.0 are assigned to scrambler bits 16 through 31;
registers bits 3.40.15 through 3.40.0 are assigned to scrambler bits 32 through 47;
registers bits 3.41.9 through 3.40.0 are assigned to scrambler bits 48 through 57.

Response *Response Status* **C**

ACCEPT. Not only is the mapping for seed not described, but there is also no mapping specified for any of the multibit fields - e.g. the counters and Sonet bytes. The table entries that the commenter references in Tables 45-39 and 49-40 should not be read as inferring assignment order of seed bits to register bits. Also, for consistancy, this information should go in 45.2.3.13 and 45.2.3.14 rather than in 49.2.8.

Register bit 0 should map to the lowest seed bit for that register so the text should be:

For each seed register, seed bits are assigned to register bits in order with the lowest numbered seed bit for that register being assigned to register bit 0.

A comment on this has been submitted to clause 45 (49001).

Cl **49** *SC* **Figure 49-2** *P* **352** *L* **35** # **256**

Booth, Brad Intel

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

As per the IEEE editor: is the hyphen supposed to be an m-dash or a subtraction symbol.

SuggestedRemedy

Remove hyphen between "order" and "10GBASE-R".

Same applies to Figure 49-3.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. It was suppose to be a dash. The titles changed to 10GBASE-R transmission order and 10GBASE-W transmission order.

Cl **49** *SC* **Table 49-1** *P* **360** *L* **38** # **258**

Booth, Brad Intel

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

10GFC information does not pertain to P802.3ae.

SuggestedRemedy

Remove the information related to 10GFC as the information could infer requirement to support.

Response *Response Status* **C**

ACCEPT. Per discussion with Brad, his primary concern is the reference to 10GFC which is not a completed standard.

Will change the footnote to reference the parent committee INCITS T11 rather than the 10GFC project.

Cl **49** *SC* **Table 49-1** *P* **360** *L* **43** # **134**

Thomas Mathey Independent

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

Line has two periods ".." at its end.

SuggestedRemedy

Remove

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* *P* *L* # **50002**

Tom Alexander

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

Change footnote references in PICS tables to use lowercase letters rather than numbers, as per comment #147.

SuggestedRemedy

See comment

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* *P* *L* # **50007**

Tom Alexander

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

Change Clause 50 to incorporate the resolution to Comment #96.

SuggestedRemedy

Perform the following changes:

1. In 50.3.2.3, change table 50-3 to match J1 entry in Table 50-1.

2. Copy paragraph describing J1 behavior from 50.3.2.1 to 50.3.2.3., and change references to J1 to read J0 instead.

3. In 50.3.2.4, duplicate the 2 paragraphs that describe J1, and change references from J1 to J0 in the duplicates.

4. In 50.3.10.1, make register numbers consistent with Clause 45 (editorial license granted).

5. Add PICS entries for J0 equivalent to J1.

Response *Response Status* **C**

ACCEPT.

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

Tom Alexander

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

Change the copyright year to 2002 in accordance with comment #149.

SuggestedRemedy

See comment text.

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* *P* *L* # **50004**

Tom Alexander

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

Follow the resolution of comment #33 regarding state machine syntax.

SuggestedRemedy

See comment.

Response *Response Status* **C**

REJECT.

Comment #33 was rejected.

Cl **50** *SC* *P* *L* # **50003**

Tom Alexander

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

Change "media independent" to read "media-independent" throughout clause.

SuggestedRemedy

See comment text.

Response *Response Status* **C**

REJECT.

Cl **50** *SC* *P* *L* # **263**

Booth, Brad Intel

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

Figures are sometimes described as being for illustrative purposes only. The correct terminology is informative.

SuggestedRemedy

Change "illustrative" to "informative". Label information figures with "(informative)" at the end of the figure title.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Some of the longer figure titles may have to be reworded and/or split across multiple lines to accommodate the additional word "informative".

Cl **50** *SC* *P* *L* # **50005**

Tom Alexander

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

Change "full duplex" to read "full-duplex" in accordance with comment #323.

SuggestedRemedy

See comment text.

Response *Response Status* **C**

REJECT.

Cl **50** *SC* **50** *P* *L* # **72**

Dawe, Piers — Agilent

Comment Type **TR** *Comment Status* **A** *PRBS31*

This is a placeholder comment; the patterns for LAN PHY are not stable; what we have in D4.0 is not satisfactory and mission mode or PRBS31 is preferred. As experimental results come in, our understanding develops and LAN PHY makes changes, WAN PHY may wish to also.

SuggestedRemedy

Verify WAN PHY pattern choices, preferably by experiment on samples of several DUTs in at least three labs. Make any changes in light of new knowledge or to keep in step with LAN PHY and/or PCS.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #70 for resolution.

Cl **50** *SC* **50.2.3** *P* **391** *L* **17** # **96**

Juergen Rahn — Lucent Technologies

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

J0 Section trace inconsistently specified,

SuggestedRemedy

Inconsistency:
Clause 50.3.2.3 Table 50-3 defines the J0 Section Trace as “supported, per T1.416”. T1.416 in turn defines several modes: 1-byte, 16-byte, 64-byte. However, the management register definitions in Clause 45.2.2.9.1 and -2 only allow for a 1-byte mode. Even though T1.416 defines 3 different modes, ITU-T G.707 specifies that for networks crossing operator domains only the 16-byte mode shall be used. In particular, recently developed SDH equipment not intended to interwork with SONET equipment does not (always) support the 1-byte mode. In order to achieve broad market potential SDH transport networks should not be excluded for being able to carry 10GE streams. suggested_remedy.

In order to make it simpler for SDH equipment to implement a 10G WAN PHY compatible interface, it is requested to change the register definitions in Clauses 45.2.2.10 and -11 to support 16-byte mode (in the same way as the 16-byte J1 register definition in Clauses 45.2.2.12 and -13). It is then also useful to add a note to Clause 50.3.2.3 that only 16-byte mode is supported.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Consistency with SDH (which is the international standard) has been expressed as an objective at the beginning of Clause 50. Any inconsistencies with SDH should therefore be resolved.

However, the bulk of the comment pertains to Clauses 30 and 45 and not Clause 50. The editor is directed to generate the necessary comments to Clauses 30 and 45. The mechanism and default value to be used is identical to that for the corresponding functionality in J1. Editorial license for fixing the PICS is also granted.

Cl **50** *SC* **50.3.9** *P* **403** *L* **34** # **41**

Juergen Rahn — Lucent Technologies

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

Transmit all-ones pattern during loopback, change requested. In the NOTE of this clause (lines 38,39) is stated:
The intention of providing this loopback mode of operation is to permit diagnostic or self-test functions to test the transmit an receive data path using actual data, while ensuring that remote entities do NOT interpret this test data as valid information.Transmission of a 00-FF pattern will cause remote SONET/SDH equipment to raise a LOF (Loss of Frame) alarm and will consequently cause the operator to take action because it is a critical alarm. I.e. the remote operator interprets this pattern as valid information. Replacing the 00-FF pattern with an FF-FF pattern will cause the remote SONET/SDH equipment to raise an AIS (Alarm Inhibit Signal) alarm with no consequent actions required from the operator at the remote entity.

SuggestedRemedy

replace current text:
The pattern output to the PMA transmit path at this time shall consist of a sequence of 8 logic zero bits and 8 logic one bits, forming the 16-bit word 00-FF hexadecimal.by:
The pattern output to the PMA transmit path at this time shall consist of a continuous sequence of logic one bits, forming the 16-bit word FF-FF hexadecimal.

Response *Response Status* **C**

REJECT.

The commenter has voluntarily agreed to reduce the status of this comment to a T (from TR).

This topic has been the target of two (conflicting) technical comments in the past.

Comment #338 against D3.1 by Juergen Rahn suggested transmitting the AIS-L signal during loopback instead of a square-wave. This was rejected on the grounds of unnecessary burden and deviation from desired behavior.

Comment #746 against D3.0 by Piers Dawe stated that transmitting a fixed value (all-zeros was the value then in force) to the optics could "cause the optics to chatter unpredictably with possibly unintended results even extending to optical power and eye safety." Therefore, the output during loopback was changed to its present square wave.

Also, sending FFFF to the optics will not cause the far end to raise an AIS because the SONET framing is not sent to the optics during loopback. It will therefore still lead to an LOF. Hence the commenter's proposed remedy will not solve the stated problem.

Finally, it is not clear that this is a problem at all. Why should placing the WIS into loopback not raise an LOF at the far end? This seems to be wholly expected and consistent behavior. Also, the behavior of intermediate systems is out of scope for the standard. In addition, the PMA (Clause 51) can also be placed into loopback, at which time its output is undefined, and so it is not clear why Clause 50 should be made more complex.

The editor hence proposes rejecting this comment.

Cl **50** *SC* **50.4.1.1** *P* **401** *L* **37** # **137**

Thomas Mathey Independent

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

Text "Sync-pattern; " is repeated.

SuggestedRemedy

Remove second "Sync-pattern; " text.

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* **50.6.4.7** *P* *L* # **50006**

Tom Alexander

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

In clause 50.6.4.7 (WIS test pattern generator and checker): Item TP11, value comment field does not match normative text.

SuggestedRemedy

Replace sentence "72 bits of zeros in first frame and 72 bits of zeros in second" in Value/Comment field of TP11 with "72 bits of zeros in first frame and 72 bits of ones in second".

Response *Response Status* **C**

ACCEPT.

Cl **50** *SC* **Table 50-3** *P* **391** *L* **9** # **136**

Thomas Mathey Independent

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

Since the note for this table provides a value for both A1 and A2 octets, it would be nice to the future non-informed reader to provide a value for the B1 octet.

SuggestedRemedy

Provide a value for the B1 octet in the note.

Response *Response Status* **C**

REJECT.

No value can be provided for B1 as it contains the results of the Bit Interleaved Parity computation over the SONET frame.

B1, as indicated in Table 50-3, contains the Section BIP-8. The term "BIP" has already been defined in Abbreviations section of Clause 1 as "Bit Interleaved Parity". Further, the SONET documents (T1.416 and T1.105) explicitly referenced in the table entry describe how to compute the BIP for B1. The editor therefore feels that no additional clarification is necessary.

Cl **51** *SC* **4** *P* **423** *L* **14** # **5**

Gaither, Justin Xilinx

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

"In the case of all loopback being inactive" is improper

SuggestedRemedy

Change to "In the case of a loopback being inactive"

Response *Response Status* **C**

REJECT.
The wording is correct. There are two loopback modes alluded to in the text.
One is the PMA and the other is the PMD. The sentence describes correctly the behavior when neither (or "all") of these loopbacks are not active.

Cl **51** *SC* **4** *P* **427** *L* # **3**

Gaither, Justin Xilinx

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

As stated in the Note on page 421. XSBI is based on the OIF SFI-4 specification. The OIF specification includes the optional use of a Dual Data Rate clock which the XSBI implementation is missing.

An optional Dual Data Rate clock should be included in the standard as part of the XSBI interface for the following reasons:
1. Maintain continuity between OIF interface and XSBI
2. Broad market availability of LVDS IO at <400 Mhz (FPGA & ASIC)
3. >600 Mhz LVDS IO requires higher cost. (ASIC only, higher license fee)
4. lower EMI radiation.

SuggestedRemedy

The following changes will be required:
1. pg. 422 Table 51-1: add "SDR Mode defined as Single data rate clock mode of operation in which data is latched on the rising edge of the clock signal"
2. pg 422 Table 51-1: add "DDR Mode defined as Optional Dual Data Rate clock operation in which data is latched on both the rising and falling edge of the clock signal."
3. pg. 423 line 4: add text to read "...edge of the PMA_TX_CLK for SDR mode or the corresponding edge for DDR mode."
4. pg. 423 line 10 and 11. removed ", PMA_RX_CLK, which is at 1/16 the bit rate,"
5. pg 423 Table 51-4: Change active level for PMA_TX_CLK and PMA_RX_CLK to indicate rising edge for SDR Mode and both edges for DDR Mode.
6. pg 424 line 45: add text to read "rising edge of PMA_TX_CLK is used to latch data into the PMA in SDR mode and both edges of PMA_TX_CLK are used to latch data into the the PMA in DDR mode."
7. pg 425 line 11: add text to read "presented to the PMA client on the rising edge of PMA _RX_CLK in SDR Mode or both edges of PMA_RX_CLK in DDR Mode.
8. pg 427 line 10: add text to read "positioning clocks relative to the data in SDR mode."
9. pg 427 line 16: Change title of 51.6.1 to read "XSBI transmit interface timing for SDR mode" Similarly add for SDR mode to subclause titles as needed.
10. Insert new subclause 51.6.2 containing content similar to 51.6.1 except referenced to DDR mode. (I will gladly create the figures and text). specifications should be similar to OIF standard.
11. pg 429 line 50: add text to read "positioning clocks relative to the data in SDR mode"
12. pg 430 line 1: Change the title of 51.7.1 to read "XSBI receive interface timing for SDR Mode" Similarly add for SDR mode to subclause titles as needed.
13. Insert new subclause 51.7.2 containing content similar to 51.7.1 except referenced to DDR mode. (I will gladly create the figures and text). specifications should be similar to OIF standard.
14. pg 429 Table 51-8: existing spec should be specified for SDR mode. Add another row specifing DDR mode frequency.
15. pg 432 Table 51-12: existing spec should be specified for SDR mode. Add another row specifing DDR mode frequency.

Response *Response Status* **U**

REJECT.

The DDR option was voted out many months ago in working groups. There was consensus that there was no extensive usage of this mode in the industry.

Note that the XSBI is an OPTIONAL interface. The commenter is free to implement a proprietary internal interface if desired.

Finally, including different options for the same interface is highly deprecated as it tends to split the market and offer little benefit for the end users. If the commenter believed that the DDR interface had significant benefits, the comment should have proposed substitution of the DDR interface for the present XSBI interface, not offering it as an option.

Move to accept resolution.
Vote: For: 12 Against: 2 Abstain: 6 (motion carries)

Cl **51** *SC* **49** *P* *L* # **77**

Dawe, Piers Agilent

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

If clause 52 learns to live without the square wave then it need not be mandatory in clause 50.

SuggestedRemedy

Please make changes as necessary following clause 52.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate comment: see comment #72.

Cl **51** *SC* **51.4** *P* **421** *L* **41** # **340**

Jonathan Thatcher World Wide Packets

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

In this subclause, it is indicated that there is nor requirement to expose or implement the XSBI. But, all shall statements of any import are in the subclauses that are not required!

SuggestedRemedy

Wording should make it clear that while the XSBI interface is not required, the functionality described by the interface is required (e.g. bit ordering). See p 262 line 47 as an example.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Actions:
A. Fix the issue with all substantive compliance requirements going away if the implementer chooses not to implement the XSBI.
1) pg 421, line 41 at the end of paragraph - add the following text
"Though the XSBI is an optional interface, it is used extensively in this standard as a basis for specification. The PMA is specified to the XSBI interface, so if the XSBI is not physically implemented, a conforming implementation shall behave as if the XSBI functions were implemented."
2) add appropriate PICS for the "shall".

B. Ensure that the PICS items relating to the XSBI are treated separately from the PICS items relating to the functionality in the PMA itself.
3) Add a PICS entry to the Major Capabilities and Options (51.10.3) that calls out the XSBI as an option.
4) Now change PICS items PT3, PT4, PT5 and PR3, PR4, PR5, PR6 to be conditional upon the implementation of the XSBI. See WIS PICS item "XSBI" in clause 50.6.3 and associated PICS items WT16, WT17, WT18 in 50.6.4.2 for an example of this "conditionally mandatory" conformance requirement.

Cl **51** *SC* **51.7.2** *P* **431** *L* **42** # **341**

Jonathan Thatcher World Wide Packets

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

It appears from the text that the document is not allowing clock slivers on the RX_CLK during transitions of clock reference. I tested a couple of skilled engineers who were not able to divine that this was the case.

SuggestedRemedy

Recommend that the document explicitly states that clock slivers are not allowed or that the minimum pulse width requirement does not change during transitions between clock sources.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.
Modify line 42, page 431
from "do not apply. During the .."
to "do not apply. However, the minimum pulse width should not change during the transitions between clock sources. During the .."

Cl **51** *SC* **Table 51-12** *P* **432** *L* **7** # **138**

Thomas Mathey Independent

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

The value in ppm given here for 10GBASE-W is not the same as in other parts of the draft.

SuggestedRemedy

Scrub entire document and make all references to clock tolerance in ppm for 10GBASE-W the same as in Table 51-12.

Response *Response Status* **C**

REJECT.

After searching through the entire draft, we can find no inconsistencies.

The transmit clock tolerance for all 10GBASE-W PHYs is +/- 20 ppm. The receive clock tolerance is +/- 100 ppm. The only references to 10GBASE-W clock tolerances occur in Clauses 51 and 52. Both clauses are consistent with regard to the tolerance numbers.

Cl **52** *SC* *P* *L* # **105**

Ohlen, Peter Optillion

Comment Type **TR** *Comment Status* **D** *stressed receiver*

RX jitter measurements depend on the TX bathtub measurement for calibration of the stressed eye. Currently there is not an established method for calibrating the jitter bathtubs and therefore the same issues apply to te RX jitter measurement and specification. As for the TX, this means over-engineering, more stringent component and measurement requirements than for SONET. Not in line with the cost goal of 10 GbE.

SuggestedRemedy

This could be fixed by a more specific comment. If that is not sufficient, this is a placeholder for a better solution.

Response *Response Status* **Z**

PROPOSED REJECT. No specific recommendation or change proposed.

Cl **52** *SC* *P* *L* # **294**

Lindsay, Tom — Stratos Lightwave

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

The terminology for DCD, as used in Rx testing, is not clear and appears to contradict traditionally accepted definitions. I believe the intent is to use a term that specifies the horizontal eye closure due to ISI-induced DDJ. However, this is different (less harsh) than DCD caused or developed by threshold offsets, mismatched rise/fall times, etc.

SuggestedRemedy

Either use DCD as traditionally defined, or eliminate its usage from this standard. We obviously still need to define what the Rx test comprises, but it appears we are leaning towards using ISI-induced DDJ. We need to define the appropriate test setup to be sure the ISI-induced DDJ is of the desired form.

This task is and should be part of the ongoing effort of the serial PMD ad hoc on testing.

Response *Response Status* **C**

REJECT. Need to suggest specific change to text. Commenter invited to resubmit with changes proposed. Sent to Serial PMD ad hoc for resolution (they will submit comment).

Cl **52** *SC* *P* *L* # **275**

Lindsay, Tom — Stratos Lightwave

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

I got this note from Piers:

52.14.3 and table 52-26 say "11 dB channel" (at nominal wavelength, 1550 nm) which contradicts Table 52-19's 11.4 dB at 30 km, 1565 nm and also are consistent with 1 dB for 30 km total connection and splice loss at 1550 nm, not 2 dB as in 52.14.2.1. Looks like we have spent that 10 km twice, once on dB/km and again on connection and splice loss!

SuggestedRemedy

Piers, help me here, but I believe that Table 52-26 should be 11.5 dB, line 47 on page 475 should say "5 to 11.5 dB", and line 37 on page 475 should be 1 dB for 30 km.

Response *Response Status* **C**

REJECT. The numbers are consistent, if a little confusing. Different wavelengths are used for the differing values and added margin is not available for use (and is different for 30 km/40 km cases).

Cl **52** *SC* *P* *L* # **295**

Lindsay, Tom — Stratos Lightwave

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

The horizontal eye mask location is not defined.

SuggestedRemedy

Set time=0 and time=1 per the means (or medians) of the eye crossings at the average value of the optical eye pattern.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Add text: "0 and 1 on the unit interval scale are to be determined by the eye crossing means measured at the average value of the optical eye pattern." below eye diagram. This goes below: Figure 52-11.

Cl **52** *SC* *P* *L* # **109**

Ohlen, Peter — Optillion

Comment Type **TR** *Comment Status* **A** *stressed receiver*

The receiver sensitivity is currently specified using the stressed sensitivity, measured with a conditioned input signal to which both jitter and ISI has been added. However, the calibration of the conditioned input signal is far from simple and not been established. This is especially the case for scrambled data where it is hard to differentiate between noise and low probability deterministic events.While the current method works in principle we need a method that has been validated to produce consistent and repeatable resuts.

SuggestedRemedy

One or several of the following:
1. Make the currently informative receiver sensitivity normative. This measurement is easier to calibrate but does not test jitter.
Separate the jitter and the ISI in the RX stress tests:
2. Remove the jitter from the stressed eye, only use a low-pass filter. Thi s would guard against low-bandwidth signals caused by TX and/or fiber impairments.
3. Introduce a SONET-style jitter tolerance test to ensure that the receiver can cope with jittered input signal.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. We have simplified the stressed receiver calibration but this still needs to be verified.

Cl **52** *SC* **0** *P* **0** *L* **0** # **358**

Paul Kolesar OFS Fitel

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

The present link model spread sheet is encumbered by a lack of an input cell to allocate reserved margin. This can lead to mistakes in calculations of power budget allocations because we presently apply a fixed amount of margin across all fiber types supporting a PMD. This fixed margin cannot be input, and so becomes subject to operator error. Lack of an input cell also obscures future reconstruction of calculations.

SuggestedRemedy

Add a new input cell for reserved margin to all worksheets. For calculation purposes, the value entered into this cell (in dB) would be removed from the available power budget.

Response *Response Status* **C**

REJECT. The commenter proposing a change to the spreadsheet, which should be approved separately via a motion.

Cl **52** *SC* **52** *P* *L* # **112**

Ohlen, Peter Optillion

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

As we gather more results from testing and refine our models, we might want to tune some parameters.

SuggestedRemedy

We need more testing input before we know.

Response *Response Status* **U**

REJECT. No change to the text is specific enough to implement in this comment.

8:2:2

Cl **52** *SC* **52** *P* *L* # **104**

Ohlen, Peter Optillion

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

Jitter bathtubs. The jitter measurements that have been defined have so far not been shown to work in practise. We don't know how to calibrate out the errors sources. This has been a standing item on the weekly serial PMD teleconferences and still, we are not really close to solving the issue.The current situation will probably result in over-engineered devices to compensate for unknown errors. This will mean more stringent measurement and component requirements than e.g. SONET. This is not in line with the cost goal of 10 GbE.

SuggestedRemedy

Replace the jitter bathtub measurement with something we know how to perform in practise: Do a penalty measurement for the transmitter. It could be combined with a phase margin for the decision timing of e.g. 0.1 UI.If needed, stretch the eye mask a little to guard against excessive DJ (W). In this case, the mask will need to be a little less high. When combined with a penalty measurement, the eye still needs to be sufficiently open to pass the penalty measurement.This would benefit from more details, but is a beginning of something that could work.

Response *Response Status* **Z**

PROPOSED REJECT. Need specific recommendation or text.

Cl **52** *SC* **52** *P* *L* # **53**

Dawe, Piers Agilent

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

A standalone RIN spec is probably unnecessary, and because the way of measuring it relates to a component, is not very desirable in a system level standard. A transmitter with RIN high enough to give a bad error floor would be found out either by the jitter bathtub test (but that test doesn't work, except possibly for "sigma" jitter), or more straightforwardly from the BER vs. power curve of a transmitter and path penalty ("TDP" in current ER/EW) measurement.

SuggestedRemedy

Delete the RIN specs and tests. Use BER vs. power curve of a transmitter and path penalty measurement to screen for several impairments including RIN, sigma jitter, other noises, in a single measurement. Refer informatively to a target RIN value that we think is acceptable, less stringent than the current one, and to the procedure we imported (from Fibre Channel?).

Response *Response Status* **U**

REJECT. Keep RIN until TDP is better understood.
7:1:4

Cl **52** *SC* **52** *P* *L* # **54**

Dawe, Piers Agilent

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

Triple trade off has caused much confusion. We need to do more to simplify this and relate the new measures to traditional units of measurement.

SuggestedRemedy

Specify just two categories of laser BASE-L transmitter:
Type 1, 1300-1350 nm, -3.8 dBm minimum eye amplitude (this is a regular DFB, but we don't enforce that in a standard),Type 2, 1260-1360 nm, -3.2 dBm minimum eye amplitude (this would be a VCSEL, but we don't enforce that in a standard).Both with maximum 0.2 nm spectral width.Type 1 implementations (the majority) have to find 0.1 or 0.2 dB more transmitter power (need to be careful that the Tx max power is high enough).

Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE. Overtaken by advent of TDP method.

Cl **52** *SC* **52** *P* *L* # **64**

Dawe, Piers Agilent

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

Measurement standardisation: OMA, eye amplitude, RIN, risetime.OMA has caused much confusion. We need to do more to simplify this and relate the new measures to traditional units of measurement. For clause 52, possibly not clause 53, we should use eye-based measurements per OFSTP-4A for four reasons:
it is standards based,
it is what people have the habit of doing,
several metrics can be obtained from one measurement, and
it much simplifies measurement on complete systems, e.g. in a network.Factories can learn how to relate a square-wave based measurement to a measurement per standards as they wish.

SuggestedRemedy

Replace all references to OMA to "eye amplitude" per another comment.
Unless changing for other reasons, keep OMA spec values as "eye amplitude" spec values. Change name of RIN_x_OMA to RIN_x_EA or RIN_x_modulated or similar. Change 52.9.6.3 e) to give the effect of "This parameter is to be assured in mission mode. However, measurements with an appropriate PRBS (2^23 -1 or 2^31 -1) or a valid 10GBASE-R or 10GBASE-W or OC192c or STM-64 signal will give equivalent results.". For BASE-L,E, make RIN spec values 1 dB more positive. (The revision of RIN spec isn't very important in its own right but doing it means we don't need a detailed OMA measurement section.) For BASE-S, if risetime is still called out, replace "35 ps" with "33 ps" representing a measurement from an eye. See separate comment for revisions to Extinction Ratio on same basis.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. OMA and ER already use mixed pattern. See #62.

9:1:4

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

Dawe, Piers Agilent

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

Our RIN spec is tighter than it need be. It is calculated assuming everything else is worst case and even then it is tighter than it need be.

SuggestedRemedy

If we stay with a standalone RIN measurement, relax it by 2 dB, to -128 dB/Hz if there are no other changes.

Response *Response Status* **U**

REJECT. This is a significant change to the RIN specification.
10:1:3

Cl **52** *SC* **52** *P* *L* # **74**

Dawe, Piers Agilent

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

Because jitter bathtub method doesn't work at 10G, we need an alternative. The proposed alternative comes in two parts: a revised eye mask (see other comment) to guard against high probability jitter and a direct transmitter BER measurement to guard against low probability jitter among other impairments.

SuggestedRemedy

Define a TDP criterion for BASE-E and BASE-L like the BASE-E one. Value for BASE-L would be 3 dB (LP pen column of model). For BASE-S, the highest value of LP pen appears to be 4.3 dB on 850S50_400. BASE-L would "use" test fibre (or otherwise) of appropriate dispersion, BASE-S would use an optical receiver followed by an electrical transversal filter as in 52.9.9.1.We do not have to vary the transmit power limit according to TDP as we have for BASE-E if we choose not to. However, if we did so, could we get rid of the triple trade off tables? That might be simpler.

Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE. Discussion required.

Withdrawn.

Cl **52** *SC* **52** *P* **437484** *L* # **43**

Dawe, Piers Agilent

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

Need to prove viability of all optical test methods and detailed optical spec numbers, and/or make changes to achieve viability.While technical feasibility of PMDs has been demonstrated, although with tiny numbers of samples, feasibility of some of the measurement and specification procedures has not. Some procedures have not been exercised; some have and have been shown to be not viable. Until we have measurement procedures that work we cannot freeze the specification values.

SuggestedRemedy

Continue, and ramp up, the engineering work to refine and/or replace optical test methods and detailed optical spec numbers.Set a non-binding target hurdle of proof of feasibility such as: For test procedures: procedure satisfactorily demonstrated in at least three organizations, on at least three samples per site, with a high level of confidence in the repeatability and the correlation from site to site.For PMD spec values: PMDs from at least three implementers compliant per feasible measurement techniques consistent with draft standard, with at least three samples per site, with a high level of confidence in interoperability across the compliant parameter space.This is a pretty weak level of experimental confidence and, I understand, represents a tiny fraction of the numbers of parts measured for the Gigabit Ethernet standardization process.In some instances we may be able to develop confidence by reference to other work, e.g. OC-192 parts.To avoid needless program slippage and churn, delay the issue of Draft 4.1 until we have demonstrated at least one of everything and have developed procedures, parameter limits and text which at least appear to be viable and worth further refinement.

Response *Response Status* **U**

REJECT. This is a process request, not a comment against the draft.

9:1:2

Cl **52** *SC* **52** *P* **443** *L* **7** # **59**

Dawe, Piers Agilent

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

OMA has caused much confusion. We need to do more to simplify this and relate the new measures to traditional units of measurement.

SuggestedRemedy

Refer forward to definition, first time OMA is used. See another comment to change to "eye amplitude". Refer forward anyway.

Response *Response Status* **Z**

PROPOSED REJECT. See 64.

Cl **52** *SC* **52** *P* **4449** *L* # **67**

Dawe, Piers Agilent

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

The triple trade off calculation we have used has attracted comment because it is known to be inaccurate for single mode lasers. However, a simple but better formula is not available. We need to acknowledge this so we do not mislead the average reader and do not appear as idiots to the expert reader.

SuggestedRemedy

Add explanatory text where the subject is introduced, which is 52.5.1 - or, if preferred, in 52.6.1."The trade offs between center wavelength, maximum RMS spectral width and minimum eye amplitude are known as triple trade offs. The formula used is unlikely to be accurate, especially for single mode lasers. However, it is thought to be preferable to using no trade off."

Response *Response Status* **U**

REJECT. Model is pessimistic and so pointing out an inaccuracy is a model that is not shown in the standard and that does not hinder performance or interoperability does not aid the reader.

14:1:3

Cl **52** *SC* **52** *P* **445452** *L* # **65**

Dawe, Piers Agilent

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

OMA has caused much confusion. We need to do more to simplify this and relate the new measures to traditional units of measurement. This comment aims to provide clear minimum mean power information so that customers and network operators can identify some grossly out-of-spec links using simple power meters ("butt meters").

SuggestedRemedy

Add normative specifications which impose a minimum mean power about 0.5 dB above the hypothetical minimum mean power for minimum OMA, the most favourable triple trade off point and a very high extinction ratio. Suggested values are -5.5 dBm for BASE-L, -3 for BASE-E. For BASE-S, if in-building links are less likely to be tested with power meters, we could either do the same or just include an informative note which gives the hypothetical minimum.

Response *Response Status* **C**

REJECT. OMA is accepted and well understood. Butt meters are better suited for measuring engineered links, not plug-and-play links like Ethernet.

7:1:2

2 nmp
2 imp
9 nmp

Cl **52** *SC* **52** *P* **459** *L* # **87**

Dawe, Piers Agilent

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

Measurement standardisation: extinction ratio.There are two competing definitions of extinction ratio:
1. Per OFSTP-4A, measure b1, b0 and bdark from eye diagram according to algorithms defined in OFSTP-4A. This is the method programmed into oscilloscopes and used in the telecoms industry. It has the advantage that extinction ratio can be measured at the same time as the eye diagram, and that the DUT can remain in its normal mode of operation for the measurement.
2. Following Fibre Channel, find the settling values of one, zero from e.g. a slow square wave. This is what we have been using, not 100% consistently, because we started from clause 38. This method may be more appropriate for an 8B10B coded link such as LX4 or XAUI. It has the advantage that spreadsheet calculations are somewhat simpler this way.A big disadvantage of this method is that we have two definitions of extinction ratio for possibly the same part which could be SONET/Ethernet flexible, and added cost in the factories keeping track of the difference.We should fall in line with industry practice for scrambled links.

SuggestedRemedy

Define Extinction Ratio per OFSTP-4A, i.e. on a mixed signal not a slow square wave.
Change minimum Extinction Ratio, LR/LW, to 3.5 dB. Leave the others because 3 dB sounds low enough.
In 52.9.4, replace the sentence "This measurement may be made with the node transmitting the square wave pattern defined in 52.9.1." with "This parameter is to be assured in mission mode. However, measurements with an appropriate PRBS (2^23 -1 or 2^31 -1) or a valid 10GBASE-R or 10GBASE-W or OC192c or STM-64 signal will give equivalent results.".
See another comment where similar reasoning is applied to OMA.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Define Extinction Ratio per OFSTP-4A, i.e. on a mixed signal not a slow square wave.
Change minimum Extinction Ratio, LR/LW, to 3.5 dB. Leave the others because 3 dB sounds low enough.
In 52.9.4, replace the sentence "This measurement may be made with the node transmitting the square wave pattern defined in 52.9.1." with "This parameter is to be assured during system operation. However, measurements with an appropriate PRBS (2^23 -1 or 2^31 -1) or a valid 10GBASE-R or 10GBASE-W or OC192c or STM-64 signal will give equivalent results.".

9:0:4 (IEEE voters)

Cl **52** *SC* **52.1.1.2.3** *P* **440** *L* **30** # **79**

Dawe, Piers Agilent

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

Poisonously unhelpful sentence.

SuggestedRemedy

Make reference to the subclauses where the effect of receipt is specified or described; 51.2.2 and 51.3.1. If same form of words appears elsewhere, fix them too.

Response *Response Status* **C**

REJECT. This language dictates where a primitive receipt is unspecified, and is common to the rest of this document (outside of 10GE as well).

Cl **52** *SC* **52.1.1.3.3** *P* **441** *L* **1** # **81**

Dawe, Piers Agilent

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

Poisonously unhelpful sentence.

SuggestedRemedy

Make reference to the subclauses where the effect of receipt is specified or described; 51.4. If same form of words appears elsewhere, fix them too.

Response *Response Status* **C**

REJECT. See #79.

Cl **52** *SC* **52.13** *P* **474** *L* **12** # **85**

Dawe, Piers Agilent

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

Kill the spurious hundredths per resolution a long time ago.

SuggestedRemedy

Round the channel insertion losses up or down to nearest 0.1 dB.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Put footnote under three budget tables: "Budget numbers are rounded to nearest 0.1 dB".

Cl **52** *SC* **52.14** *P* **474** *L* **12** # **360**

Paul Kolesar OFS Fitel

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

Insertion loss values for multimode fibers in Table 52-26 do not seem to agree with those stated in Table 52-10, even after accounting for the differences in wavelength of the calculation (52-10 is at worst case, while 52-26 at nominal wavelength). After accounting for rounding, nominal values should always be less than or equal to worst case. Precision to two decimal places is unwarranted and only applied to MMF cases.

SuggestedRemedy

Recalculate values for MMF using rounding to 1 decimal place. Check and align similar entries in table 52-10 for consistency.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Rounding errors are causing these discrepancies. There do not appear to be any problems between 52-10 and 52-26 upon recalculation.

Cl **52** *SC* **52.14.1** *P* **474** *L* **38** # **32**

Jacob Ben Ary TELDOR

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

1. del the words "and cable" in line 38
2. add fiber type OM-3 as define in ISO/IEC 11801 2nd Ed. in table 52-27 line 1 page 475, (802.3ae should define the same hardware as ISO/IEC 11801)

SuggestedRemedy

Response *Response Status* **C**

REJECT. This is not editorial. These are the cabling specifications as well and OM-3 is already designated by the 2000 MHz-km 492AAAC specification.

Cl **52** *SC* **52.14.1** *P* **474** *L* **44** # **80**

Dawe, Piers Agilent

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

Can type B4 NZDSF? have negative (opposite sign to SMF at 1550) dispersion? If so, need to clarify the note to say that such fibre is not supported by the standard but PMDs might work with it anyway.

SuggestedRemedy

Check with fibre experts, clarify the note if needed.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change note to: "Note: It is believed that for 10GBASE-E, type B4 fiber with positive dispersion may be substituted for B1.1 or B1.3. A link using B4 fiber with negative dispersion should be validated for compliance at TP3."

22:1:0

Cl **52** *SC* **52.14.2.1** *P* **475** *L* **27** # **348**

Jonathan Thatcher World Wide Packets

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

Will ballot be complete prior to the 802.3ae ballot?

SuggestedRemedy

If so, put this information in an editor's note so we don't miss it in future circulations.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Scheduled to close in March. Put editor's note to remove ballot comment prior to final publication of 802.3.

Cl **52** *SC* **52.14.2.1** *P* **475** *L* **32** # **7**

Steve Swanson Corning Incorporated

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

Consistent with the convention used for SMF connector and splice loss, specify a total connection and splice loss for MMF rather than maximum and individual connector loss. An example is OK but as long as the 1.5 dB total connector and splice loss is met, it isn't necessary to specify maximum individual connector insertion loss values.

SuggestedRemedy

Delete "..., or two connections (as shown in Figure 52-17) with a maximum insertion loss of 0.75 dB."

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove "maximum", "average", add "per connection" after 0.75 dB:

"For example, this allocation supports three connections with an insertion loss equal to 0.5 dB (or less) per connection, or two connections (as shown in Figure 52-17) with an insertion loss of 0.75 dB per connection."

Cl **52** *SC* **52.14.2.1** *P* **475** *L* **37** # **8**

Steve Swanson Corning Incorporated

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

Since 40km links are engineered links and engineered links imply total fiber, connector and splice loss can be defined by the enduser/designer to ensure compliance to the 11 dB total channel loss, there is no need to call out a connector and loss requirement for 40km links.

SuggestedRemedy

Delete "...,and 1 dB for 40km and 2 dB for 30 km total connection and splice loss...".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Delete "...,and 1 dB for 40km".

Cl **52** *SC* **52.14.4** *P* **476** *L* **34** # **108**

Ohlen, Peter — Optillion

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

The IEC standards we refer to have new numbers and are not published, but exist in a (not official) draft. Can we refer to unpublished standards? I think not.

SuggestedRemedy

They have (will?) become 61753-021-2 (was 61753-3-2) and 61753-022-2 (was 61753-3-3):
IEC 61753-021-2 - Fibre optic passive components performance standard -
Part 021-2: Fibre optic connectors terminated on single mode fibre forcategory C - Controlled environmentIEC 61753-022-2 - Fibre optic passive components performance standard -
Part 022-2: Fibre optic connectors terminated on multi mode fibre forcategory C - Controlled environment.
I think we also need an aditors box about that we need to wait until they are finalized.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #361.

Cl **52** *SC* **52.14.4** *P* **476** *L* **37** # **361**

Paul Kolesar — OFS Fitel

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

IEC has changed the numbering scheme for connector performance specifications, making the present references to drafts for both MM and SM connectors obsolete.

SuggestedRemedy

Replace "IEC 61753-3-2, Fibre optic passive component performance standard - Part 3-2" with "IEC 61753-021-2 - Fibre optic passive components performance standard - Part 021-2".
Replace "IEC 61753-3-3, Fibre optic passive component performance standard - Part 3-3" with "IEC 61753-022-2 - Fibre optic passive components performance standard - Part 022-2". The rest of their titles remain as is.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Add note on p476/36 re: items b and c which may not complete ballot until after IEEE 802.3ae is due to complete. (c is behind b)

Cl **52** *SC* **52.15.1** *P* **477** *L* **89** # **83**

Dawe, Piers — Agilent

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

The words "Physical Medium Dependent (PMD) sublayer and baseband medium, type" are in bigger font than normal.

SuggestedRemedy

Reset to default style.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.15.3** *P* **478** *L* **30** # **75**

Dawe, Piers — Agilent

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

Obviously, these delay constraints don't apply to the cabling. If the subject of the PICS is a cable installation it doesn't have a PMA and PMD so the delay constraint cannot be always mandatory.

SuggestedRemedy

Not "M" but mandatory if not INS, (or mandatory if any of SR-EW). Same goes for 52.15.4.9 and 52.15.4.10. Use ! for negation. See Clause 21 for syntax, 36.7.4.5 for an example.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.15.4** *P* **479** *L* **9** # **349**

Jonathan Thatcher — World Wide Packets

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

Lines 9 through 45; Status column. "MDIO" should match Major Item "*MD" in 52.15.3.

SuggestedRemedy

Recommend changing "*MD" to "*MDIO" in 52.15.3 (or vice versa)

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Choose "*MD". Renumber items MD1, MD2, ..

Cl **52** *SC* **52.15.4** *P* **479483** *L* # **82**

Dawe, Piers — Agilent

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

Should there be more in the Value/Comment column? Compare other clauses.

SuggestedRemedy

I have made this a TR so you can gather suggestions over more than one editing cycle.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. No specific recommendations here. We are still finalizing contents of clause, so comments may be premature. Specific suggestions are encouraged for these cells.

8:2:3

Cl **52** *SC* **52.15.4.12** *P* **484** *L* **1** # **350**

Jonathan Thatcher World Wide Packets

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

Good Job David (and everyone else). This looks pretty darn good!

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.4.8** *P* **443** *L* **49** # **103**

Ohlen, Peter Optillion

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

For consistence between 52.4.8 and 52.4.7, change "is disabled via" to "should be disabled via".

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. For consistence between 52.4.8 and 52.4.7, change "should be disabled via" to "is disabled via".

Cl **52** *SC* **52.5** *P* **444** *L* **15** # **6**

Steve Swanson Corning Incorporated

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

400 MHz km is expressed incorrectly

SuggestedRemedy

Insert a dot between MHz and km.

Response *Response Status* **C**

REJECT. IEEE says that a space is equivalent to a product.

Cl **52** *SC* **52.5** *P* **446** *L* # **56**

Dawe, Piers Agilent

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

Minor errors in SR/SW receiver spec values. Here's what I know, from an email conversation with Tom Lindsay:
> I am looking at Table 52-9 (-S) in D4.0. Why don't Receiver > sensitivity, Stressed sensitivity, and VECP match the spreadsheet?They match D3.3. I see no comment in the database to change them; however,the resolution to adopt 10GEPBud3_1_16a.xls with DJ=0, and the Swanson resolution, may have been intended to authorise the changes. (BTW, 1/00thsof dB should go anyway).>>TAL - my understanding was that these changes should have come with the adoption of the spreadsheet. Also, the Swanson resolution is firmly based on the values in the spreadsheet. If we don't "update" the Rx values, then we still have inconsistencies. I can submit a comment on these.

SuggestedRemedy

Per correspondence between self and Tom Lindsay.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #271

Cl **52** *SC* **52.5** *P* **447** *L* # **52005**

Tom Lindsay

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

In Table 52-10, Additional Insertion Loss Allowed is also a product of the spectral properties.

SuggestedRemedy

Make this clear in footnotes:
Third footnote:
The specifications for a wavelength of 840 nm and a spectral width of 0.29 nm in Table 52-8 is used to calculate channel insertion loss, allocation for penalties, and additional insertion loss allowed.

Fourth footnote:
This portion of the link budget is permitted to be used to overcome insertion loss higher than the "Channel insertion loss" value and in some cases may be less than the value shown.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.5** *P* **447** *L* **19** # **345**

Jonathan Thatcher World Wide Packets

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

Add period at end of note. Ditto line 15.

SuggestedRemedy

See comment

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.5.2** *P* **446** *L* **37** # **84**

Dawe, Piers Agilent

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

Kill the spurious hundredths per resolution a long time ago.

SuggestedRemedy

Round the two sensitivities up or down to nearest 0.1 dB. I think these numbers may have been overlooked and be the subject of another comment anyway.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.5.3** *P* **446** *L* **28** # **2**

Paul A. Bottorff Nortel Networks

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

The table heading 10GBASE-SW should be 10GBASE-S.

SuggestedRemedy

Change table heading to 10GBASE-S.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.5.3** *P* **447** *L* **7** # **359**

Paul Kolesar OFS Fitel

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

The 7.3 dB power budget value does not seem to be supported by the transmitter and receiver specs. Using clause 52.6 as an example, it appears that the power budget is derived by taking the highest signal level in the triple trade off table and subtracting the receiver sensitivity. In this example (-3.2) - (-12.6) = 9.4 power budget. Following this approach with clause 52.5 yields (-2.8) - (-11.98) = 9.2, not the 7.3 dB stated in Table 52-10.

SuggestedRemedy

Rectify by adjusting appropriate Tx and Rx parameters following consistent philosophy for both S and L PMDs.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. Arbitrary spectral characteristics chosen for budget values, not worst case.

Cl **52** *SC* **52.6** *P* **444** *L* **21** # **342**

Jonathan Thatcher World Wide Packets

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

Change "Modal bandwidth @ 850 nm (min)" to "Minimum modal bandwidth @ 850 nm"

SuggestedRemedy

See comment

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.6** *P* **448** *L* **36** # **44**

Dawe, Piers — Agilent

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

LR/LW transmitter power window is too narrow for single mode optics where single mode connector loss uncertainty plays a part as well as the usual setup, tracking and alignment issues. Need a window 5 dB wide at 5 dB extinction ratio, preferably at 4 dB extinction ratio. Gigabit Ethernet has a window 8 dB wide. Present LR/LW window is approx. 4.6 dB wide at 5 dB extinction ratio, and approx. 3.7 dB wide at 4 dB extinction ratio, for the most optimistic wavelength choices, narrower otherwise. We need about 0.5 dB more.There are two ways to fix this: either increase the Average launch power (max) or reduce the launch power min. and improve the receiver sensitivity limits to match. A combination would work. It may be that we do not yet have enough information to make a final choice.The file Pave_OMA-L.pdf shows the issue graphically.

SuggestedRemedy

Reduce launch power min. by 0.5 dB throughout table 52-13 and figure 52-4. Reduce the stressed sensitivity max from -10.3 to 10.8 and the unstressed sensitivity max from -12.6 to -13.1.

Response *Response Status* **U**

REJECT. See #38.

8:2:0

Cl **52** *SC* **52.6 to 52.9** *P* **444** *L* # **36**

Thaler, Pat — Agilent Technologies

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

Many of the test methods specified here do not have demonstrated viability. For instance:

stressed eye generation measurement and stressed sensitivity needs further work.

BERT bathtub "W" test appears to be producing misleading results.

We thought we could create a worst case pattern for jitter tests to shorten test time - the psuedo-random data pattern of 49.2.8. However, we are finding that the worst case pattern is not predictable and we get bit errors with a long (2^31) PRBS pattern under conditions that don't get errors for the psuedo-random pattern. Therefore, we may have to give up on a short cut and revert to testing with random/psuedo-random bit streams.

SuggestedRemedy

Verify all test methods before approval of the draft. Modify as necessary. This modification of the tests may also require modification of some parameter values in the specification.See the comments of Piers Dawe for more specifics.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. New method adopted.

Cl **52** *SC* **52.6.1** *P* **448** *L* **35** # **1**

Jim Tatum — Honeywell

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

There is no specification for rise and fall time for the 10GBASE -L and 10GBASE-E transmitters in tables 52-12 and 52-17. In addition, it makes no sense to talk about side mode suppression in Table 52-12 when the allowed RMS spectral bandwidth is clearly multimode.

SuggestedRemedy

Add rise and fall time specs to tables 52-12 and 52-17.Remove reference to side mode suppression in table 52-12.

Response *Response Status* **U**

REJECT. Insufficient evidence to reinstate rise and fall times for -L and -E. SMSR is necessary to complete specification.

Cl **52** *SC* **52.6.1** *P* **448** *L* **36** # **38**

Thaler, Pat — Agilent Technologies

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

LR/LW transmit power window is too narrow.

SuggestedRemedy

Raise the maximum transmit level or reduce the minimum transmit window (or a combination of the two) to allow at least a 5 dB window.

A similar change may be appropriate for ER/EW.

Response *Response Status* **U**

REJECT. Commenter is invited to resubmit after presenting data for premise of "too narrow" window. Why is a wider one needed?
8:2:2

Cl **52** *SC* **52.6.1** *P* **4489** *L* # **66**

Dawe, Piers — Agilent

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

Triple trade off has caused much confusion. We need to do more to simplify this and relate the new measures to traditional units of measurement.

SuggestedRemedy

For BASE-L, set the minimum eye amplitude (formerly OMA) to the value at 1320 nm, which is the most common value and the minimum of three of the four curves. Some transmitters are penalised by a virtually unmeasurable 0.1 dB; the simplification is worth it.

Response *Response Status* **Z**

REJECT. Triple trade off curves are valuable for different laser types, and 1320 nm will not always be the "most common" wavelength.

Withdrawn

Cl **52** *SC* **52.6.1** *P* **449** *L* **3-39** # **94**

Juergen Rahn Lucent Technologies

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

In 10GBASE-L: 1310 nm 10km triple-trade-off is used.This trade-off is intended to optimize the yield of laser transmitters to support this spec; the resulting difference in optical power levels from the model is only a few 0.1 dB; considering that the general measurement accuracy and reproducibility of optical power measurements is of the order of +/- 0.25 dB the “gain” of this trade-off is to be doubted; even more the amount of testing needed to verify spec compliance is much more than the actual gain in component yield; finally the validity of the model as such is still not confirmed. So if the main reason for the optical spectrum broadening is chirp this may interact with fibre dispersion in a positive or negative way.(positive way : pulse compression ; negative way : pulse broadening) This behavior cannot be modeled by simple spectral measurement and may lead to wrong conclusions. However if the validity of the model is not proven and this model is used as a basis for specification and as such also for verification, this can only lead to rejecting good devices and approving bad devices, which does not serve this industry.

SuggestedRemedy

triple tradeoff should be removed from the 1310 nm interface and the spec should be further simplified, e.g. by specifying a minimum OMA output power of -3.5 dBm (or any other value that serves this application). The gain of allowing up to -4 dBm due to the model is not significant enough to justify the model; it is only unnecessarily complicated.

Response *Response Status* **U**

REJECT. Triple tradeoff curves do simplify normative compliance over a wider range of laser parameters than permitted by a point specification. Specifically, allowed OMA range is 0.8 dB which is relatively significant for emerging DFB-like technologies (example: LW-VCSELs).

9:2:1

Deferred until Piers recalculates TTC and tables with TDP.

Cl **52** *SC* **52.6.2** *P* **450** *L* **14** # **93**

Juergen Rahn Lucent Technologies

Comment Type **TR** *Comment Status* **R** *clock tolerance*

For the 10GBASE-LW receive optical specifications a clock tolerance of +/-100ppm is specified in table 52-14. This is more than is required in relation to the transmitter specification and any possible transport network such as SDH/SONET, OTN, and also old legacy 10 G WDM transponder equipment. As such, the specification is internally inconsistent and also inconsistent with respect to transport equipment. There is no reason to require the receiver to have a tolerance of +/- 100 ppm because no received signal will ever have a frequency offset greater than +/- 20 ppm. The receiver specification should be changed to what is required in line with the transmitter and transport network specification.

SuggestedRemedy

Add an extra column for 10GBASE-LW in table 52-14 with 9.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it is in Table 52-12.

Response *Response Status* **U**

REJECT. This is consistent with Clauses 46-51. This would be a flip-flop of a previous decision after much discussion to set the receiver frequency tolerance to +/- 100 ppm (the suggested change was rejected once)

6:1:3

Cl **52** *SC* **52.7** *P* **448** *L* **36** # **45**

Dawe, Piers Agilent

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

ER/EW transmitter power window depends strongly on both extinction ratio and transmitter and dispersion penalty (TDP). At present the range is between 0.7 (!) and 8 dB. For single mode optics where single mode connector loss uncertainty plays a part as well as the usual setup, tracking and alignment issues, we need a window 5 dB wide for all anticipated conditions, but not necessarily going right into the corners of the parameter space. Gigabit Ethernet has a window 8 dB wide.If receiver sensitivity cannot be improved, we can increase the Average launch power (max), remembering to adjust the minimum link attenuation and receiver max power for damage points. We do not need to change the receiver overload for BER point.The file Pave_OMA-E.pdf shows the issue graphically.

SuggestedRemedy

Increase average launch power (max) and receiver max power for damage by 1 dB to +5 dBm. Increase the minimum channel insertion loss by 1 dB to 6 dB. Change "5" to "6" in 52.14.3 and update figure 52-18.

Response *Response Status* **U**

REJECT. Commenter is invited to present the supporting data at next meeting.

6:1:4

Cl **52** *SC* **52.7.1** *P* **452** *L* **22** # **88**

Dawe, Piers — Agilent

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

For BASE-E we have Transmitter and dispersion penalty (max) 3 dB. Compare this with SONET: virtually 3 dB transmitter penalty (from eye mask) plus 1 dB path penalty. The point of this standard is to be at least no more expensive than SONET, we seem to be too harsh on ourselves here.

SuggestedRemedy

Increase our BASE-E TDP limit to a value in the range 3.5 to 4 dB.

Response *Response Status* **C**

ACCEPT. Choose 3.5. Maximum power stays at 4. In table 52-19, add 0.5 dB to the link power budget and allocation for penalties in both 30 and 40 km columns.

Cl **52** *SC* **52.7.1** *P* **452** *L* **24** # **40**

Juergen Rahn — Lucent Technologies

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

For 10GBASE-E: 1550nm 40km an Extinction Ratio minimum of 3 dB is specified: Considering directly modulated lasers in 1310nm a minimum of 4 dB for 1310 nm, which can be justified for those directly modulated sources, a lower value for indirectly modulated lasers is totally out of place. In contrast to this it has been proven during the feasibility investigation that a lower value than 8.2 dB results in an increased path penalty. If there is a need to allow future new technologies then there should be an idea of what that is. Currently we are not aware of any alternative (cheaper) technology (besides EML) that could support 40 km transmission at 1550 nm. There might be also impact on other parameters then Extinction Ratio.

SuggestedRemedy

Change the minimum extinction ratio to 8.2 dB for 1550 nm EML source.

Response *Response Status* **U**

REJECT. This would make Extinction Ratio the primary specification, where OMA is the desired specification.

11:1:4

Cl **52** *SC* **52.7.2** *P* **453** *L* **14** # **92**

Juergen Rahn — Lucent Technologies

Comment Type **TR** *Comment Status* **R** *clock tolerance*

For the 10GBASE-EW receive optical specifications a clock tolerance of +/-100ppm is specified in table 52-18. This is more than is required in relation to the transmitter specification and any possible transport network such as SDH/SONET, OTN, and also old legacy 10 G WDM transponder equipment. As such, the specification is internally inconsistent and also inconsistent with respect to transport equipment. There is no reason to require the receiver to have a tolerance of +/- 100 ppm because no received signal will ever have a frequency offset greater than +/- 20 ppm. Thereceiver specification should be changed to what is required in line with the transmitter and transport network specification.

SuggestedRemedy

Add an extra column for 10GBASE-LW in table 52-18 with 9.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it is in Table 52-17.

Response *Response Status* **U**

REJECT. See #93.

5:1:4

Cl **52** *SC* **52.7.3** *P* **454** *L* **8** # **86**

Dawe, Piers — Agilent

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

Is the 30km column of Table 52-19 correct? If we have 11 dB at 1550 nm we should have slightly less at 1565 nm. The following sets out what I know so far:The numbers come from 10GEPBud3_1_16a.xls with cell P2, Attenuation = 0.4085 dB/km "to represent 0.35dB/km at 1550 nm" according to my notes but actually it works out as 0.375 dB/km. But 52.14.3 and table 52-26 say "11 dB channel" (at nominal wavelength, 1550 nm) which contradicts Table 52-19's 11.4 dB at 30 km, 1565 nm and also are consistent with 1 dB for 30 km total connection and splice loss at 1550 nm, not 2 dB as in 52.14.2.1.

SuggestedRemedy

As agreed to correct the inconsistency noted in the comment.

Response *Response Status* **Z**

REJECT. Change 52.14.2.1 connector loss for 30 km to 1 dB. See also #64.

Withdrawn.

Cl **52** *SC* **52.8** *P* **453** *L* **43** # **116**

Pepeljugoski, Petar IBM

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

The jitter methodology as prescribed in section 52.8 is not possible to implement due to the lack of measurement equipment, golden PLL, receiver and other test setup equipment. In particular, calibration technique for the jitter measurement has not been developed.

SuggestedRemedy

Develp better jitter measurement methodology or make it nformative.

Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE. Needs to be discussed as part of general adaptation of test methodology.

Withdrawn.

Cl **52** *SC* **52.8** *P* **4537** *L* # **42**

Dawe, Piers Agilent

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

We have implemented this jitter bathtub technique which seemed very attractive. However, we find that there are gross errors in the measured "W" which cannot be corrected for by calibration techniques with present day equipment. We must abandon the BERT bathtub technique.

SuggestedRemedy

Abandon the BERT bathtub technique.Rely on eye mask to screen against high probability jitter, and use BERT at eye center to screen against low probability jitter.

Response *Response Status* **Z**

REJECT. Need resolution in group

Withdrawn.

Cl **52** *SC* **52.8** *P* **4537** *L* # **78**

Dawe, Piers Agilent

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

Subclause 52.8, "Jitter specifications for 10GBASE-R and 10GBASE-W" contains a description of a test procedure, a section "Channel requirements for transmit jitter testing" and so on, none of which should be in the specifications section. These should all be in a measurement section such as 52.9. The only specifications are the two tables. The material needs re-ordering in line with the other specifications and measurements. There may be no need for a jitter section anyway: could put specifications in 52.5-7 and procedure, explanation, example masks and so on in 52.9 with similar material.

SuggestedRemedy

Separate the specification material and the procedure, explanation, examples and so on into their appropriate subclauses.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Add mask coordinates to three transmit tables unless common, in which case leave in 52.8.

Cl **52** *SC* **52.8** *P* **455** *L* # **50**

Dawe, Piers Agilent

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

In our experiments we think there is a pattern dependent contribution to low-probability jitter "sigma" for realistically long patterns e.g. PRBS31). There will be clock jitter too, possibly around 1 ps, per SONET. The apparent random jitter from the very strict RIN we have allowed can be calculated; a quick calculation indicates that there is 1 ps jitter from RIN alone. Measured sigma of 1.8 to 2 ps seems both typical and acceptable.

SuggestedRemedy

Revise upwards our opinion on acceptable low probability jitter. Don't waste time measuring it directly: measure what it may affect if it were unacceptably large, which is sensitivity at eye centre.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. New text provides solution in TDP measurement.

Cl **52** *SC* **52.8** *P* **455** *L* **25** # **91**

Juergen Rahn — Lucent Technologies

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

The transmitter and receiver jitter requirements for the WAN interfaces are defined to be 0.35 UI pk to pk DJ for 10GBASE-E and 0.3 UI pk to pk DJ + some amount of random jitter for the 10GBASE-L. Measurements have shown that this will result in a penalty of about 3 dB and 2.5 dB respectively (Typical), while no tolerance difference between 1550nm and 1310 nm receivers have been observed so far. Due to the fact of measuring at TP3, the related penalty is a part of transmitter and path penalty also, and it is in total too big and needs to be reduced significantly. A jitter only penalty value a bit above 1dB could be acceptable at this reference point. This jitter tolerance penalty should be possible to be achieved for worst case EOL conditions under 0.2 UI pk to pk DJ conditions following the measurement results.

SuggestedRemedy

Change the maximum deterministic pk to pk jitter values in table 52-20 BERT mask specifications Table for 10GBASE-L from 0.30 UI pk to pk to 0.2 UI pk to pk and the values for the 10GBASE-E from 0.35 UI pk to pk to pk to the same value of 0.2 UI pk to pk, which will serve feasibility of the receivers.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. Section replaced by new jitter methodology.

Cl **52** *SC* **52.8.1** *P* **453** *L* # **265**

Robert Zona — Intel

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

This test may be impossible to perform in practice. During feasibility testing no one was able to demonstrate compliance. Commonly available 10 gigabit BERT equipment has enough inherent jitter that the jitter floor for the test setup alone barely passes the jitter bathtub mask shown in figure 52-5. Since there is no accepted technically correct way to subtract this setup contribution from the setup plus DUT measurement, the allowable DUT contribution in practice is much more difficult than the intended specification, and may make it impossible to build hardware that can be shown to be compliant using this test

SuggestedRemedy

Either this test must be removed from the normative specification list or a method of correcting for test set jitter must be included and approved.

Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE. Needs discussion.

Cl **52** *SC* **52.8.12** *P* **470** *L* **27** # **100**

Dudek, Mike — Cielo Communications

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

Incorrect reference

SuggestedRemedy

Change figure 52-16 to figure 52-15

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.8.2.1** *P* **456** *L* **3** # **98**

Dudek, Mike — Cielo Communications

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

erroneous extra "in"

SuggestedRemedy

Delete "in"

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.8-9** *P* **453471** *L* # **73**

Dawe, Piers — Agilent

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

Too much gold. "Golden" should not be capitalized. On a quick survey, only one occurrence of gold, golden or Golden is justifiable.

SuggestedRemedy

Remove all but one occurrence of gold, golden or Golden. Often no replacement is needed. If one is, use "test" or reference" as in "test receiver", "reference transmitter", "test fiber", "test PLL".The exception is p505 line 3 "The "Golden fiber" called out for LX4 is ...".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Golden PLL -> clock recovery unit
Golden fiber -> test fiber
Golden Receiver -> reference receiver
Golden Transmitter -> reference transmitter

Cl **52** *SC* **52.9** *P* *L* # **110**

Ohlen, Peter Optillion

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

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. (Did we fix this?)
* 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 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* **U**

ACCEPT IN PRINCIPLE. Optionally add PRBS (2^31) (test pattern 3) in each instance where test pattern 1 or 2 is used. Add optional test pattern 3 generator to appropriate test modes.

17:4::24

Cl **52** *SC* **52.9** *P* *L* # **292**

Lindsay, Tom Stratos Lightwave

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

As defined, the methods and hardware for jitter output, calibration of stress for Rx testing, and maybe eye mask are not ready. This not only makes the test sections immature and incomplete, it raises doubts about the standard's values associated with them.

Relatedly, the test patterns defined in 52.9.1 have not been sufficiently tested.

SuggestedRemedy

1. Follow the direction of the serial PMD ad hoc. This work may develop new test patterns.

2. Require feasibility demonstration of test methods (to be) developed for these tests. This should include multiple measurements on different devices by different testers with different equipment from different manufacturers. Demonstration shall show reasonable agreement and support the standard's values. The demonstrations must include the test patterns (or other proposals) shown in 52.9.1.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. All three areas addressed by proposed changes.

Cl **52** *SC* **52.9** *P* *L* # **293**

Lindsay, Tom Stratos Lightwave

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

A Golden PLL is required in several places. Although parameters and values are not included in the standard, their performance can greatly affect measured results.

SuggestedRemedy

From test equipment manufacturers, require demonstration of golden PLL performance acceptable for 802.3ae or at least a path to acceptability.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. Technical feasibility to be demonstrated, even though this comment does not directly address a text change.

6:1:2

Cl **52** *SC* **52.9** *P* *L* # **111**

Ohlen, Peter Optillion

Comment Type **TR** *Comment Status* **R** *test methodology*

Some measurement methods have not been tested thouroghly and might benefit from some rework as measurement methods are implemented and tested on more hardware.

SuggestedRemedy

We need more testing input before we know.

Response *Response Status* **U**

REJECT. No specific change to the text is suggested. Probably will be dealt with anyway as a function of more specific motions and comments.

5:1:4

Cl **52** *SC* **52.9** *P* *L* # **68**

Dawe, Piers Agilent

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

Should overload be measured with a stressed eye?

SuggestedRemedy

Discuss and make changes as agreed.

Response *Response Status* **C**

REJECT. No opinion stated or required. Use receiver overload in test patterns.

Cl **52** *SC* **52.9** *P* *L* # **69**

Dawe, Piers Agilent

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

We may choose to recommend a "lone bit" pattern for stressed eye calibration. I looked at 00000101111101 type patterns. It isn't as simple as it seems to get an eye on the screen with a clk/8 or clk/32 trigger: it helps if the pattern is not a multiple of 8 bits long. Further, 000001000011111011111 and so on, might have been better. However, this pattern is not generated or received by compliant hardware, it doesn't have to be generated or read by the PCS, and we don't have to specify it in a watertight and normative way.

SuggestedRemedy

Keep working! We can't evaluate the stressed eye procedure without calibrating it...

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. To be incorporated in stressed eye calibration procedure if appropriate.

Cl **52** *SC* **52.9** *P* **457** *L* # **57**

Dawe, Piers Agilent

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

There are four different modes of operation, and manual switching between, this could add cost and inconvenience to network operations.
The four are:
Mission mode (64B/66B coded packets, idles, aligns, LF and R
Square wa
Test pattern
Test pattern
We may need to add a 5th, lone bit, pattern but it need not be generated by compliant hardware. In addition, the designer patterns appear to be much too short and may provide uneven test coverage. I believe that for BASE-L, the use of any pattern which is not truly random or a long PRBS allowed to run through all of its states, is tantamount to adding uncertainty (either sign) to a measurement of uncommon events such as spec BERs. This is a different case to 8B10B or XAUI which are not scrambled; here there is no point trying to guess the "worst case", and less reason to use a square wave. If anyone has experimental evidence on this subject, please bring it forward! Without evidence we can't adopt untried designer patterns anyway.

SuggestedRemedy

Do like telecoms does: State that compliance should be assured in mission mode. The bits on the line are as good as the same (scrambled) whether idles, data, LF, or RF.Because we don't have mission mode scramblers in today's BERTs, allow compliance to be shown for LAN PHY with PRBS31 (recently I've found that PRBS23 may not be adequate for BER measurements).Also change the tests which call for a square wave to use mission mode or PRBS31 (actually PBRS23 would work for these). Change spec values of extinction ratio, risetime, RIN to reflect the change of pattern. Revise 52.9 text and table 52-24 per this comment.Add optional PRBS31 generator to clause 49 PCS and appropriate registers to clause 45.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. Need note before test pattern section:

Note: Test patterns for specific optical tests are designed to ensure system operation while passing valid 10GBASE-R or 10GBASE-W data.

Cl **52** *SC* **52.9** *P* **463471** *L* # **47**

Dawe, Piers Agilent

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

Several tests call out for use of "golden PLLs". For 10G-BASE-L, these have not been available.

SuggestedRemedy

Show feasibility of tests with PLLs in the test equipment, preferably in at least three labs. How much jitter do they generate?

Response *Response Status* **Z**

REJECT. See #293.

Withdrawn.

Cl **52** *SC* **52.9** *P* **468** *L* **2** # **61**

Dawe, Piers Agilent

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

Confusion between ISI and Vertical eye closure penalty.

SuggestedRemedy

At first use of ISI (p 469 line30), change text from
"incorrect ISI, a limiting amplifier is used to restore fast rise and fall times. A Bessel-Thom-son filter is selected to produce the minimum ISI induced eye closure"
to
"incorrect intersymbol interference (ISI), a limiting amplifier is used to restore fast rise and fall times. A Bessel-Thomson filter is selected to produce the minimum ISI induced eye closure or vertical eye closure penalty"And do change the hyphenation threshold from 3 to 4: "Thom-son" looks so silly!

Response *Response Status* **C**

ACCEPT. Make sure first instance of ISI is written out.

Cl **52** *SC* **52.9.1** *P* **457** *L* **46** # **346**

Jonathan Thatcher World Wide Packets

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

Extra period

SuggestedRemedy

Remove one.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.9.1** *P* **459** *L* **1** # **58**

Dawe, Piers Agilent

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

If we have multiple patterns, this table has value and should be extended to cover the WAN PHY.Compliance must be defined by reference to mission mode. Customer doesn't want links which can carry test patterns but not traffic!

SuggestedRemedy

Define compliance by reference to just one state (mission mode) for both LAN and WAN. Use table to show acceptable alternatives:
PBRS31 in place of Pattern 2 for LAN PHY;
PRBS31 or PRBS23 in place of pattern 1 or square wave for LAN PHY or WAN PHY;
Other WAN PHY patterns as decided.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Change new note to:

Note: Test patterns for specific optical tests are designed to emulate system operation which would entail passing valid 10GBASE-R or 10GBASE-W data.

Also change text: "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"
to
"Compliance shall be achieved in normal operation. Test patterns are specified in Table 52-24 for 10GBASE-R and in section 50.3.8 for 10GBASE-W unless specified otherwise"

Changed text to make test patterns apply to both W and R types.

Cl **52** *SC* **52.9.11** *P* **4629** *L* # **49**

Dawe, Piers Agilent

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

We have significantly improved our understanding of what we mean by DCD. We mean, the amount by which an isolated bit can be shorter (or longer) than its nominal period. Meanwhile, Fibre Channel(?) and oscilloscope manufacturers have defined it with regard to the time difference between the average rising edge and average falling edge. We believe that in our situation, the former effect dominates. For want of a better phrase, we could call this "pulse length variation".
On this analysis, the dominant component of high probability jitter ("W") is likely to be pulse length variation: the vertically innermost trace in figure 52-14 is likely to be innermost time-wise as drawn.

SuggestedRemedy

Change all references to "DCD" or "duty cycle distortion" to "pulse length variation" or similar. Revisit the value: maybe it is more than 6 ps (it's hard to know, experimental problems...).

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Change all DCD to "pulse width shrinkage".

Cl **52** *SC* **52.9.11** *P* **466** *L* # **264**

Robert Zona Intel

Comment Type **TR** *Comment Status* **D** *stressed receiver*

This test is not possible to perform in practice. During feasibility testing no one was able to demonstrate compliance. Commonly available 10 gigabit test equipment has enough inherent jitter that the jitter floor for the test setup alone causes significant eye closure. It is impossible to determine whether this comes form the Tx or Rx side of the test set, therefore, it cannot be corrected for in verifying the stressed test eye. This results in stressed eye plus test set eye closure adding together to produce an eye so closed that no reasonable receiver can operate.

SuggestedRemedy

Either this test must be removed from the normative specification list or a method of correcting for test set jitter must be included and approved.

Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE. Needs discussion

Cl **52** *SC* **52.9.11** *P* **466** *L* # **46**

Dawe, Piers Agilent

Comment Type **TR** *Comment Status* **R** *stressed receiver*

Stressed sensitivity methodology has not been proven. I see the merits of the idea but ...

SuggestedRemedy

Keep developing the technique: agree new definitions of horizontal eye closure, try it out at more than one lab. If we can't make it work in a reasonable timescale, make the unstressed sensitivity normative and the stressed, informative.

Response *Response Status* **C**

REJECT. No change to text recommended.

Cl **52** *SC* **52.9.11.2** *P* **469** *L* **38** # **60**

Dawe, Piers Agilent

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

Vertical eye closure penalty formula is upside down (and was in Cl.38). Penalties are expected to be positive.

SuggestedRemedy

Either reverse A_O and A_N or invert the equation.

Response *Response Status* **C**

ACCEPT. Invert equation by swapping numerator and denominator.

Cl **52** *SC* **52.9.13** *P* **471** *L* **15** # **48**

Dawe, Piers Agilent

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

The procedure for the "Measurement of the receiver 3 dB electrical upper cutoff frequency" has not been demonstrated at 10G. I suspect most participants are more interested in developing product, and have other information which gives them confidence that the receiver bandwidth is not too large (is too much bandwidth at 10G a common problem!?). This test is really low priority as compared with other tests, proving it out would be a diversion.

SuggestedRemedy

Delete the "shall" and the PICS, make the whole thing informative. Mark the entries in tables 52-9, 14, 18 as informative.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Keep normative specification, but make measurement method informative.

Cl **52** *SC* **52.9.5** *P* *L* # **62**

Dawe, Piers Agilent

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

Measurement standardisation: OMA and eye amplitude.OMA has caused much confusion. We need to do more to simplify this and relate the new measures to traditional units of measurement. For clause 52, possibly not clause 53, we should use eye-based measurements per OFSTP-4A for four reasons:
it is standards based,
it is what people have the habit of doing, <ccr>several metrics can be obtained from one measurement, and it much simplifies measurement on complete systems, e.g. in a network.
Factories can learn how to relate a square-wave based measurement to a measurement per standards as they wish.

SuggestedRemedy

Replace all references to OMA to "eye amplitude" which is defined per OFSTP-4A as the difference between b1 and b0 where b1, b0 are the mean of the signal between 0.4 and 0.6 UI in the upper and lower halves of the eye diagram, respectively. Refer forward to definition, first time "eye amplitude" is used p443 line 7). Revise 52.9.5, OMA test procedure to specify eye amplitude measurement, probably by reference - it can be much shorter.Unless changing for other reasons, keep OMA spec values as "eye amplitude" spec values. For nominal sensitivity (very good eye), the two metrics must give the same result. For transmit powers and stressed sensitivities there is a discrepancy but it has been sort of overlooked in our analysis so keeping the values is probably our best course, unless we agree changes to reflect real (experimental) sensitivity results. See other comments for related changes to RIN, extinction ratio and risetime.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. Make OMA able to use mixed signal.

Cl **52** *SC* **52.9.5** *P* **458** *L* **1435** # **117**

Pepeljugoski, Petar IBM

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

Pattern 1 as currently defined is not the best representation of "typical" data.

SuggestedRemedy

Define pattern 1 as: DnDiDnDi in table 52-23 where the seed D is defined in the editors note D=0x34906BB85A38884

Response *Response Status* **C**

ACCEPT.

9:0:3

Cl **52** *SC* **52.9.5** *P* **459** *L* **50** # **106**

Ohlen, Peter Optillion

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

Add "and described in detail below" to the sentence on line 50.

SuggestedRemedy

See comment.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **52.9.5** *P* **460** *L* **1** # **107**

Ohlen, Peter Optillion

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

Having a "shall" in a recommended measurement method does not make sense.

SuggestedRemedy

Change "shall be" to "is", or "should be".

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. "is to be", as per other measurement sections.

Cl **52** *SC* **52.9.6** *P* **462** *L* **2** # **51**

Dawe, Piers Agilent

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

We have been quite nervous of signal borne noise and set a fairly strict RIN requirement, measured in a 10 GHz bandwidth (rather than 7.5), in case the receiver has a wider than minimum bandwidth. A receiver with higher bandwidth will suffer less ISI, so what it loses in noise it may more than regain in reduced ISI. But the calculation, for a typical peaky laser RIN spectrum, is quite involved. But here's another scenario: a transmitter uses a "DC light source" which is a laser with a 3 GHz resonant frequency, for example, followed by a modulator. The RIN calculation we use assumes that the noise is white so only approx. 7/10 of it is relevant, which is not so. I doubt if this is a big error but maybe the traditional 3B/4 bandwidth would be the one we should use.

SuggestedRemedy

If we need to stay with a RIN measurement, go back to 7.5 GHz measurement bandwidth.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. Send to Serial PMD ad hoc for resolution.

5:1:8

Cl **52** *SC* **52.9.7** *P* **462** *L* # **63**

Dawe, Piers Agilent

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

For the avoidance of doubt, define 0 and 1 UI in the transmit mask.

SuggestedRemedy

Add normative text: 0 and 1 UI are the mean crossing points of the signal.

Response *Response Status* **U**

ACCEPT IN PRINCIPLE. See #295.

Cl **52** *SC* **52.9.7** *P* **463** *L* # **55**

Dawe, Piers Agilent

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

LR/LW mask is more demanding than it need be, vertically, yet possibly less demanding than it should be horizontally.

SuggestedRemedy

Change coordinates:
X1 from 0.3 to 0.25 (all PMDs)Y1 from 0.25 to 0.28 (LR/LW and optionally ER/EW)
Or see presentation for variations on this theme.Use this mask as one part of the replacement of the jitter bathtub.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. New mask chosen.

Cl **52** *SC* **52.9.7** *P* **463** *L* **1** # **347**

Jonathan Thatcher World Wide Packets

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

Should slope be -20 dB/decade?

SuggestedRemedy

Check and fix if needed

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. "A golden PLL should be used to trigger the scope for mask measurements. It should have a high frequency
corner of less than or equal to 4 MHz and a slope of -20 dB/decade."

Cl **52** *SC* **52.9.9.1** *P* **464** *L* **38** # **99**

Dudek, Mike Cielo Communications

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

It would be clearer to describe the PLL as Golden as it is a specific test PLL and it is referred to as "Golden" in other sections.

SuggestedRemedy

Change "The PLL" to "The Golden PLL"

Response *Response Status* **C**

REJECT. Conflicts with removal of many "Golden"s in another comment. PLL and Golden PLL replaced with Clock Recovery Unit (CRU)

Cl **52** *SC* **52-3** *P* **445** *L* **34** # **344**

Jonathan Thatcher World Wide Packets

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

Figure 52-3 is simply not readable in black and white. Even though this is informative, it needs to be fixed so that the intent is obvious.

SuggestedRemedy

Choose:
1. Remove the table entirely.
2. Remove a number of the lines so that there is no overlap (make it clear that this was done in a footnote).
3. Somehow change the line types so that the curves are obvious.

Do same on Figure 52-4

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. Remove up to 0.05, .05-.1, .1-.15 from graph. Change text above graph to:
The trade offs between center wavelength, maximum RMS spectral width and minimum optical modulation amplitude are defined in Table 52-8 and are shown graphically in the informative Figure 52-3 except for spectral widths less than or equal to 0.15 nm.

Invert legend too.

Cl **52** *SC* **6.2** *P* **450** *L* **14** # **35**

Rick Townsend Lucent Technologies

Comment Type **TR** *Comment Status* **R** *clock tolerance*

For the 10GBASE-LW receive optical specifications a clock toleranceof +/-100ppm is specified in table 52-14. This is more than is required inrelation to the transmitter specification and any possible transport network suchas SDH/SONET, OTN, and also old legacy 10 G WDM transponder equipment. As such,the specification is internally inconsistent and also inconsistent with respect totransport equipment. There is no reason to require the receiver to have a tolerance of+/- 100 ppm because no received signal will ever have a frequency offset greater than+/- 20 ppm. Thereceiver specification should be changed to what is required in line with thetransmitter and transport network specification.

SuggestedRemedy

Add an extra column for 10GBASE-LW with 139.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it isin Table 52-12.

Response *Response Status* **U**

REJECT. See #93.

5:1:4

Cl **52** *SC* **6.2** *P* **450** *L* **14** # **11**

Geoffrey Garner Lucent Technologies

Comment Type **TR** *Comment Status* **R** *clock tolerance*

For the 10GBASE-LW receive optical specifications a clock toleranceof +/-100ppm is specified in table 52-14. This is more than is required inrelation to the transmitter specification and any possible transport network suchas SDH/SONET, OTN, and also old legacy 10 G WDM transponder equipment. As such,the specification is internally inconsistent and also inconsistent with respect totransport equipment. There is no reason to require the receiver to have a tolerance of+/- 100 ppm because no received signal will ever have a frequency offset greater than+/- 20 ppm. Thereceiver specification should be changed to what is required in line with thetransmitter and transport network specification.

SuggestedRemedy

Add an extra column for 10GBASE-LW with 139.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it isin Table 52-12.

Response *Response Status* **U**

REJECT. See #93.

5:1:4

Cl **52** *SC* **7.2** *P* **453** *L* **14** # **34**

Rick Townsend Lucent Technologies

Comment Type **TR** *Comment Status* **R** *clock tolerance*

For the 10GBASE-EW receive optical specifications a clock toleranceof +/-100ppm is specified in table 52-18. This is more than is required inrelation to the transmitter specification and any possible transport network suchas SDH/SONET, OTN, and also old legacy 10 G WDM transponder equipment. As such,the specification is internally inconsistent and also inconsistent with respect totransport equipment. There is no reason to require the receiver to have a tolerance of+/- 100 ppm because no received signal will ever have a frequency offset greater than+/- 20 ppm. Thereceiver specification should be changed to what is required in line with thetransmitter and transport network specification.

SuggestedRemedy

Add an extra column for 10GBASE-LW with9.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it isin Table 52-17.

Response *Response Status* **U**

REJECT. See #93.

5:1:4

Cl **52** *SC* **7.2** *P* **453** *L* **14** # **12**

Geoffrey Garner Lucent Technologies

Comment Type **TR** *Comment Status* **R** *clock tolerance*

For the 10GBASE-EW receive optical specifications a clock toleranceof +/-100ppm is specified in table 52-18. This is more than is required inrelation to the transmitter specification and any possible transport network suchas SDH/SONET, OTN, and also old legacy 10 G WDM transponder equipment. As such,the specification is internally inconsistent and also inconsistent with respect totransport equipment. There is no reason to require the receiver to have a tolerance of+/- 100 ppm because no received signal will ever have a frequency offset greater than+/- 20 ppm. Thereceiver specification should be changed to what is required in line with thetransmitter and transport network specification.

SuggestedRemedy

Add an extra column for 10GBASE-LW with9.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it isin Table 52-17.

Response *Response Status* **U**

REJECT. See #93.

7:1:2

Cl **52** *SC* **Figure 52-11** *P* **463** *L* **23** # **113**

Pepeljugoski, Petar IBM

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

The Eye mask on Figure 52-11 imposes undue restrictions on the transmitter signal waveform.

SuggestedRemedy

Chamfer the mask at the northeast and southwest corner. The new mask coordinates are as follows:
X1=0.3;X2=0.4; X1ne1=0.37; X1ne2=0.43;
Y1=0.25; Y1ne=0.3; Yne2=0.25;
Xmask_inner=[X1 X1ne1 X1ne2 1-X2 1-X1 1-X1ne1 1-X1ne2 X2];
Ymask_inner=[0.5 Y1ne Y1 Y1 0.5 1-Y1ne 1-Y1 1-Y1];

Response *Response Status* **Z**

PROPOSED ACCEPT IN PRINCIPLE. Needs discussion.

Cl **52** *SC* **Figure 52-13** *P* **467** *L* **23** # **274**

Lindsay, Tom Stratos Lightwave

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

"TP3" should at the input to the system under test.

SuggestedRemedy

Move "TP3" to the input of "System under test". Also, "Signal characterization measurement" should be at the output side of the optical attenuator, since OMA setting is an important part of calibration.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-14** *P* **450** *L* **22** # **114**

Pepeljugoski, Petar IBM

Comment Type **TR** *Comment Status* **R** *stressed receiver*

The stressed receive sensitivity measurement is difficult to implement and calibrate (the input signal for the test). It has not been shown that it can be implemented in a repeatable manner.

SuggestedRemedy

Implement a stressed receive sensitivity measurement with input signal that has the vertical eye closure requirements, but not the jitter requirements (horizontal eye closure).

Response *Response Status* **U**

REJECT. Overtaken by new stressed receiver calibration.

6:1:4

Cl **52** *SC* **Table 52-10** *P* **447** *L* **11** # **272**

Lindsay, Tom — Stratos Lightwave

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

"Allocation for penalties" is really allocation for penalties and margin. There are 2 reasons for changing this - good documentation & to avoid confusion, and to make it clear that the values given are not fully available for penalties.

SuggestedRemedy

Change parameter to "Allocation for penalties and margin".

Another option would be to include only the portion of the values that are indeed due to penalties. However, this means the numbers won't add up in the table.

This change should also apply to Table 52-15 and Table 52-19.

Response *Response Status* **C**

REJECT. Margin should not be visible. Many know what this contains, but there have been many new proposals for what to put in this row and what to call it.

Cl **52** *SC* **Table 52-10** *P* **447** *L* **12** # **273**

Lindsay, Tom — Stratos Lightwave

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

Wrong value.

SuggestedRemedy

Minor, but I calculate 0.8 dB additional allowable insertion loss for 200 MHz 62.5 micron fiber. All other values are okay.

Response *Response Status* **C**

ACCEPT.

4:1:10

Cl **52** *SC* **Table 52-14** *P* **450** *L* **19** # **115**

Pepeljugoski, Petar — IBM

Comment Type **TR** *Comment Status* **R** *stressed receiver*

The relationship between the stressed receiver sensitivity and the nominal sensitivity predicted by the spreadsheet model has not been verifies by lab measurements. In light of the difficulties calibrating the stressed receiver sensitivity measurements, it makes more sense to make the nominal receiver sensitivity normative, and the stressed receiver sensitivity informative.

SuggestedRemedy

Make the nominal receiver sensitivity normative and the stressed receiver sensitivity informative.

Response *Response Status* **U**

REJECT. Voted in committee and rejected in favour of making stressed sensitivity simpler.

Cl **52** *SC* **Table 52-4** *P* **441** *L* **31** # **139**

Thomas Mathey — Independent

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

Clause 45.2.1.2.2 Receive link status for bit 1.1.2 has a definition of "PMA locked to receive signal". There is no text in clause 52 is support this bit. This bit is used by 30.5.1.1.4 aMediaAvailable.

SuggestedRemedy

Add text to Table 52-4; add text to a new subclause such as 52.4.x PMD receive link status with text "See 45.2.1.2.2".

Response *Response Status* **C**

REJECT. Clause 52 is the PMD clause. A PMD cannot know if the PMA is locked.

Cl **52** *SC* **Table 52-7** *P* **445** *L* **33** # **140**

Thomas Mathey — Independent

Comment Type **T** *Comment Status* **R** *clock tolerance*

The clock tolerance in ppm, specified as "Signaling speed variation from niminal (max), given in Table 52-7 for transmit is different from the same parameter in Table 52-9 for receive.

SuggestedRemedy

Make values match. Scrub clause 52 and all other places in document to make Table 52-9 clock tolerance apply thruout document.

Response *Response Status* **C**

REJECT. Label column in Table 52-9 10GBASE-S. See #93.

5:1:4

Cl **52** *SC* **Table 52-9** *P* **446** *L* # **271**

Lindsay, Tom — Stratos Lightwave

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

Receiver sensitivity, stressed receiver sensitivity, and VECP to not match the values in the spreadsheet revision accepted in the November meeting. Also, the calculations behind Table 52-10 assume the spreadsheet values and so we are not consistent.

SuggestedRemedy

Receiver sensitivity = .077 (-11.1)
Stressed receiver sensitivity = 0.18 (-7.5)
VECP = 3.5 dB

Note - I am not sure which cable plant option to choose the latter 2 from. I picked from 62.5 micron 200 MHz since it showed the highest VECP value.

Response *Response Status* **C**

ACCEPT.

Cl **52** *SC* **Table 52-9** *P* **446** *L* **37** # **97**

Dudek, Mike — Cielo Communications

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

Tables 52-8, 52-9, and 52-10 are inconsistent for the link budget. The difference between the min Tx OMA at the specified center wavelength and spectral width and the Rx sensitivity does not equal the link budget of 7.3dB. In addition the margin in the link model for the Shortwave link is 0.8dB whereas the margin for the 1300nm link is only 0.1dB These should be similar and I recommend they are both set to 0.1dB.

SuggestedRemedy

In table 52-9 change the Rx sensitivity to 0.0912(-10.4) and the stressed receiver sensitivity to 0.281(-5.5)
In table 52-10 change the link power budget to 6.6 and reduce the allocation for penalties by 0.7dB for all the fibers (ie to 4.0, 4.1, 4.4, 4.3, 4.0

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See #271.

Cl **53** *SC* *P* *L* # **287**

Lindsay, Tom — Stratos Lightwave

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

This is a global comment. Clause 53 is trying to follow clause 52 directions in most cases. Best option is that clause 52 combines its track with that of clause 52. A much poorer option is to follow clause 52 work by document review one cycle later.

This comment is based on a general concern about test sections, although from the rest of the clause too. Clause 52 is going through great struggles on test methods (and associated specs) and clause 53 should be involved to contribute and decide either to follow clause 52 or depart for good reasons. There are also other numerous details where clause 53 has (unintentionally, I believe) fallen out of step, and I simply don't have the time to keep trying to track this.

SuggestedRemedy

Combine all technical work sessions with clause 52.

Response *Response Status* **C**

REJECT.

The comment does not specifically address text changes in the document. Where it makes sense, Clause 53 will coordinate with Clause 52.

Cl **53** *SC* *P* *L* # **282**

Lindsay, Tom — Stratos Lightwave

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

Per Figure 53-15, a patch cord is part of the cable plant. I don't think this correct, but if true, and the patch cord can add 0.5 dB (per the note below Table 53-9), then the MMF cable plant can be 2.4 (I calculate 2.5...) dB.

Very confusing.

SuggestedRemedy

Please clarify whether the patch cord is part of the cable plant or part of the transmitter. For cable plant, this affects at least Figure 53-15, Table 53-9, Table 53-13, and possibly the spreadsheet. Please check all footnotes. Please check for other places also.

If the patch cord is part of the transmitter (up to TP2?), the Tx powers will have to change. Even in this case, please check all footnotes and values, and I suspect other parts of the clause may be affected.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The values in the "Lane insertion loss" row of Table 53-9 and "Channel insertion loss (max)" of Table 53-13 were previously adjusted per a comment against an earlier draft to remove the attenuation of the offset launch patch cord.

Add to footnote to table 53-9:

"Channel insertion loss is specified from TP2 to TP3 in Figure 53-2. The total insertion loss for multimode fiber, including the attenuation of the offset launch patch cord, is allowed to be 0.5 dB higher than shown in the table."

Cl **53** *SC* *P* *L* # **291**

Lindsay, Tom — Stratos Lightwave

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

Is it clear that opposite direction data is required to be running for many of the Tx and Rx tests? Especially jitter and eye masks.

SuggestedRemedy

Please check and make it so if needed.

Response *Response Status* **C**

ACCEPT.

In section 53.9.10.1, add the sentence:

"Transmit jitter is tested with the receive section in operation. Any of the test patterns specified in Annex 48A, or valid 8B10B encoded data, may be sent to the receive section of the transmitter under test."

In Section 53.9.12.4, add the sentence:
"Receive jitter tolerance is tested with the transmit section in operation. Any of the test patterns specified in Annex 48A, or valid 8B10B encoded data, may be sent to the receive section of the transmitter under test."

Cl **53** *SC* *P* *L* # **290**

Lindsay, Tom — Stratos Lightwave

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

In some cases, the x in TPx is a subscript, in other cases it is in line.

SuggestedRemedy

Make all instances of TPx be in line. Check Figures too.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The editor will make the format consistant, with either in-line or subscriped form acceptable, but not both.

Cl **53** *SC* *P* **492** *L* # **276**

Lindsay, Tom — Stratos Lightwave

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

There is no explanation of what is meant by "local". Some think it means detected locally, others think it means caused locally. I would like this clarified, as I have already seen it cause significant confusion and debate.

This applies to PMD local fault, PMD transmit local fault, and PMD receive local fault.

SuggestedRemedy

I do not have a remedy, but would like one to be determined and clarified in the document. I personally prefer the concept of caused locally, although this is opposite of the position expressed by Pat Thaler.

Clause 52 also received this comment.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE. See resolution to #270.

Cl **53** *SC* **53.14** *P* **513** *L* **32** # **366**

Paul Kolesar — OFS Fitel

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

The allowance for additional insertion loss is not reflected in the channel insertion loss (max) values on Table 53-13.

SuggestedRemedy

Add the allowable additional loss (values roughly equivalent to those in Table 53-9) to the channel insertion loss (max) values.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.14** *P* **513** *L* **34** # **367**

Paul Kolesar OFS Fitel

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

The channel loss values should be calculated at the nominal measurement wavelength of 1300 nm for MMF and 1310 nm for SMF, not 1269 nm. Channel loss is not measured thru the offset launch cord, so reference to it is inappropriate and confusing.

SuggestedRemedy

Reflect loss values calculated at 1300 nm for all MMF and 1310 nm for SMF. Restate footnote as such. Delete reference to offset cord.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Issue 1:
The objective of Table 53-13 is to provide information to the system installer on allowed cabling characteristics. Since the test equipment used by installers to test Channel insertion loss is at a fixed wavelength of 1300 nm, this table needs to be adjusted to provide information to the installer at this wavelength. This may cause the values in Table 53-13 to differ slightly from the values in Table 53-9.

Table 53-13 Changes:
Channel insertion loss: 1.95, 1.86, 1.95, 6.0
Additional insertion loss allowed: 0.4, 0.1, 0.0, 0.7

Issue 2:
Add to footnote to table 53-13:

"Channel insertion loss is specified from TP2 to TP3 in Figure 53-2. The total insertion loss, when including the attenuation of the offset launch patch cord, is allowed to be 0.5 dB higher than shown in the table."

Cl **53** *SC* **53.14.2.1** *P* **514** *L* **39** # **10**

Steve Swanson Corning Incorporated

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

Consistent with the convention used for SMF connector and splice loss, specify a total connection and splice loss for MMF rather than maximum and individual connector loss. An example is OK but as long as the 1.5 dB total connector and splice loss is met, it isn't necessary to specify maximum individual connector insertion loss values.

SuggestedRemedy

Delete "..., or two connections (as shown in Figure 53-15) with a maximum insertion loss of 0.75 dB."

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.14.3** *P* **515** *L* **14** # **369**

Paul Kolesar OFS Fitel

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

This reference should be part of the alphabetical list as item b). The present item b) should become item c).

SuggestedRemedy

Add alpha identifier b) preceding entry. Make present item b) item c).

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.14.3** *P* **515** *L* **14** # **368**

Paul Kolesar OFS Fitel

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

IEC has changed the numbering scheme for connector performance specifications, making the present references to drafts for both MM and SM connectors obsolete.

SuggestedRemedy

Replace "IEC 61753-3-2, Fibre optic passive component performance standard - Part 3-2" with "IEC 61753-021-2 - Fibre optic passive components performance standard - Part 021-2".
Replace "IEC 61753-3-3, Fibre optic passive component performance standard - Part 3-3" with "IEC 61753-022-2 - Fibre optic passive components performance standard - Part 022-2". The rest of their titles remain as is.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.15.3** *P* **517** *L* **29** # **353**

Jonathan Thatcher World Wide Packets

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

"*MD" is used as major item here. "MDIO:" is used in other tables.

SuggestedRemedy

Recommend changing "MD" to "MDIO" in this table. Make sure change is consistent with same issue in clause 52.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.15.4** *P* **518** *L* **40** # **354**

Jonathan Thatcher World Wide Packets

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

"O:MDIO" should be "MDIO:O"; ditto in other PICs tables.

SuggestedRemedy

Fix.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.15.4.3** *P* **519** *L* **30** # **144**

Dallesasse, John Molex

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

Item MR4 refers to FN14. There is no FN14.

SuggestedRemedy

This is supposed to refer to FN12. Correct the text.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.7** *P* *L* # **1001**

Eric Grann

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

The RIN increase from -120dB to -121dB is not necessary. There is margin left in the link model.

There is also margin left for the single mode case.

SuggestedRemedy

Change table 53-7 line 37 to read -120dB/Hz

Change the following in Table 53-8
Receive sensitivity (OMA) from 32.7 (-14.85) to 35.9 (-14.45)
Stressed receive sensitivity (OMA) to 89 (-10.5) and 45.7 (-13.4)

Change the following in Table 53-9
Link Budget for SMF to 8.2dB
Allocation of penalties to 5.0, 5.5, 5.5, 1.9
Additional insertion loss allowed to 0.5, 0.1, 0, 0.1

Change the following in Table 53-13
Channel insertion loss (max) to 2.4, 2.0, 2.0, 6.6

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.7.1** *P* **494** *L* **30** # **362**

Paul Kolesar OFS Fitel

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

The transmit power values in Table 53-7 do not properly account for the insertion loss of the mode conditioning patch cord on the transmit power levels into MMF. The transmitter specification is defined for power exiting a mode conditioning cord at TP2. Because the transmitter output power is measured thru the mode conditioning cord, the 0.5 dB max loss of this component must be accounted for in the minimum transmitter output power specification, as was done for 1000BASE-LX. If this loss is already included in the allocation for penalties in Table 53-9, it should be subtracted out to offset the equal reduction in power budget.

SuggestedRemedy

Split the optical modulation (min) row into MMF and SMF parts. Subtract 0.5 dB from the MMF "OMA per lane (min)" values. If the offset cord loss is included in the allocation for penalties in Table 53-9, subtract it out and remove the related footnote. This should lower the allocation for penalties by 0.5 dB for all MMF cases. Reflect the new power budget values for MMF in Table 53-9. These should be 0.5 dB lower for all MMF cases.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The 0.5 dB attenuation has been included in Version 3.1.16a of the link model spreadsheet (connection and splice losses). Since the power values in Table 53-7 are specified at TP2, a column should be added per the suggested resolution that splits out MMF.

The following value changes will be made to Table 53-7:
OMA (min): -6.75 dB

It should be noted that the max values do not change since the attenuation of the patch cord may be less than 0.5 dB.

All other values in Table 53.7 remain the same.

A footnote will be added to the table:
"Transmitter values are specified at TP2. For MMF, the values in the above table include a 0.5dB attenuation for the offset launch patch cord."

In Table 53-9, the values for MMF in the "Link power budget" row will be reduced by 0.5dB to 7.5dB. In the footnote pertaining to the offset launch patch cord at the bottom of this table, the parenthetical text "(an additional 0.5dB connection loss is used in the link model)" will be removed.

Other values, including "Lane insertion loss, Allocation of penalties, and Additional insertion loss allowed" are currently correct, but will be adjusted per Comments 364 and 281.

Cl **53** *SC* **53.7.2** *P* **495** *L* **4** # **289**

Lindsay, Tom — Stratos Lightwave

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

Why is the comment here about center of the eye? Does this apply to VECP?

SuggestedRemedy

Remove sentence about eye center. Also remove eye center sentence from first footnote.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.7.3** *P* **496** *L* **11** # **363**

Paul Kolesar — OFS Fitel

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

Inconsistent terminology.

SuggestedRemedy

Change "Lane insertion loss" to "Channel insertion loss". This is consistent with terminology used elsewhere (clause 52 for example) and relates directly to the cabling description.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.7.3** *P* **496** *L* **13** # **364**

Paul Kolesar — OFS Fitel

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

"Allocation of penalties" shows inconsistent and insufficient allocation for modal noise penalty. The 10GBASE-LX4 uses 1300-nm window optics on MMF. As such it should allocate the same amount of power for modal noise as 1000BASE-LX. Present allocation for all MMFs is believed to be 0.3 dB in the link model. 1000BASE-LX allocated 0.5 dB for 62.5 um fiber and 1.0 dB for 50 um fiber.

SuggestedRemedy

Increase allocations for modal noise penalty to 0.5 dB for 62.5 um fiber and 1.0 dB for 50 um fibers. Recalculate link distance capability or adjust transmitter and receiver specifications to support the same distances with the larger penalty allocations.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The link model spreadsheet includes a new penalty, Pcross, that was not included in the 1000Base-LX link model. In order partially offset this new penalty, MPN was reduced. Since the reduction to 0.3 may have been too aggressive, the MPN has been increased to 0.8 for 50 micron core fiber, and 0.5 for 62.5 micron core fiber. With this change, Pcross for 50 micron core fiber is 0.33dB.

In order to accommodate these changes, the following changes were made to the link model spreadsheet:

1) DJ=DCD (14 ps) per the changes that were made by the serial PMDs.
2) RIN(OMA) to -121dB

The following changes will be made in the text:

1) Table 53-7:
RIN(OMA) to -121

2) Table 53-8:
Stressed receive sensitivity (OMA): -10.6, -13.8
Vertical eye closure penalty: 3.71, 1.09

3) Table 53-9:
Lane insertion loss: 2.0, 1.9, 2.0, 6.2
Allocation of penalties: 5.1, 5.5, 5.5, 2.1
Additional insertion loss allowed: 0.4, 0.1, 0.0, 0.3

Cl **53** *SC* **53.7.3** *P* **496** *L* **21** # **365**

Paul Kolesar OFS Fitel

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

Present ** footnote unclear.

SuggestedRemedy

Change footnote to reflect identical wording of clause 52.5. Footnote becomes: "This portion of the link budget is permitted to be used to overcome insertion loss higher than the "Channel insertion loss" value.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.8.1.1** *P* **497** *L* **35** # **101**

Dudek, Mike Cielo Communications

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

The PMD of clause 53 has to operate over both single mode fiber and multimode fiber and therefore Tx jitter should be tested for both cases.

SuggestedRemedy

Add an extra sentence at the end of 53.8.1.1 "The transmitter shall also be tested for multimode fiber use using the multimode simulation channel defined in 53.9.10.1

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.8.2.1** *P* **497** *L* **50** # **102**

Dudek, Mike Cielo Communications

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

The 0.2dB higher than the stressed receiver sensitivity applied when sinusoidal jitter was added after the calibration of the ISI. The revised method in this draft calibrates the ISI the same way as clause 52 with the sinusoidal jitter already added. Hence the test should be made at the stressed receiver sensitivity OMA.

SuggestedRemedy

Delete "0.2dB higher than"

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See Comment 277.

Cl **53** *SC* **53.8.2.1** *P* **497** *L* **50** # **277**

Lindsay, Tom Stratos Lightwave

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

This subclause is out of date and no longer relevant. It should have been removed when the decision was made to replace DJ with SJ (instead of add) during Rx testing.

SuggestedRemedy

Remove subclause.

Response *Response Status* **C**

ACCEPT.

The addition of the 0.2dB assumes that the added TJ and DJ jitter brings the test signal within the input jitter mask, and then sinusoidal jitter is applied. With this change, the test signal lies just within the input jitter mask, including the added sinusoidal jitter.

(Note: Verification that any text describing this in Draft 4.0 of Clause 52 that differs from Clause 53 should be done.)

Cl **53** *SC* **53.8.2.2** *P* **498** *L* **44** # **351**

Jonathan Thatcher World Wide Packets

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

Should slope be -20 dB/decade?

SuggestedRemedy

Check and fix if needed

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Text as Follows:

"It shall have a high frequency corner of less than or equal to 1.3 MHz and a slope of -20dB/decade."

Cl **53** *SC* **53.9** *P* **499** *L* **38** # **284**

Lindsay, Tom — Stratos Lightwave

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

Clause 48A details several patterns. Clause 53 needs to refer to specific patterns for each test. It is unacceptable to leave up to the tester to choose which pattern - they will produce largely different results.

SuggestedRemedy

Specify the test pattern for each test. This can be done in a table (per clause 52) and/or in each test section. Jitter, eye mask, sensitivity, Rx BW, optical power, optical spectrum should use CJPAT.

OMA, RIN, ER, rise/fall should use a low frequency square wave pattern (K28.7).

My lists may not be complete...

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The use of CJPAT requires that the device under test be driven with a MAC or other equipment capable of generating ethernet frames. Testing of 8B10B based transceiver products has traditionally been done using standard test patterns readily available from conventional bit error rate testers. Other standards specifiying CJPAT have made its use optional, rather than mandatory. Additionally, silicon currently available will not support this test pattern for 10GBASE-LX4 transceivers.

Add to the end of Section 53.9:

"It is recommended that wavelength measurements, RIN measurements, optical power measurements, source spectral window measurements, extinction ratio measurements, optical modulation amplitude measurements and transmit rise/fall characteristics be performed using a low-frequency square-wave pattern (K28.7).

"It is recommended that the receiver 3dB electrical upper cutoff frequency characterization be performed using CRPAT or another reasonable mixed frequency pattern."

Furthermore, it is recommended that the transmitter optical waveform, receive sensitivity measurements, transmitter jitter conformance tests, stressed receiver conformance tests, and jitter tolerance measurements be characterized using CJPAT."

"The recommendations of specific test patterns are provided in an effort to meet the overall objective of ensuring compliance of the standard under any and all valid data patterns."

Cl **53** *SC* **53.9.10.3** *P* **504** *L* **19** # **142**

Dallesasse, John — Molex

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

10^-4 is split between lines 19 and 20

SuggestedRemedy

If possible, keep this together.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The final editing of the document will be done by IEEE editors.

Cl **53** *SC* **53.9.13** *P* **506** *L* **27** # **352**

Jonathan Thatcher — World Wide Packets

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

Why is MMF required in this test. Shouldn't the Rx cutoff frequency be independent of fiber type? This would make the measurement error less sensitive to changes in the fiber path.

SuggestedRemedy

If so, change MMF to SMF

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **53.9.14** *P* **508** *L* **13** # **143**

Dallesasse, John — Molex

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

There should be a space in 2.34GHz between 2.34 and GHz.

SuggestedRemedy

Add the space.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

The final editing of the document will be done by IEEE editors.

Cl **53** *SC* **53.9.6** *P* **500** *L* # **285**
Lindsay, Tom Stratos Lightwave

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

RIN filter is not specified adequately.

SuggestedRemedy

Specify that the high end of the filter should be = 3.125 GHz (not 10GHz). See clause 52 for example wording.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Figure 53-15** *P* **513** *L* # **283**
Lindsay, Tom Stratos Lightwave

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

Figure shows patch cords going both directions. The patch cords are only for MMF and only in the Tx end. Neither fact is clear in this picture.

SuggestedRemedy

Clarify figure. See other comment about whether patch cords are part of the cable plant or transmitter.

Response *Response Status* **C**

REJECT.

Cl **53** *SC* **Figure 53-5** *P* **499** *L* **35** # **278**
Lindsay, Tom Stratos Lightwave

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

Frequency values should agree with XAUI (see clause 47) and based on CDR technologies. These values do not need nor want to track the serial PMD methods because they involve different coding schemes.

SuggestedRemedy

Change 1.3 MHz to 1.875 MHz (baud/1667). Change 13 kHz to 18.75 kHz. Check this globally throughout the clause.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Table 53-11** *P* **499** *L* **13** # **279**
Lindsay, Tom Stratos Lightwave

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

Frequency values should change per another comment.

Also, in any case, the wrong value is in the equation in the second column.

SuggestedRemedy

Change 13 to 18.75 and 1.3 to 1.875, all places, per the other comment.

Change the equation numerator to 93750. If frequency changes are not accepted, the numerator is still wrong.

Response *Response Status* **C**

ACCEPT.

Cl **53** *SC* **Table 53-3** *P* **489** *L* **26** # **141**
Thomas Mathey Independent

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

Clause 45.2.1.2.2 Receive link status for bit 1.1.2 has a definition of "PMA locked to receive signal". There is no text in clause 53 is support this bit. This bit is used by 30.5.1.1.4 aMediaAvailable.

SuggestedRemedy

Add text to Table 53-3; add text to a new subclause such as 53.4.x PMD receive link status with text "See 45.2.1.2.2".

Response *Response Status* **C**

REJECT.

Clause 53 describes the PMD sublayer, not the PMA layer. It is outside of the scope of this Clause to discuss status bits associated with the PMA layer. Clause 53 and 52 are consistant in this treatment of the PMA status bits.

(Note: The correct link status bit corresponding to Clause 53/48 is 3.1.2 - PCS receive link status.)

Cl **53** *SC* **Table 53-4** *P* **491** *L* # **288**
Lindsay, Tom Stratos Lightwave

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

Definitions have been modified in clause 52 and are appropriate here.

SuggestedRemedy

Update per clause 52.

Response *Response Status* **C**

ACCEPT.

Coordinate with clause 52.

Cl **53** *SC* **Table 53-8** *P* **495** *L* # **280**

Lindsay, Tom — Stratos Lightwave

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

Several values do not match the spreadsheet.
Rx sensitivity, stressed sensitivity, and VECP; both SMF and MMF.

Also, why is the sensitivity tougher for SMF - is this because better optical coupling is assumed?

Also, I get 5.5 dB for allocation of penalties for MMF in Table 53-9.

SuggestedRemedy

Please double-check values.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Values have been updated.

Cl **53** *SC* **Table 53-9** *P* **496** *L* # **281**

Lindsay, Tom — Stratos Lightwave

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

The LX4 proposal is attractive for Fibre channel applications. However, FC applications run 2% faster, and spreadsheet analysis shows ~0.2 dB negative margin if all other parameters are kept fixed.

SuggestedRemedy

Please make power budget or other changes as appropriate to yield non-negative margin for FC applications. Suggestions include more Tx power, better Rx sensitivity, or following the clause 52 approach for "W" in the spreadsheet.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Update numbers, adjust DJ. (Cell G7)

Cl **53** *SC* **Table 53-9** *P* **496** *L* **14** # **286**

Lindsay, Tom — Stratos Lightwave

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

Additional insertion loss values do not look correct? Looks like they be at least 0.3 dB. How were they determined?

SuggestedRemedy

Please double check values.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Values will be adjusted per changes.

Cl **53** *SC* **Table 53-9** *P* **496** *L* **17** # **9**

Steve Swanson — Corning Incorporated

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

The current footnote text implies the same allocation for connectors and splices for MMF and SMF. are allocated a total 1.5 dB total loss. SMF connectors and splices are allocated 2.0 dB as discussed in 53.14.2.1, line 43, page 510.

SuggestedRemedy

Make footnote text consistent with footnote 2 of Table 52-10 (Page 447) or insert text in this footnote clarifies that 2.0 dB is allocated for total connector and splice loss for SMF.

Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Add text to footnote on Table 53-9:

"plus an allocation of 1.5dB for MMF and 2.0dB for SMF for"