

P802.3ae Draft 4.2 Comments

Cl 00 SC P L # 450001

Ed Turner

Comment Type E Comment Status R IEEE Editor

Clause 45 has changed all the capitalization of register names to lower case in line with comment #336 on D4.0. This has led to inconsistent capitalization of register names throughout the document.

*SuggestedRemedy*

Decide whether register names are to be capitalized (eg '10G WIS Far End Path Block Error Count') or not (eg '10GWIS far end path block error count).

Apply across the document.

Note that Clause 22 does not set precedent since some are capitalized and some are not.

Response Response Status C

REJECT.

This will be deferred to the IEEE editor during publication.

Cl 00 SC P L # 304

Booth, Brad

Intel

Comment Type T Comment Status A Clause 52

Submitted on behalf of Mark Nowell, Cisco against clause 52 & 53.

The methodology adopted in Clauses 52 and 53 for specifying the optical interfaces, while technically sound, has the potential to cause a number of operational issues in the field. By moving to a specification based on OMA rather than average power and extinction ratio, it is removing the one measurable quantity in the specification that can be, and is, used in the field. The way the specification is written, assumes a rather sophisticated level of test equipment and expertise to check compliance of the optical interface to the standard. While this level of sophistication exists within the module manufacturers and the engineering departments in the equipment manufacturers, it is less likely to exist elsewhere and especially at the end-users installations.

The use of power meters is predominant in the installation and maintenance of optical links. In discussions with my own site's IT group, during installation the first thing they check is the transmit power. Then they check the power at the end of the link going into the receiver. They check these against the spec and if they are within spec they proceed to the next steps. Similarly, during a maintenance issue, the first thing that is measured are the power levels again. If those are in spec then the debug process moves on to look deeper for the cause of the issue. However, they typically find that 90% (!!) of these issues are resolved at this point by identifying cable issues (dirty connectors etc.).

The way the specification is written, that simple installation/debug checking ability is no longer available. It is suggested that some specification be added to the PMD characteristics to allow users armed with simple power meters to roughly check the performance.

It is difficult to propose a specific resolution to this, given the considerable work that has gone into developing the specifications to this point. I would leave this to the committee to determine the best course of action. One suggestion though is that, as a minimum, some informative specifications be added indicating average power levels that should be expected to be measured at TP2 and TP3.

This comment is applicable to all PMDs in clauses 52 and 53.

*SuggestedRemedy*

see comment

Response Response Status C

ACCEPT IN PRINCIPLE.

See response to comment #77 of D4.2.

P802.3ae Draft 4.2 Comments

CI 00 SC 45.2.1.7.5 P L # 303

Dawe, Piers Agilent

Comment Type E Comment Status A Clause 52

45.2.1.7.5 Receive fault (1.8.10) says  
 "When read as a one, bit 1.8.10 indicates that the PMA/PMD has detected a fault condition on the receive path."  
 while  
 52.4.9 PMD\_receive\_fault function says: "... mapped to the PMD\_receive\_fault bit as specified in 45.2.1.7.5."

*SuggestedRemedy*

I don't think these are compatible. Either it's PMA/PMD receive fault or it's PMD receive fault (whatever either means). If the former, "mapped to" is too strong: "contributes to" would be better.

Response Response Status C

ACCEPT.

This comment is against clause 52.  
 Change 52.4.9 PMD\_receive\_fault function to read: "... contributes to the PMA/PMD receive fault bit as specified in 45.2.1.7.5."

CI 00 SC 52.14.4 P 487 L 34 # 301

Thaler, Pat Agilent

Comment Type E Comment Status A Clause 52

We still have some normative references to standards that we haven't added to 1.3 Normative references. See the page above for examples.

*SuggestedRemedy*

Review the draft to for normative references to standards not in the current 1.3 and add to 1.3.

Response Response Status C

ACCEPT.

Verify all references in Clause 52. Highlight references that need to be added to 1.3 to Editor-in-Chief.

CI 00 SC 52.4.9 P 458 L 6 # 106

Dawe, Piers Agilent

Comment Type TR Comment Status R Clause 52

This appears to be a change without a mandate, nor, as far as I can understand it, a good reason. The change does not enable something which was previously forbidden but it excludes something which was previously allowed, and which makes sense.

A long time ago when we generated the "Tom Alexander" diagram (now Figure 44A-7) we had an agreement that hard-wired instantaneous signals such as PMA\_Signal.indicate going up the layer stack would carry a one-bit summary of several bits of information beneath, while the information going out of the side of the stack, to the station management via the MDIO, would be unadulterated so that the station management systems, or humans, could diagnose the situation.

But at the last meeting, text in 52.4.6 PMD\_fault function was changed from "The faults detected by this function are implementation specific." to "PMD\_receive\_fault is the logical OR of NOT SIGNAL\_DETECT and any implementation specific fault." Neither D4.0 comment #270 nor D4.1 comment #88 justifies this change. D4.0 comment #270 does not apply - apart from to the names - it is addressing the signalling up the stack, as referred to above. There is no mandate for this change.

Equally importantly, customers may not want to do it this way. Now a user who finds a PMD\_receive\_fault register asserted needs to find a known good optical signal to apply to his PMD before he knows whether to take any notice of it. The "OR logic" is destroying information; the PMD signal detect is already in its own MDIO register. Much diagnostics is outside the scope of the standard, but obstructing diagnostics should be too.

This is an area where more flexibility is better - look at the range of alarm-masks and so on in the MSAs. We can let implementers and users go with their own preferences. Especially when we are trying to close this standard, we should not make unwarranted changes.

*SuggestedRemedy*

Revert to previous sentence: "The faults detected by this function are implementation specific." And, add "The status of SIGNAL\_DETECT may or may not be taken into account."

Response Response Status C

REJECT.

The fault bit in status 1 (1.1.7) includes all fault indications including signal detect. The logical OR is not destroying information. If the fault bit is asserted and the signal detect (1.9.0) is not, then there is another fault within the PMA/PMD and vendor specific registers can be used to provide implementation specific information related to the other fault. If the fault bit and the signal detect bit are asserted, then the fault is with the reception of the signal which is considered the critical fault in this situation. All other faults in this situation are implementation specific.

This issue was debated extensively in St. Louis, and the task force accepted this resolution. Furthermore, your TR comment with this change in the response was re-circulated and there have been no other comments submitted against this change.

Vote:

P802.3ae Draft 4.2 Comments

Y: 8 N: 1

CI 00 SC 52.9.1.1 P 468 L 44 # 300

Thaler, Pat Agilent

Comment Type TR Comment Status A

If our plan is for the next recirculation ballot to be the last, then editor's notes such as this one which imply that we believe we aren't done yet. Also, a number of editor's notes don't contain the normal full heading for editor's notes: "Editor's note: To be removed prior to final publication." so there is a risk that this note will stay in if we approve the standard with it there. This comment also applies to the following editor's notes: 52.9.8 page 475 (TR on this note as it indicates we intend to potentially make a substantive change and we need to have finished such changes to be done), 52.14.2.1 page 486, 52.14.4 page 487 (TR on this note as it indicates we have a normative reference to things that we don't expect to be standards at the time of publication).

SuggestedRemedy

Delete the notes or at a minimum add "To be removed prior to final publication. For the note at 52.14.2.1, either delete the text that it says should be removed before publication or move the text to the editor's note in place of the current note text." For note at 52.14.4, verify whether we can have a normative requirement to meet an existing standard or future standards and add the standards/pre-standards here to 1.3.

Response Response Status C

ACCEPT.

Editor-in-Chief to ensure all editor's notes conform or are removed.

CI 00 SC 52-14 P Tables 52.2 L # 302

Bruce Tolley Clsco

Comment Type E Comment Status R

In regard to ease of use, it is very hard to find the exact type of fiber and specific attenuator recommended to achieve the 40 km objective. Table 52.24 has a foot note which points to Table 52.24 which has a foot note that points to clause 52.14.3 which points to a figure 52-15 on attenuator management.

SuggestedRemedy

Please make specific recommendation (s) in one location about SM fiber cable type and attenuators needed to achieve 40 km objective. Please state something more specific than that the fiber needs to be better than B1.1 or B1.3

Response Response Status C

REJECT.

The information required to build a 40 km link is available. As in footnote a for Table 52-15, the attenuation on the 40 km link needs to be better than the attenuation on B1.1 and B1.3 single-mode fiber. The attenuation of these engineered links needs to be managed to comply with attenuation requirements specified in 52.14.3. If very low attenuation fiber is used, the link may require insertion of attenuators to be compliant with 52.14.3.

CI 00 SC All P L # 140

Dawe, Piers Agilent

Comment Type E Comment Status A

When I wrote my comments # 81-83 to D4.1, I was expecting that each PICS would be self contained. Hence if an interface was used by two clauses, there would be similar PICS for each clause. I pointed at XSBI but the point is more general. I was told that it doesn't work that way. However, this is not obvious to the reader; the chain of cross-references is very weak and easily overlooked. But there is an easy fix: refer to one PICS table from another. For example, 50.6.3 has an optional \*XSBI, similarly 49.3.3. Each of these can refer to 51.10 as well as 50.3.6 and 49.1.5.

SuggestedRemedy

Once per "borrowed" interface per clause, refer to the PICS master for that interface.

By the way 51.10.3 should have \*XSBI - note the \*.

Response Response Status C

ACCEPT IN PRINCIPLE.

The use of asterisks should comply with 21.6.6. Asterisk is required by each item whose reference is used in a conditional symbol.

Make the following changes in Clause 46:

- 46.5.2.3, delete item B, deleted item \*XS, add \* to RS, and rename \*EL to \*XGE
- Change status to place the following items in the PHY package: G1, FS10, FS11, FS12; and update the support fields to include N/A[ ]
- Change status to place the following items in the RS package: G2, PL1-13, DS1-4, FS3, FS5, FS7, FS14, FS16-17, LF1-5; and update the support fields to include N/A[ ]
- Change status to place the following items in the XGE package: FS1-2, FS4, FS6, FS8-9, FS13, FS15, EC1-4; and update the support fields to include N/A[ ]
- Change text in 46.3.2.3 on line 5 from "encoded" to "decoded by the RS"
- Add the following note after 46.5.3.4 heading: "NOTE - An XGXS adjacent to an RS exhibits the characteristics of a PHY for the items in this subclause, and an XGXS adjacent to a PCS exhibits the characteristics of an RS for the items in this subclause."

Make the following change to Clause 47 (47.6.3):

- change \*XGM entry to be: "XGE; XGMII compatibility interface; 46, 47.1.4; Compatibility interface is supported; O; Yes[ ] No[ ]"
- add "45" to subclause reference for MD item

Make the following change to Clause 48 (48.7.3):

- change MD item feature to be "MDIO" and subclause to be "45, 48.1.3.1"
- change XGXS item subclause to be "47, 48.1.5"
- change XGMII item to be "XGE" and the subclause to be "46, 48.1.3.1"
- change LX4 item subclause to be "53, 48.1.3.3"

Make the following change to Clause 49:

- in 49.3.3, change items "\*\*XSBI", "\*\*XGM", "\*\*MD", "\*\*PMA" to read "XSBI", "XGE", "MD", "PMA" respectively
- in 49.3.5, change item "JT5" to read "\*\*JT5"

P802.3ae Draft 4.2 Comments

Make the following change to Clause 50 (50.6.3):  
 - change item \*XSBI to be "XSBI ; XSBI compatibility interface; 51, 50.3.6; Compatibility interface is supported; O; Yes[ ] No[ ]"

Make the following change to Clause 51:  
 - in 51.10.3, change "XSBI" to "\*\*XSBI"

Make the following change to Clause 52:  
 - in 52.15.4.1, change FS7 status from "MDIO:M" to "MD:M"

Make the following change to Clause 53:  
 - in 53.15.3, remove asterisks from the following items: LX4, OFP, TP1, TP4 and DC; change \*MDIO to \*MD  
 - in 53.15.4.1, change MDIO:O in FN11 and FN12 to be MD:O  
 - in 53.15.4.3, change O:MDIO to be MD:M in MR1, and MD:O in MR2, MR3, MR5, MR6 and MR7

Cl 00	SC Table 51-12	P 444	L 6	# 96
Geoffrey Garner		Lucent Technologies		
Comment Type	TR	Comment Status	R	comment 96

Comments #99046 and #99048 of D4.1 (formerly comments #11 and #12, respectively, of D4.0) state that the +/- 100 ppm clock tolerance currently specified for the 10GBASE-LW and 10GBASE-EW receivers (in Tables 52-14 and 52-18, respectively) 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. Both comments indicate that, 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 comments state that the receiver specification should be changed to what is required in line with the transmitter and transport network specification.

The response to these comments was REJECT, with a reference to the comment #93 response; this response simply indicated that this is consistent with clauses 46-51, and would be a flip-flop after much discussion to set the receiver tolerance to +/- 100 ppm. This response does not address the technical issue raised in the comments. The fact is that the +/- 100 ppm receiver tolerance is much more stringent than is needed for the +/- 20 ppm transmit tolerance spec.

The suggested remedy in both comments #99046 and #99048, to change the required receiver tolerance to +/- 20 ppm, would result in a less costly receiver design that would work with the transmitter specification. The design would be less costly because the receiver clock tolerance is essentially a spec on the receiver phase-locked loop pull-in range; making the pull-in range unnecessarily large results in the design being more costly than it needs to be.

This issue was discussed in the March 26, 2002 serial PMD call. The commenter raised the issue there because the comments were against clause 52, and they were against clause 52 because the relevant tables that contain the receiver clock tolerance (Tables 52-14 and 52-18) are in clause 52. Nonetheless, the members of the serial PMD group on the call said that the optics group does not really have the expertise or the strong opinions on this matter, and this would be better raised as a comment against "clause 00" for discussion in the larger group. Therefore, the present comment is against "clause 00".

It also was stated in the March 26, 2002 serial PMD call that changing the receiver clock tolerance to +/- 20 ppm would also require changes to clause 51. Examination of clause 51 does indicate that receiver clock tolerance is also given in Table 51-12. The present comment indicates that the entry for 10GBASE-W in Table 51-12 on Line 6, p. 444, should be changed from 622.08 MHz+/-100ppm to 622.08 MHz+/-20ppm.

This is in addition to the changes to Clause 52, Tables 52-14 and 52-18 already indicated in Comments #99046 and #99048. Finally, note that the original comment that gave rise to the change to the WAN PHY transmit clock tolerance, comment #661 of D3.0, indicated that the 622.08 MHz+/-100ppm in what was then Table 51.6 of D3.0 should be changed to 622.08 MHz+/-20ppm, and that analogous changes should be made to Tables 52-7, 52-9, 52-12, 52-14, 52-17, and 52-18. The clause 52 tables include the transmit and receive specs. The clause 51 table pertains only to the transmit spec; however, D3.0 did not have a clause analogous to Clause 51.7.2 in D4.2, nor a Table analogous to Table 51-12 in D4.2. The statements in Comment #661 of D3.0 at least indicate that the intent of this comment was to change both the 10GBASE-W transmitter and receiver clock tolerances from +/-100ppm to +/-20ppm. The response to this comment indicates ACCEPT, with the comment re-issued as #44000 and 44001 to permit clause 51 and 52 editors to track closure of the comment.

*SuggestedRemedy*

P802.3ae Draft 4.2 Comments

Make the changes to Tables 52-14 and 52-18 already indicated in Comments #99046 and #99048, to change the 10GBASE-LW and EW receiver specs to +/-20ppm. Change 622.08 MHz+/-100ppm to 622.08 MHz+/-20ppm in Table 51-12.

*Response*                      *Response Status*   **W**  
REJECT.

This comment has been ruled as not a new comment. This comment was submitted against Clause 52 in D4.0 by the commenter, and the comment was rejected. The comment was recirculated and the draft has remained approved through the D4.1 and D4.2 recirculations.

Input from other PLL designers is that +/- 100 ppm doesn't impact the cost of the PLL design. The assumption that +/- 20 ppm would always occur at the receiver is invalid. One possible application for increased receive clock tolerance is the mapping and demapping of 10GBASE-W into a SONET/SDH payload.

Historically, Ethernet has been liberal on what they receive and conservative on what they transmit. The support for the current tolerances is indicative of support for this philosophy.

*Cl* **01**      *SC* **1.3**                      *P* **4**                      *L* **51**                      # **156**  
Thaler, Pat                                      Agilent

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

Delete the refernece on to INCITS T11 Project 1413-D. One can not have a normative reference to a project and we do not reference that project normatively in the body of the standard.

*SuggestedRemedy*

Either delete the reference (my preference as the information is too transitory to put into a standard - the group is expected to finish that project within months of when we finish ours so the reference could be out of date before we are published) or move it to Annex A (informative) Additional references.

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

The reference will be deleted.

*Cl* **01**      *SC* **1.4**                      *P*                      *L*                      # **78**  
Dawe, Piers                                      Agilent

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

Need a definition of primitive for the glossary (comment D4.1 #62 refers). This seems to be a computer science term; is it defined in the ISO OSI seven layer material? Or in a computer science textbook? If no-one can help, here's my suggestion:

*SuggestedRemedy*

"Service primitives are described in 1.2.2."

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

This is beyond the scope of this recirculation ballot. The task force recommends that the commenter submit a maintenance request.

*Cl* **01**      *SC* **45.2.3.6**                      *P* **198**                      *L* **18**                      # **5**  
Tim Warland                                      Quake Technologies

*Comment Type*   **E**                      *Comment Status*   **A**  
First occurrence of PRBS31 is not defined

*SuggestedRemedy*

Define PRBS31 in section 1.5  
PRBS31 = 2 147 483 647-bit pseudo-random test sequence as defined by (ITU O.150 | Section 49.2.8)

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

Add a reference to subclause 49.2.8 in the first mention of PRBS31 in Clause 45 as follows -

In subclause 45.2.2.6.1 'PRBS31 receive test pattern enable (2.7.5)' change the text '.. the optional PRBS31 pattern testing ..' to read '.. the optional PRBS31 (see 49.2.8) pattern testing ..'.

P802.3ae Draft 4.2 Comments

Cl 30 SC 30.5.1.1.4 P 60 L 25 # 98

David Law 3Com  
 Comment Type T Comment Status A

This comment is being submitted on behalf of C. M. Heard.

Gentlemen,

In the behaviour clause of aMediaAvailable (subclause 30.5.1.1.4), all of the referenced Clause 45 MDIO register bits have latching behaviour except for the 10GBASE-R PCS high BER status bit (45.2.3.11.3). Was this intended? There does exist a latching version of this bit—the 10GBASE-R PCS latched high BER status bit (45.2.3.12.2). In at least one other case a latching status bit—the PHY XS transmit link status bit (45.2.4.2.2) -- was selected over an equivalent non-latching status bit—namely the PHY XGXS transmit lane alignment status bit (45.2.4.8.1).

*SuggestedRemedy*

Sent by: "C. M. Heard" <heard@pobox.com>  
 To: Dan Romascanu <dromasca@avaya.com>, David Law/GB/3Com@3Com  
 cc:  
 Subject: Was reference in 30.5.1.1.4 to non-latching MDIO intended?

Gentlemen,

In the behaviour clause of aMediaAvailable (subclause 30.5.1.1.4), all of the referenced Clause 45 MDIO register bits have latching behaviour except for the 10GBASE-R PCS high BER status bit (45.2.3.11.3). Was this intended? There does exist a latching version of this bit—the 10GBASE-R PCS latched high BER status bit (45.2.3.12.2). In at least one other case a latching status bit—the PHY XS transmit link status bit (45.2.4.2.2) -- was selected over an equivalent non-latching status bit—namely the PHY XGXS transmit lane alignment status bit (45.2.4.8.1).

In case you think that it is desirable to change the reference to the latching status bit I have indicated below the changes to the text that would do this. There are also some places in the surrounding text where I have changed the capitalization to match Clause 45.

Where a Clause 45 MDIO interface is present a logic zero in the PMA/PMD Receive link status bit (45.2.1.2.2) maps to the

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 receive  
 enumeration "PMD link fault", a logic one in the LOF status bit (45.2.2.10.4) maps to the enumeration "WIS frame loss", a logic one in the LOS status bit (45.2.2.10.5) maps to the enumeration "WIS signal loss", a logic zero in the PCS Receive link status

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 receive  
 bit (45.2.3.2.2) maps to the enumeration "PCS link fault", a logic one in the 10GBASE-R PCS high BER status bit (45.2.3.11.3)

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 latched high BER status bit (45.2.3.12.2)  
 maps to the enumeration "excessive BER", a logic zero in the DTE XS receive link status bit (45.2.5.2.2) maps to the enumeration "DXS link fault" and a logic zero in the PHY XS transmit

link status bit (45.2.4.2.2) maps to the enumeration "PXS link fault".

Response Response Status C  
 ACCEPT IN PRINCIPLE.

This is a duplicate of comment 99.

Cl 30 SC 30.5.1.1.4 P 60 L 25 # 99

David Law 3Com  
 Comment Type T Comment Status A

This comment is being submitted on behalf of C. M. Heard.

Gentlemen,

In the behaviour clause of aMediaAvailable (subclause 30.5.1.1.4), all of the referenced Clause 45 MDIO register bits have latching behaviour except for the 10GBASE-R PCS high BER status bit (45.2.3.11.3). Was this intended? There does exist a latching version of this bit—the 10GBASE-R PCS latched high BER status bit (45.2.3.12.2). In at least one other case a latching status bit—the PHY XS transmit link status bit (45.2.4.2.2) -- was selected over an equivalent non-latching status bit—namely the PHY XGXS transmit lane alignment status bit (45.2.4.8.1).

*SuggestedRemedy*

In case you think that it is desirable to change the reference to the latching status bit I have indicated below the changes to the text that would do this. There are also some places in the surrounding text where I have changed the capitalization to match Clause 45.

Where a Clause 45 MDIO interface is present a logic zero in the PMA/PMD Receive link status bit (45.2.1.2.2) maps to the

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 receive  
 enumeration "PMD link fault", a logic one in the LOF status bit (45.2.2.10.4) maps to the enumeration "WIS frame loss", a logic one in the LOS status bit (45.2.2.10.5) maps to the enumeration "WIS signal loss", a logic zero in the PCS Receive link status

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 receive  
 bit (45.2.3.2.2) maps to the enumeration "PCS link fault", a logic one in the 10GBASE-R PCS high BER status bit (45.2.3.11.3)

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 latched high BER status bit (45.2.3.12.2)  
 maps to the enumeration "excessive BER", a logic zero in the DTE XS receive link status bit (45.2.5.2.2) maps to the enumeration "DXS link fault" and a logic zero in the PHY XS transmit link status bit (45.2.4.2.2) maps to the enumeration "PXS link fault".

Response Response Status C  
 ACCEPT IN PRINCIPLE.

Accept that the reference should be changed to latched version of the register bit. As noted latching bits are used in preference to equivalent non-latching bit where available.

The capitalization issues is deferred to comment #450001.

P802.3ae Draft 4.2 Comments

Cl 30 SC 30.8.1.1.2 P 62 L 35 # 97  
 David Law 3Com

Comment Type T Comment Status A

The following is submitted on behalf of C. M. Heard.

In reviewing the changes in Clause 30 in P802.3ae/D4.2 some things caught my eye which up to now I had not noticed. Specifically, aJ0ValueTX, aJ0ValueRX, aJ1ValueTX, and aJ1ValueRX are all described as fixed-length 16 octet values in Clause 30, but the formal SYNTAX—given via the type definition JValue in 30B.2 -- allows an octet string of variable length from 0 to 15 octets. Similarly, aSectionStatus, aLineStatus, aPathStatus, and aFarEndPathStatus are all described as fixed length bit strings in Clause 30, but the formal SYNTAX allows a variable-length string. In order for the SYNTAX and BEHAVIOUR clauses to match, it would seem that the SYNTAX for all of these objects should be changed to indicate that they have fixed length. The affected subclauses are 30.8.1.1.2, 30.8.1.1.10, 30.8.1.1.18, 30.8.1.1.25, and 30B.2 (30.A.15.2 is not affected since it references the type definitions in 30B.2). Specific suggestions for changes are noted below. Please note: even if variable lengths were intended for the status objects, the maximum size for aFarEndPathStatus (30.8.1.1.25) is 2 while that for FarEndPathStatus (30B.2) is 8.

Regards,  
 Mike Heard

Suggested Remedy

30.8.1.1.2 aSectionStatus  
 ATTRIBUTE  
 APPROPRIATE SYNTAX:  
 BIT STRING [SIZE (1..2)] <<<< should be (SIZE (2))  
 BEHAVIOUR DEFINED AS: A string of 2 bits corresponding to the Section Status (50.3.2.5). The first bit corresponds to the Loss of Signal flag and maps to the LOS bit in the WIS Status 3 register. The second bit corresponds to the Loss of Frame flag and maps to the LOF bit in the WIS Status 3 register. If a Clause 45 MDIO Interface to the WIS is present, then this will map to the WIS Status 3 register specified in 45.2.2.10.;

30.8.1.1.10 aLineStatus  
 ATTRIBUTE  
 APPROPRIATE SYNTAX:  
 BIT STRING [SIZE (1..2)] <<<< should be (SIZE (2))  
 BEHAVIOUR DEFINED AS:  
 A string of 2 bits reflecting the Line status (50.3.2.5). The first bit corresponds to the Line Alarm Indication Signal flag and maps to the AIS-L bit. The second bit corresponds to the Line Remote Defect Indication flag and maps to the RDI-L bit. If a Clause 45 MDIO Interface to the WIS is present, then this will map to the WIS Status 3 register specified in 45.2.2.10;

30.8.1.1.18 aPathStatus  
 ATTRIBUTE  
 APPROPRIATE SYNTAX:  
 BIT STRING [SIZE (1..4)] <<<< should be (SIZE (4))  
 BEHAVIOUR DEFINED AS:  
 A string of 4 bits corresponding to the Path Status (50.3.2.5). The first bit corresponds to the Loss of Pointer flag and maps to the LOP-P bit, the second bit corresponds to the Alarm Indication Signal and maps to the AIS-P bit, the third bit corresponds to the Path Label

Mismatch flag and maps to the PLM-P bit and the fourth bit corresponds to the Path Loss of Cell Delineation flag and maps to the LCD-P bit. If a Clause 45 MDIO Interface to the WIS is present, then this will map to the WIS Status 3 register specified in 45.2.2.10;

30.8.1.1.25 aFarEndPathStatus

ATTRIBUTE

APPROPRIATE SYNTAX:

BIT STRING [SIZE (1..2)] <<<< should be (SIZE (2))

BEHAVIOUR DEFINED AS:

A string of 2 bits corresponding to the Far End Path Status (50.3.2.5). The first bit corresponds to the Far End Path Label Mismatch/Path Loss of Cell Delineation flag and maps to the Far End PLM-P/LCD-P bit, and the second bit corresponds to the Far End Path Alarm Indication Signal/Path Loss of Pointer flag and maps to the Far End AIS-P/LOP-P bit. If a Clause 45 MDIO Interface to the WIS is present, then this will map to the WIS Status 3 register specified in 45.2.2.10;

30B.2 ASN.1 module for CSMA/CD managed objects

JValue ::= OCTET STRING (SIZE (0..15)) <<<< should be (SIZE (16))

LineStatus ::= BIT STRING (SIZE (1..2)) <<<< should be (SIZE (2))

FarEndPathStatus ::= BIT STRING (SIZE (1..8)) <<<< should be (SIZE (2))

PathStatus ::= BIT STRING (SIZE (1..4)) <<<< should be (SIZE (4))

SectionStatus ::= BIT STRING (SIZE (1..2)) <<<< should be (SIZE (2))

P.S. The above assumes that the "APPROPRIATE SYNTAX" in Clause 30 is not required to be a valid ASN.1 type. If it is, then the phrase "OCTET STRING, 0 - 15" in subclauses 30.8.1.1.8 (aJ0ValueTX), 30.8.1.1.9 (aJ0ValueRX), 30.8.1.1.23 (aJ1ValueTX), and 30.8.1.1.24 (aJ1ValueRX) needs to be changed to "OCTET STRING (SIZE (16))".

Response Response Status C

ACCEPT IN PRINCIPLE.

While the 'APPROPRIATE SYNTAX' in Clause 30 is based on ASN.1 it is not required to be a valid ASN.1 type. For an existing BIT STRING example see 30.7.2.1.20 aAggPortActorAdminState, for an existing OCTET STRING example see 30.4.1.1.7 aRepeaterHealthData.

Hence the Clause 30 changes will be as follows. The Annex 30B.2 changes will be as per the suggested remedy.

30.8.1.1.2 aSectionStatus

BIT STRING [SIZE (1..2)] will be changed to read [SIZE (2)]

30.8.1.1.10 aLineStatus

BIT STRING [SIZE (1..2)] will be changed to read [SIZE (2)]

30.8.1.1.18 aPathStatus

BIT STRING [SIZE (1..4)] will be changed to read [SIZE (4)]

30.8.1.1.25 aFarEndPathStatus

BIT STRING [SIZE (1..2)] will be changed to read [SIZE (2)]

P802.3ae Draft 4.2 Comments

In respect to the Post Script comment, while the 'APPROPRIATE SYNTAX' is not required to be a valid ASN.1 type, as the comment has pointed out, 30.8.1.1.8 (aJ0ValueTX), 30.8.1.1.9 (aJ0ValueRX), 30.8.1.1.23 (aJ1ValueTX), and 30.8.1.1.24 (aJ1ValueRX) are fixed rather than variable length. Hence the 'APPROPRIATE SYNTAX' for these attributes will be change to read OCTET STRING, 16.

Cl 30 SC 30.8.1.1.8 P 64 L 1 # 103

David Law 3Com

Comment Type T Comment Status A

The first octet in this value is transmitted first, and the last octet is transmitted last.

SuggestedRemedy

Please clarify.

Response Response Status C

ACCEPT.

The text will be changed to read -

The first octet of the string is transmitted first, and the last octet is transmitted last.

A similar change needs to be made to 30.8.1.1.23 (aJ1ValueTX). In addition the related text in 30.8.1.1.9 (aJ0ValueRX), and 30.8.1.1.24 (aJ1ValueRX) needs to be changed to read as follows -

The first octet in this string was received first, and the last octet received last.

Cl 30 SC 30.8.1.1.8 P 64 L 13 # 88

Booth, Brad Intel

Comment Type E Comment Status A

Use of abbreviations.

SuggestedRemedy

On line 13, change "Tx" to "transmit", and on line 24, change "Rx" to "receive".

On page 67 line 35, change "Tx" to "transmit", and on line 46, change "Rx" to "receive".

Response Response Status C

ACCEPT.

Cl 44 SC 44.1.4.4 P 164 L 30 # 157

Thaler, Pat Agilent

Comment Type E Comment Status R

Perhaps this is over polishing, but it seems that ", specified in Clauses 48 and 53," would be better following "family of physical layer implementations" because the family rather than the term is specified by those clauses. Similarly for the next two paragraphs.

SuggestedRemedy

Move the phrase. However, this is an editorial nit and not at all substantive.

Response Response Status C

REJECT.

Cl 44A SC 44A.4 P 175 L 10 # 158

Thaler, Pat Agilent

Comment Type T Comment Status A

This comment addresses labeling issues in the figure. Another comment will address funtional problems. Note that resolution of the other comment may effect some of these labels.

SuggestedRemedy

On line 12, loopback should be PCS loopback. On line 29, PMD/PMA loopback should be PMA loopback as we do not have PMD loopback. Also, this picture seems incomplete as it doesn't show the XGXS sublayers.

Response Response Status C

ACCEPT IN PRINCIPLE.

PMA/PMD Loopback to be changed to PMA loopback.



P802.3ae Draft 4.2 Comments

CI 44A SC 44A.4 P175 L 12 # 161  
Thaler, Pat Agilent

Comment Type TR Comment Status A

This diagram is not correct. Loopback is generally recommended to cover as much of the sublayer as possible. If it is implemented that way, then error signals generated internal to the sublayer should not be over-ridden. For instance, loopback in the PCS should be using the PCS encoder and decoder. If the decoder state machine cannot obtain lock to the signal out of the encoder, the decoder cannot decode anything and it will have to send up Local Fault. That is the way the receive state machine is defined. Similarly for the WIS internal data valid signals.

SuggestedRemedy

Move the OR gate below the AND gate in each sublayer so that it ORs the signal from the layer below and the loopback signal to provide an input to the or gate.

One could also add a statement that says something like "This figure represents an implementation of loopback where loopback is implemented in accordance with the recommendation that it exercises as much of the circuitry in the sublayer as possible. If the loopback is implemented above part of the circuitry in a sublayer then any error signals produced below the loopback point should be ignored during loopback as are any error signals from below the sublayer. For instance, if loopback in a WIS implementation was done above the framer, then error signals from the framer should be OR'ed with loopback.

Response Response Status C

ACCEPT.

Changed the wording from "error signals" to "data valid signals" as the logic doesn't work if the signal is based upon an error condition.

CI 45 SC P L # 53  
Dawe, Piers Agilent

Comment Type E Comment Status A Clause 52

Is the information on PMA\_SIGNAL.indicate(SIGNAL\_OK) the same as 45.2.1.2.2 Receive link status (1.1.2) ?

SuggestedRemedy

If so, add text to clarify e.g. "If implemented, PMA/PMD status 1 register bit 2 (Receive link status) is continuously set to the value of PMA\_SIGNAL.indicate (see 45.2.1.2.2)."

If not, add text to clarify.

Response Response Status C

ACCEPT IN PRINCIPLE.

Insert the following text as the third sentence into 45.2.1.2.2:  
PMA/PMD receive link is down when PMA\_SIGNAL.indicate is FAIL, PMD\_SIGNAL.indicate is FAIL, or any implementation specific fault condition is present.

CI 45 SC P219220 L # 104  
Dawe, Piers Agilent

Comment Type E Comment Status A

PRBS32

SuggestedRemedy

PRBS31

Response Response Status C

ACCEPT.

CI 45 SC 45.2.2.12 P204 L 5 # 89  
Booth, Brad Intel

Comment Type E Comment Status A

Use of abbreviation.

SuggestedRemedy

Change all instances of "tx" to "transmit" in subclause.

Response Response Status C

ACCEPT.

CI 45 SC 45.2.2.13 P205 L 1 # 90  
Booth, Brad Intel

Comment Type E Comment Status A

Use of abbreviation.

SuggestedRemedy

Change all instances of "rx" to "receive" in subclause.

Response Response Status C

ACCEPT.

CI 45 SC 45.2.2.18 P207 L 40 # 91  
Booth, Brad Intel

Comment Type E Comment Status A

Use of abbreviations.

SuggestedRemedy

Change all instances of "tx" to "transmit" in subclause.

Response Response Status C

ACCEPT.

P802.3ae Draft 4.2 Comments

Cl 45 SC 45.2.2.19 P 208 L 37 # 92  
 Booth, Brad Intel  
 Comment Type E Comment Status A  
 Use of abbreviations.  
 SuggestedRemedy  
 Change all instances of "rx" to "receive" in subclause.  
 Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.3.11 P 219 L 4 # 3  
 Tim Warland Quake Technologies  
 Comment Type E Comment Status A  
 PRBS32 should be PRBS31  
 SuggestedRemedy  
 Change PRBS32 to PRBS31  
 Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.3.11 P 219 L 4 # 162  
 Thaler, Pat Agilent  
 Comment Type E Comment Status A  
 PRBS32 should be PRBS31. Occurs additional places.  
 SuggestedRemedy  
 Do global search and replace for PRBS32  
 Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.3.12 P 220 L 7 # 4  
 Tim Warland Quake Technologies  
 Comment Type E Comment Status A  
 PRBS32 should be PRBS31  
 SuggestedRemedy  
 Change PRBS32 to PRBS31  
 Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.3.12.2 P 220 L 38 # 48  
 Turner, Ed Lattice Semiconductor  
 Comment Type E Comment Status A  
 Text for 'Latched high BER bit (3.33.14)' incorrectly reads 'When read as a one, bit 3.32.14 ..'  
 SuggestedRemedy  
 Change to '3.33.14'  
 Response Response Status C  
 ACCEPT.

Cl 45 SC 45.2.3.16 P 223 L 49 # 143  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 I don't think the test pattern error counter contains the number of errors received during a pattern test. See 49: I think it contains either block errors, or very nearly three times the bit errors when checking PRBS31.  
 SuggestedRemedy  
 Please correct if necessary.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.

Add a second sentence to the last paragraph that reads -  
 'This counter will count either block errors or bit errors dependent on the test mode (see 49.2.12).'

Cl 45 SC Table 45 3 P 182 L 24 # 144  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Can bits with Value always 0, writes ignored be R/W?  
 SuggestedRemedy  
 RO? Many instances.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.

Although these bits behave like RO bits we need to keep them defined as R/W since they may be allocated functions in the future. However to clarify this, add in 45.2 a new 4th paragraph that reads as follows -  
 'To ensure compatibility with future use of reserved bits and registers, the Management Entity should write to reserved bits with a value of 0 and ignore reserved bits on read.'

P802.3ae Draft 4.2 Comments

CI 45 SC Table 45-11 P 193 L 40 # 87  
 Booth, Brad Intel  
 Comment Type E Comment Status A  
 Use of abbreviations for transmit and receive.  
 SuggestedRemedy  
 Change "tx" to "transmit" and "rx" to "receive".  
 Response Response Status C  
 ACCEPT.

CI 45 SC Table 45-6 P 186 L 22 # 50  
 Turner, Ed Lattice Semiconductor  
 Comment Type T Comment Status R  
 The 'PMA/PMD present' bit would always be one in the 'PMA/PMD devices in package register' - no matter what package was defined as. Similarly, the 'WIS present' bit would always be one in the WIS devices in package register. And so on for the other MMDs.  
 SuggestedRemedy  
 Change the 'PMA/PMD present' bit description to 'Value always 1' Update all the other MMD's devices in package register tables in a similar manner, setting the appropriate 'present' bit for the MMD to always be a one in it's own register.  
 Response Response Status C  
 REJECT.  
 Out of scope. The text is adequate.

CI 45 SC Table 45-6 P 186 L 6 # 49  
 Turner, Ed Lattice Semiconductor  
 Comment Type T Comment Status A  
 In D3.3 an additional vendor specific device was introduced so that there is now a vendor specific MMD 1 at address 30 and a vendor specific MMD 2 at address 31. This table (and others like it in the other MMDs) only has one vendor specific device bit.  
 SuggestedRemedy  
 Change bit 1.6.15 to 'vendor specific device 2' and add bit 1.6.14 as 'vendor specific device 1' and update all other MMD 'devices in package' register tables.  
 Response Response Status C  
 ACCEPT.

CI 46 SC 46 P 276 L 27 # 2  
 Justin Gaither Xilinx, Inc  
 Comment Type TR Comment Status A  
 Statement is not complete since IPG can also contain the Sequence ordered set, per Line 33 on same page.  
 SuggestedRemedy  
 change statement to read:  
 "..Terminate control character,continues with Idle control characters or Sequence ordered set and ends with the Idle control character or the last byte of the sequence ordered set prior to a Start control character."

Response Response Status W  
 ACCEPT IN PRINCIPLE. The comment is not within the scope of the recirculation ballot, but points to an advisable editorial clarification.

The text is correct. Sequence ordered sets are not used in normal interpacket gaps, only when faults are detected and cleared.

Subclause 46.2 and its subparts describe RS transmission of data frames. That is the scope of the normative shall (p.275, l.24). The link fault signaling state machine, either services the transmission of data frames, or in the presence of faults, transmission of sequence ordered sets (46.3.4.3, p.286, l.1-9). The operation of fault detection in PHY sublayers is similar, with either frames or fault signals being serviced.

Line 33 does not say that fault signals are part of <interframe>, but that the signaling logically occurs in the interframe period.

To improve clarity (and reduce the chance of a future interpretation request) add a sentence to the paragraph at line 33 to read:  
 "The signaling of link status information logically occurs in the <inter-frame> period (see 46.3.4). Subclause 46.3.3 describes frame processing when signaling of link status information is initiated or terminated."

CI 46 SC 46.1.3 P 271 L 38 # 141  
 Dawe, Piers Agilent  
 Comment Type E Comment Status R  
 I think VC-4-64c is payload plus path overhead? Anyway not the full thing that goes on the line. So it can't have a line rate of 9.95328 Gb/s. Many other instances of VC-4-64c may be OK.  
 SuggestedRemedy  
 STM-64 I think.  
 Response Response Status C  
 REJECT. A VC-4-64c interface does imply the line rate.

P802.3ae Draft 4.2 Comments

CI 47 SC 3.4.5 P 292 L 40 # 99017

Gaither, Justin

Xilinx

Comment Type TR Comment Status R D4.0 #4

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 (working receivers were tested and met spec) supplied that did indicate a valid spec problem with output impedance. Receiver 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 as 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 achievable, then other driver and/or receiver parameters must be adjusted in order to maintain a working jitter budget.

CI 48 SC 48 P L # 84

Dawe, Piers

Agilent

Comment Type E Comment Status A

Is there a PMA\_UNITDATA.indicate primitive in 48? Sometimes it says PMA\_UNITDATA.indicate primitive, sometimes SYNC\_UNITDATA.indicate message. If it doesn't connect (sub) layers, it's not a primitive. If it were a primitive there would be several short subclauses of (hopefully) boilerplate in the 48.x "functional specifications" subclause. I didn't find it; has clause 48 really got away without having to define any primitives?

SuggestedRemedy

Make PMA\_UNITDATA.indicate either primitive or message throughout.

Add boilerplate for any primitives not defined elsewhere which cl.48 provides at its service ("upper"? ) interface.

Response Response Status C

ACCEPT IN PRINCIPLE.

PMA\_UNITDATA.indicate is specified in 48.3.2.2. PMA\_UNITDATA.request is specified in 48.3.2.1. Both are used as primitives throughout Clause 48, which is the correct implementation.

Change "PMD\_SIGNAL.indicate message" to "PMD\_SIGNAL.indicate primitive" on pg. 325, line 20.

Change "SYNC\_UNITDATA.indicate primitive" to "SYNC\_UNITDATA.indicate message" at the following locations:

- pg. 312, line 50
- pg. 313, line 15
- pg. 328, line 51

Change "ALIGNED\_UNITDATA.indicate primitive" to "ALIGN\_UNITDATA.indicate message" at the following locations (note, ALIGNED was altered to ALIGN to match the message definitions):

- pg. 313, lines 17 and 23
- pg. 330, line 33

P802.3ae Draft 4.2 Comments

Cl 48 SC 48 P316 L 42 # 1

Justin Gaither Xilinx, Inc

Comment Type TR Comment Status A

The polynomial specified in Figure 48-5 does not explicitly dictate a runlength of 128. In general a  $X^7+x^3+1$  polynomial will have a runlength of 127 which will not have an evenly distributed number of R & K, since one will have 63 occurrences and the other would have 64 occurrences.

SuggestedRemedy

Add a statement saying that the runlength should be equal to  $2^7$ .

Response Response Status W

ACCEPT IN PRINCIPLE.

The polynomial runlength is 7 by the fact that we have a 7th order polynomial. The sequence length is 127.

Delete "uniformly distributed" from page 316, line 42 to remove the implication that in an infinite length idle that there will be an equal number of Rs and Ks.

The 63/64 ratio is acceptable for reducing spectral peaks.

Cl 48 SC 48.1.1 P308 L 38 # 163

Thaler, Pat Agilent

Comment Type T Comment Status A

The new objective isn't clear and it isn't necessary. What is link indication?

SuggestedRemedy

Prefer it be deleted because it puts an unnecessary level of detail in this early subclause. If not then change it to Supports error indication or Supports link fault and error indications.

Response Response Status C

ACCEPT IN PRINCIPLE.

Will change to: Supports link fault and error indications

Cl 48 SC 48.1.3.1 P309 L 40 # 7

Tim Warland Quake Technologies

Comment Type E Comment Status A

I am confused by the text " The PCS interface is the XGMII which provides a uniform interface to the RS for a 10 Gb/s PHY implementations (e.g.,not only 10GBASE-X but a so other possible types of 10 Gigabit PHYs)" The PCS provides an alternate interface to an XGMII or RS. It is not in itself an XGMII.

Furthermore, it does not provide a uniform interface, since it is not consistent with implementations which do not contain this optional PCS layer.

SuggestedRemedy

Change text to " The PCS provides an alternate interface to the XGMII and may be used for all 10 Gb/s PHY implementations (e.g.,not only 10GBASE-X but a so other possible types of 10 Gigabit PHYs)"

Response Response Status C

ACCEPT IN PRINCIPLE.

Replace first sentence of the first paragraph in 48.1.3.1 with: "The interface between the PCS and the RS is the XGMII as specified in Clause 46."

Cl 48 SC 48.1.3.1 P310 L 9 # 164

Thaler, Pat Agilent

Comment Type E Comment Status A

Link status reporting doesn't really support fault conditions. Faults happen without our help. It supports fault indication.

SuggestedRemedy

Replace with Link status reporting for fault conditions or Link status reporting to support fault indication. I prefer the first.

Response Response Status C

ACCEPT IN PRINCIPLE.

Will replace with: Link status reporting for fault conditions

Cl 48 SC 48.1.3.3 P310 L 31 # 159

Thaler, Pat Agilent

Comment Type T Comment Status A

Delete b because PMD loopback was removed from the draft.

SuggestedRemedy

Delete b)

Response Response Status C

ACCEPT IN PRINCIPLE.

Remove "(reception)" from a).

Change b) to read: "Reception of quad serial bit streams on the underlying medium."

P802.3ae Draft 4.2 Comments

Cl 49 SC 49.1.4.3 P 362 L 6 # 160  
 Thaler, Pat Agilent  
 Comment Type T Comment Status A  
 Change "PMD" to "PMA" because that is where the PMA does the loopback  
 SuggestedRemedy  
 Change PMD to PMA  
 Response Response Status C  
 ACCEPT.

Cl 49 SC 49.2.12 P 375 L 22 # 142  
 Dawe, Piers Agilent  
 Comment Type E Comment Status R  
 The signal at the scrambler output of the error checker is not "bit errors".  
 SuggestedRemedy  
 Please replace "bit errors" by "bits".  
 Response Response Status C  
 REJECT. It is not counting bits. It is counting bit errors at the PRBS31 checker output. This is not the same as bits that had errors on the wire because of error multiplication in the checker bit it is the number of errors at the checker output. Also, some BERT testers use the same mechanism for counting PRBS errors.

Cl 49 SC 49.2.12 P 375 L 23 # 47  
 Thaler, Pat Agilent  
 Comment Type E Comment Status A  
 "scrambler output" should be "PRBS31 pattern checker output"  
 SuggestedRemedy  
 see comment.  
 Response Response Status C  
 ACCEPT.

Cl 50 SC 50.3.11.1 P 413 L 11 # 94  
 Booth, Brad Intel  
 Comment Type E Comment Status A  
 Use of abbreviation.  
 SuggestedRemedy  
 Change "TX" to "transmit" on line 11 and line 14. Change "RX" to "receive" on line 12 and line 15.  
 Response Response Status C  
 ACCEPT.

Cl 50 SC 50.3.2.4 P 404 L 3 # 95  
 Booth, Brad Intel  
 Comment Type E Comment Status A  
 Use of abbreviation.  
 SuggestedRemedy  
 Change "RX" to "receive" on line 3, 5, 18 and 20.  
 Response Response Status C  
 ACCEPT.

Cl 50 SC 50.3.8.3.1 P 411 L 49 # 93  
 Booth, Brad Intel  
 Comment Type E Comment Status A  
 Use of abbreviation  
 SuggestedRemedy  
 Change "Tx Registers" to read "transmit registers".  
 Response Response Status C  
 ACCEPT.

Cl 50 SC 50.3.8.3.1 P 412 L 2 # 6  
 Tim Warland Quake Technologies  
 Comment Type E Comment Status R  
 Reference to ITU spec O.172 is no longer required  
 SuggestedRemedy  
 Remove text "described in ITU-T Recommendation O.172,1999."  
 Also remove reference from page 5 line 7.  
 Response Response Status C  
 REJECT.

The reference here was placed at the recommendation of PMD people who felt that it was important to bring out the differences between the WIS and standard SONET test pattern generators. As the differences are very small (but significant), it is very useful to have this reference and also the text pointing out the differences.

P802.3ae Draft 4.2 Comments

CI 51 SC 4 P 427 L # 99019

Gaither, Justin

Xilinx

Comment Type TR Comment Status R D4.0 #3

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 specifying DDR mode frequency.
15. pg 432 Table 51-12: existing spec should be specified for SDR mode. Add another row specifying DDR mode frequency.

Response Response Status U

REJECT.

The DDR option was discussed extensively but voted out over one year ago in working group.

This feature last appeared in draft 1.1(Oct 2000). Since draft 2.0 (Dec 2000) this option is no longer in XSBI. There was consensus in the working group that there was no extensive usage of this mode in the industry.

[Note: Prior vote to remove the 3xx MHz mode.  
"Move to accept resolution.  
Vote: For: 12 Against: 2 Abstain: 6 (motion carries)"]

The XSBI is an optional interface. If the working group accepted the commenter's suggested remedy, there would be two non-interoperable version of the XSBI. The commenter is free to implement a proprietary interface if desired.

Including different options for the same interface is highly deprecated as it tends to split the market and create interoperability problems between components.

CI 51 SC 51.4 P 437 L 14 # 8

Tim Warland

Quake Technologies

Comment Type E Comment Status A

Reference to place holder figure 44-x must be updated

SuggestedRemedy

Change 44-x to 44A-7

Response Response Status C

ACCEPT.

CI 52 SC P L # 54

Dawe, Piers

Agilent

Comment Type TR Comment Status R

TDP of 3.9 dB seems high. I think it must be 3.6 because there is no way of stopping the transmitter from spending all the penalty on ISI which would then be greater than the 3.6 dB limit laid down by 802.3z.

SuggestedRemedy

3.6

Response Response Status C

REJECT. See #22.

CI 52 SC P L # 75

Dawe, Piers

Agilent

Comment Type E Comment Status A

Bad reference, and dead.

SuggestedRemedy

Change from 52.9.11.2 to 52.9.10.2, activate.

Response Response Status C

ACCEPT. Assuming reference is in 52.9.11.1.

P802.3ae Draft 4.2 Comments

CI 52 SC P L # 99102

Ohlen, Peter Optillion

Comment Type TR Comment Status A

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. Although the method has been simplified, it still has a limited track record. There are a few parameters which can put you in different corners of a multi-dimensional "stress space". Different receivers designs have different strong and weak points, and depending on which corner you choose, you punish or favor different devices. For some, the nominal sensitivity is more critical, for others, SJ stress is most difficult. For yet another rx, DCD is more difficult. What do we really want to do? We want to find a set of parameters for the stressed eye such that the subsets (1)[passes\_test & not\_working] and (2)[fails\_test & works] are both minimized. This calls for extensive testing and development of test procedures. At the time we want to make products that we can sell to the market-place without revising the spec numbers every other month. These two things don't go along very well, and we might need to give up one of the two options.

SuggestedRemedy

Settle on something that we think works today, with numbers that can easily be validated. Do 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. This 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 a jittered input signal.

Other things we could do:

4. Keep the stressed eye, but follow the precedent of 1GbE and take out the margin for the stressed sensitivity because of the large uncertainty in how the actual penalty and stress (VECP measured on the oscilloscope) correlate.

5. Recognize that we have gathered enough measurement data to say that the stressed eye methodology is well understood and that we have confidence in the chosen numbers and know their significance to "mission mode" performance.

Response Response Status U

ACCEPT IN PRINCIPLE. Keep current specification and methodology, but recognize that measurements are still needed to prove viability. It is believed that the current methodology is sound.

16:4

CI 52 SC P L # 193

Lindsay, Tom Stratos Lightwave

Comment Type TR Comment Status A

Need evidence that the values for the Tx TDP specifications and test method are correct, that they correlate to the stresses and penalties imposed by the Rx stressed eye and its method, and these 2 approaches ensure interoperable BER.

SuggestedRemedy

Provide sufficient test data and analysis.

Response Response Status C

ACCEPT IN PRINCIPLE. Commenter intends to withdraw comment upon further verification of the method ( through testing). Commenter feels analysis is adequate.

CI 52 SC P L # 179

Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status A

In Tables 52-9, 52-13, and 52-17, "max" is not the correct modifier for VECP and stressed eye jitter.

SuggestedRemedy

Should be "(min)".

Response Response Status C

ACCEPT.

9:3

CI 52 SC P 454 L 51 # 9

Ohlen, Peter Optillion

Comment Type T Comment Status A

"PMD\_signal\_detect\_0" is used in clause 52 instead of global signal detect. It seems like the register bit is correctly referred as 1.10.0. The same correction to TX disable was not made at all places last time.

SuggestedRemedy

Correct this at:  
p. 454:51  
p. 455:41-42  
p. 456:46

TX disable: p.457:39, p. 459:33, p.462:44, p.465:30

Response Response Status C

ACCEPT IN PRINCIPLE. Changed by two other comments.



P802.3ae Draft 4.2 Comments

CI 52 SC 52 P 437484 L # 99024  
 Dawe, Piers Agilent

Comment Type TR Comment Status R D4.0 #43 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

CI 52 SC 52 P 459 L 51 # 124  
 Dawe, Piers Agilent

Comment Type E Comment Status A

One reason why the informative link power budgets are so much trouble may be that they say "The worst case" which is not so. There is no THE worst case any more. Also there are alternative channels. And some of the penalties are in the terminals not the link.

SuggestedRemedy

p459 line 51: "Example power budgets and penalties for 10GBASE-S channels are shown in Table 52 –10." p463 line 41 "An example power budget and penalties for a 10GBASE-L channel are shown in Table 52 –14. 466 line 41: "Example power budgets and penalties for 10GBASE-E channels are shown in Table 52 –18."

Response Response Status C

ACCEPT.

CI 52 SC 52 P 461 L # 76  
 Dawe, Piers Agilent

Comment Type TR Comment Status R

Time to move forward. Written on Thursday: as the experimental error created by the stressed sensitivity methodology seems to exceed the error it is trying to buy out, I am still not convinced that it has a place in the standard.

SuggestedRemedy

If the stressed sensitivity technique is not provably working with acceptable accuracy at Vancouver meeting, make the nominal sensitivity normative and the stressed sensitivity informative throughout clause 52.

Response Response Status U

REJECT. The informative receive sensitivity specification may be insufficient, but the normative stressed receive sensitivity is sufficient. Making no change to the methodology may produce false negatives, but will not produce false positives.

16:2

CI 52 SC 52 P 461 L # 77  
 Dawe, Piers Agilent

Comment Type E Comment Status A

Need statement of allowable mean powers at TP3 for network installation and maintenance.

SuggestedRemedy

For each PMD type, add note to tables 52-9, 13, 17: "A signal with an average power below x dBm cannot be compliant. However, average power is not the principal criterion of signal strength. A signal with average power between y and z dBm may or may not be compliant. The user may inspect the signal's OMA and inner eye opening." where x, y, z are derived from the normative specifications of transmitter and link attenuation. I will try to work up the table of x, y, z before the meeting.

Response Response Status C

ACCEPT IN PRINCIPLE.

For receive tables:

For 10GBASE-S, use -9.9 dBm, for 10GBASE-L, use -14.4 dBm, for 10GBASE-E, use -15.8 dBm. Add "Average receive power (min)" row that gives each value as above, with footnote: "Average receive power (min) is informative and not the principal indicator of signal strength. A received power below this value cannot be compliant, however a value above this does not ensure compliance."

For transmit tables:

For 10GBASE-S, use -7.3 dBm, for 10GBASE-L, use -8.2 dBm, for 10GBASE-E, use -4.7 dBm. Add "Average launch power (min)" row that gives each value as above, with footnote: "Average launch power (min) is informative and not the principal indicator of signal strength. A transmitter with launch power below this value cannot be compliant, however a value above this does not ensure compliance."

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.1 P 452 L 3 # 139  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 singular and plural. If it's PMDs, it's  
 SuggestedRemedy  
 media  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.1 P 452 L 45 # 137  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 I don't think the ISO / OSI reference model is an IEEE thing.  
 SuggestedRemedy  
 Change this sentence by analogy with the other clauses.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Use "Figure 52–1 depicts the relationships of the serial PMD (shown shaded) with other sublayers and the ISO/IEC Open System Interconnection (OSI) reference model.

Cl 52 SC 52.1 P 452 L 45 # 138  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 Misleading "shall" "optional" and "integrated".  
 SuggestedRemedy  
 "In order to form a complete physical layer, each PMD shall be combined with the appropriate physical sub-layers indicated in Table 52 –2 and optionally with the management functions which may be accessible through the Management Interface defined in Clause 45, all of which are hereby incorporated by reference."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 "In order to form a complete physical layer, each PMD is combined with the appropriate physical sublayers indicated in Table 52 –2 and optionally with the management functions which may be accessible through the management interface defined in Clause 45."  
 Change the title 'Table 52–2—PMD type and associated physical layer clauses' to read 'Table 52–2—PMD type and associated clauses' as the clauses are not entire physical layer clauses, they are sublayers.

Cl 52 SC 52.10.2 P 482 L 49 # 82  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 The text here seemed OK but it triggers two separate PICS which may be referring to the same thing really. Class 1 is part of IEC 60825-1 isn't it? And the single fault requirement?  
 SuggestedRemedy  
 Merge the sentences to use just one "shall" e.g. 10GBASE-R and 10GBASE-W optical transceivers shall be Class 1 laser certified in conformance to the International Electrotechnical Commission (IEC) Standard Publication 60825-1, "Safety of Laser Products —Part 1: Equipment Classification, Requirements and User's Guide ", 1st edition (11/1993) which has been updated by Amendment 2 (2001-01), under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. Combine the two PICS currently OM14, OM15.

Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Merge the sentences to use just one "shall" :  
 "10GBASE-R and 10GBASE-W optical transceivers shall conform to Class 1 laser requirements defined in the International Electrotechnical Commission (IEC) Standard Publication 60825-1, under any condition of operation. This includes single fault conditions whether coupled into a fiber or out of an open bore. "

Reference is: "International Electrotechnical Commission (IEC) Standard Publication 60825-1, "Safety of laser products —Part 1: Equipment classification, requirements and user's guide ", Edition 2.0"  
 Combine the two PICS currently OM14, OM15.

Cl 52 SC 52.15.4 P 479483 L # 99026  
 Dawe, Piers Agilent  
 Comment Type TR Comment Status A D4.0 #82  
 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 C  
 ACCEPT.  
 Editor-in-Chief to edit the value/comment field with appropriate text.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.15.4.1 P 490 L 24 # 153  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 FS7 not MDIO:M  
 SuggestedRemedy  
 MD:M  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.15.4.10 P 493 L 18 # 46  
 Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A  
 With the change in specification method we no longer measure transmitter jitter, or rise and fall time and we measure transmitter and dispersion penalty for all systems.  
 SuggestedRemedy  
 Delete OM8 line,  
 Delete OM9 line  
 Delete "for 10GBASE-E" for OM12.  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.15.4.10 P 493 L 28 # 85  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 OM13 to OM16 have nothing to do with optical measurement requirements  
 SuggestedRemedy  
 Move them to 52.15.4.12.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Made new section in PICS.

Cl 52 SC 52.15.4.11 P 493 L 45 # 86  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 return loss should be reflectance  
 SuggestedRemedy  
 reflectance or discrete reflectance - twice.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Use MDR.

Cl 52 SC 52.15.4.6 P 492 L 7 # 154  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Bad reference.  
 SuggestedRemedy  
 Delete "Table 52 –11 and"  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.15.4.9 P 492 L 42 # 45  
 Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A  
 We no longer have any separate jitter specifications  
 SuggestedRemedy  
 Delete section 52.15.4.9  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.2 P 458 L 18 # 148  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 Range doesn't match: 69 vs. 66. Didn't we catch this a long time ago?  
 SuggestedRemedy  
 66  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.4.4 P 456 L # 197  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status A  
 Is reference to PMD\_signal\_detect\_0 correct, or should it be "global" like for transmit disable? Is the wording in clause 52.4.4 consistent with Table 52-4?  
 SuggestedRemedy  
 Please clarify (or least explain it to me!). Does this also affect clause 53? This requires review by the logic track folks.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Should use global signal detect.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.4.4 P 456 L 46 # 52  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Please add reference to 45.2.1.9.5  
 SuggestedRemedy  
 per comment  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. see #79.

Cl 52 SC 52.4.4 P 457 L 22 # 79  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 We need to mention the signal detect function of the MDIO because we refer to it later.  
 SuggestedRemedy  
 Add: "If an MDIO service interface is implemented, this function is mapped to the Global PMD receive signal detect (1.10.0) as described in 45.2.1.9.5."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. But modify sentence instead of adding new one in 52.4.4 above.

Cl 52 SC 52.4.6 P 455 L 29 # 99103  
 Dawe, Piers Agilent  
 Comment Type TR Comment Status A  
 Not clear. I believe we mean to report faults within this PMD by this function, not faults elsewhere that could in other sublayers invoke "LF". It's implementation specific anyway.  
 SuggestedRemedy  
 I would appreciate advice from the logic gurus. My suggestion is, replace "local fault" with "fault associated with the PMD", and add "The faults detected by this function are implementation specific."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. See #181. "PMD\_fault is the logical OR of PMD\_receive\_fault, PMD\_transmit\_fault and any other implementation specific fault."  
 Also, forgot to implement D4.0 #270: Need to change text in PMD\_receive\_fault to: "PMD\_receive\_fault is the logical OR of NOT SIGNAL\_DETECT and any implementation specific fault."  
 13:1

Cl 52 SC 52.4.7 P 457 L # 194  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status R  
 When a transmit fault condition is detected, it is written that the transmitter should be disabled. Is the disabling done via instruction from the host, or should it (also?) be done internally within the PMD? See, for example, clauses 52.4.7 and 52.4.8.  
 SuggestedRemedy  
 Please clarify (or least explain it to me!). Does this also affect clause 53? This requires review by the logic track folks.

Response Response Status C  
 REJECT. Invoker of PMD\_transmit\_disable function is intentionally not specified as this is implementation-specific.

Cl 52 SC 52.4.7 P 457 L # 196  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status A  
 I am confused by documentation of PMD\_global\_transmit\_disable, PMD\_transmit\_disable\_0, and PMD\_transmit\_disable in clauses 52.4.7 and 52.4.8. Why do we describe usage of PMD\_transmit\_disable\_0 in line 40, page 457, then say in line 45 that it is not used? I see no reference to it in Table 52-3. Should PMD\_transmit\_disable in line 52 correct, or should it be "global"? I see no reference to it in Table 52-3.

SuggestedRemedy  
 Please clarify (or least explain it to me!). If a change is required, also check other instances (such as in the footnote below Table 52-7). Does this also affect clause 53? This requires review by the logic track folks.

Response Response Status C  
 ACCEPT IN PRINCIPLE. See #199 and #23.

Cl 52 SC 52.4.7 P 457 L # 195  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status A  
 It should be made clear that assertion of transmit disable should not trigger transmit fault.

SuggestedRemedy  
 For example, add a sentence in clause 52.4.7 (end of line 40) saying something like "If PMD\_global\_transmit\_disable is asserted, however, this should not trigger PMD\_transmit\_fault." Does this also affect clause 53? This requires review by the logic track folks.

Response Response Status C  
 ACCEPT IN PRINCIPLE. In PMD\_Transmit fault, make second sentence: "The faults detected by this function are implementation specific, but should not include the assertion of the PMD\_global\_transmit\_disable function".

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.4.7 P 457 L 40 # 199

Richard Taborek Sr. Intel Corporation

Comment Type T Comment Status A

Conflict between the statement: "If a PMD\_transmit\_fault (optional) is detected, then the PMD\_transmit\_disable\_0 function should also be asserted." and the note on line 45: "Note: PMD\_Transmit\_Disable\_0 is not used for serial PMDs." Also note capitalization disparity between the statement and note.

SuggestedRemedy

Resolve conflict. Make capitalization globally uniform.

Response Response Status C

ACCEPT IN PRINCIPLE. Change "PMD\_transmit\_disable\_0" to "PMD\_global\_transmit\_disable".

Cl 52 SC 52.4.7 P 457 L 40 # 23

Dudek, Mike Cielo Communications

Comment Type E Comment Status A

I think that the intent was to use PMD\_global\_transmit\_disable for the serial PMD and not PMD\_transmit\_disable\_0 hence the note on line 46. However PMD\_transmit\_disable\_0 has been left in many places through-out the clause.

SuggestedRemedy

Globally replace "PMD\_Transmit\_disable\_0" with PMD\_global\_transmit\_disable throughout clause 52. except on line 46 page 457. (Examples are listed below but I may not have caught them all!!)  
 P457, line 40  
 p459 line 33  
 p462 line 44  
 p465 line 31  
 p490 lines 35, 39

Response Response Status C

ACCEPT. Replace all instances except for note with "PMD\_global\_transmit\_disable". See also #199.

Cl 52 SC 52.4.8 P 457 L 52 # 200

Richard Taborek Sr. Intel Corporation

Comment Type T Comment Status R

"is" should be "shall be". Add corresponding PICS entry

SuggestedRemedy

See comment.

Response Response Status C

REJECT. It's an optional function, so we can't require the transmitter be disabled.

Cl 52 SC 52.5.1 P 458 L 39 # 149

Dawe, Piers Agilent

Comment Type E Comment Status A

Tautology. Now that the transmit mask is called in the transmitter table, we don't need to call it again.

SuggestedRemedy

Delete "a transmit mask of the eye measurement as defined in 52.9.7 and". Similarly, delete whole sentences in 52.6.1 and 52.7.1.

Response Response Status C

ACCEPT.

Cl 52 SC 52.5.1, Table 52-7 P 459 L 12 # 155

Pepeljugoski, Petar IBM

Comment Type T Comment Status R

The deletion of the rise/fall time for 850nm specs is wrong. There is no evidence that the TDP will adequately screen for high ISI transmitters, where potentially all the penalty can come from ISI.

SuggestedRemedy

Restore the 35 ps rise/fall time.

Response Response Status C

REJECT. The TDP has been set to 3.9 dB, VECF, which measures the tolerance of the receiver to ISI, is set to 3.5 dB. The small difference between these numbers is allocated to RIN and other noise-like effects. Even if all this allocation for noise were taken by a transmitter producing additional ISI it is felt that receivers that pass the stressed receiver sensitivity test would be interoperable.

Note: Rise/fall measurement section removed as well as all referring sections and extraneous references.

Cl 52 SC 52.5.2 P 461 L 6 # 100

Paul Kolesar OFS

Comment Type TR Comment Status R

The receiver clock tolerance for 10GBASE-SW is inconsistent with the transmitter clock tolerance. The receiver is specified to provide a lock-in range 5 times larger than the transmitter tolerance. This unnecessarily large range will increase cost for no apparent reason.

SuggestedRemedy

Divide the specification into two parts. For 10GBASE-SW specify +/- 20 ppm tolerance. For 10GBASE-SR specify +/- 100ppm.

Response Response Status C

REJECT. See #96.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.5-9 P46180 L # 51

Dawe, Piers Agilent

Comment Type TR Comment Status A

We have set the stressed eye VECP equal to the maximum TDP. This is bad for three reasons: 1. It falsely assumes that the most closed signal is "worst" for a receiver, when it might be the weakest signal that is "worst"; 2. It leaves us trying to make stressed eye generators with high VECP which have very big penalties and make for a very inconsistent measurement technique, as VECP is not guaranteed to be the same as actual penalty; 3. We lose the opportunity to use similar test equipment for BASE-L and BASE-E, adding to cost. See pdf attachment which graphically illustrates the theoretical effect of using different VECP levels in the normative receiver test. My conclusion from these graphs is: We know we have a frontier of worst cases all the way from nominal sensitivity (stressed by weak signal strength) to maximum ISI (stressed by moderate signal strength and poor eye shape). Measuring at either extreme allows errors (in theory) approaching +/-0.5 dB at the other extreme. Measuring at a moderate ISI is, in theory, slightly better in terms of accuracy than measuring at a very high ISI. More importantly, because it avoids the "cliff in the stressed eye generation process" it seems a better practical choice for a compliance test.

SuggestedRemedy

Abandon the connection between test VECP and the extreme of TDP. Set each VECP at 2 dBo (or 2.5 dBo -no more) and adjust the stressed sensitivity levels accordingly. This does not affect the transmitter specs.

Response Response Status C

ACCEPT IN PRINCIPLE. These values were not intended to be identical (this was a typo). Baseline wander for reference receiver is now to be minimized (TDP). Reflected optical power during TDP test for 10GBASE-L goes to 21 dB from current ORLT value of 12 dB. For 10GBASE-E, VECP goes to 2.7, output OMA minus TDP of transmitter goes from -2.4 to -2.1, nominal receiver sensitivity goes from -14.4 to -14.1 dB.

Further clarification for the reference receiver after the first sentence of the first paragraph of 481:10:

Add to the end of line 10: "The sensitivity of the reference receiver should be limited by Gaussian noise. The receiver should have minimal threshold offset, deadband, hysteresis, baseline wander, deterministic jitter or other distortions. Decision sampling should be instantaneous with minimal uncertainty and setup/hold properties."

For reference (before):

10GBASE-S TDP: 3.9, VECP: 3.5  
 10GBASE-L TDP: 3.2, VECP: 2.2  
 10GBASE-E TDP: 3.0, VECP: 3.0 (goes to 2.7)

Note: This is a reconsideration to further specify the reference receiver.

Cl 52 SC 52.6.2 P450 L 14 # 99033

Juergen Rahn Lucent Technologies

Comment Type TR Comment Status R D4.0 #93 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

See response to comment 96 of D4.2 for an updated explanation.

Cl 52 SC 52.6.2 P463 L 12 # 101

Paul Kolesar OFS

Comment Type TR Comment Status R

The receiver clock tolerance for 10GBASE-LW is inconsistent with the transmitter clock tolerance. The receiver is specified to provide a lock-in range 5 times larger than the transmitter tolerance. This unnecessarily large range will increase cost for no apparent reason. This comment echos the sentiments of trailing TR comments.

SuggestedRemedy

Divide the specification into two columns. For 10GBASE-LW specify +/- 20 ppm tolerance. For 10GBASE-LR specify +/- 100ppm.

Response Response Status C

REJECT. See #96.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.6-9 P L # 12

Ohlen, Peter Optillion  
 Comment Type T Comment Status R

We have not quite specified what we mean by "stressed eye jitter". Previously we have always meant peak-to-peak at 1e-12 perobability. I think we want to capture the higher probability jitter here. In the measurement section we state the 99% peak-to-peak value.

*SuggestedRemedy*

Discuss, and modify text to state the intention clearly. Clarification is needed at:  
 p. 461:30  
 p. 463:35  
 p. 466:36  
 p. 477:18

Response Response Status C

REJECT. Measurement section is implied for all specifications and so an extra reference is not needs for this specification. 99% probability is OK because this was supposed to be all DJ anyway.

11:0

Cl 52 SC 52.7.2 P 453 L 14 # 99036

Juergen Rahn Lucent Technologies  
 Comment Type TR Comment Status R D4.0 #92 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 response to comment 96 of D4.2 for an updated explanation.

Cl 52 SC 52.7.2 P 466 L 12 # 102

Paul Kolesar OFS  
 Comment Type TR Comment Status R

The receiver clock tolerance for 10GBASE-EW is inconsistent with the transmitter clock tolerance. The reciever is specified to provide a lock-in range 5 times larger than the transmitter tolerance. This unnecessarily large range will increase cost for no apparent reason. This comment echos the sentiments of trailing TR comments.

*SuggestedRemedy*

Divide the specification into two parts. For 10GBASE-EW specify +/- 20 ppm tolerance. For 10GBASE-ER specify +/- 100ppm.

Response Response Status C

REJECT. See #96.

Cl 52 SC 52.8.1 P 467 L 21 # 13

Ohlen, Peter Optillion  
 Comment Type TR Comment Status A

Is it really OK to have variable sinusoidal jitter at low frequencies. Rmemeber, this is a spec value that a designer would need as an input. It is not a measurement uncertainty. Now, the amounts we have chosen might not be a problem today. What about the customer or an implementor who ends up with a device that can track low frequency SJ corresponding to 0.1UI at high frequencies? Is the device compliant or not?? One interpretation would be not compliant. But this would mean that in order to test for compliance, you need to use the SJ=0.15 and scale that at low frequencies to really test for compliance. SJ=0.10 would not do. One could flip the argument and get a similar conclusions in the other direction.

*SuggestedRemedy*

It could be better to keep the low frequency part fixed (scaled to 0.15UI), and let the high frequency part vary up and down. This means that the cut-off could very well be different. If a RX has a 6MHz cut-off, this would make the test somewhat easier in the 4-6 MHz SJ range. I think that is OK. At the high frequencies all of the jitter gets to the decision point. In a real system the PLL would actually filter out the (small amount of) TX jitter present at 4-6MHz, and there would be a little less jitter at the decision point. If we go in this direction, I am not quite sure what value we should use as a basis for scaling the SJ at low frequencies. 0.05UI has been in the draft longest, but there might bereason to choose a different value.

Response Response Status W

ACCEPT IN PRINCIPLE. See #64.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9 P L # 99039

Lindsay, Tom Stratos Lightwave

Comment Type TR Comment Status A D4.0 #293

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 C

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 467 L 23 # 99104

Booth, Brad Intel

Comment Type TR Comment Status A

In November 2001, the serial PMD group stood before the Task Force and stated that they had shown technical feasibility and that they had a path to compliance. The Task Force accepted this resolution as did the Working Group in granting conditional approval for the draft to go to Sponsor Ballot. After the first Sponsor Ballot circulation, the serial PMD group decided to change the test methodology for the serial PMDs. This major change to what was previously deemed technical feasible calls into question whether or not the serial PMD group and Task Force have achieved technical feasibility.

This new methodology and parameters for the serial PMDs has not been presented to the Task Force or Working Group to provide proof of technical feasibility in the form of manufacturability and ability to conformance test serial PMDs. Without proof that the new methodology and parameters are equal to or better than what the draft previously contained, one can only be left to assume that all previous statements about technical feasibility are now invalid and void.

*SuggestedRemedy*

Provide data to the Task Force that shows that at least 4 optical transceiver vendors can conform to the new specifications. Provide data to the Task Force that shows the difference between D4.0 and D4.1 test methodologies. Provide data to the Task Force that proves that vendors who comply with the D4.1 test methodology also comply with the BER, distance and interoperability requirements as per our objectives, PAR, and 5 criteria.

Response Response Status U

ACCEPT IN PRINCIPLE.

Technical feasibility of transceivers was asserted and proved, but the measurement techniques were not. New methodologies and parameters were presented to the IEEE task force at the Santa Rosa meeting, where they were incorporated in D4.1.

There is a consensus opinion within the PMD track that the current direction is the best one to follow.

Comparing D4.0 and D4.1 methodologies or results is not helpful to moving the standard forward.

Verification of test methodology based on experimental results will be shown at April meeting.



P802.3ae Draft 4.2 Comments

CI 52 SC 52.9.1 P 468 L 23 # 201

Richard Taborek Sr. Intel Corporation

Comment Type E Comment Status R

Extraneous word "would".

SuggestedRemedy

Delete it.

Response Response Status C

REJECT. "would" is correct: system operation is emulated, not actually performed, while the tests are run.

7:2

CI 52 SC 52.9.1 P 468 L 25 # 14

Ohlen, Peter Optillion

Comment Type T Comment Status R

We almost got rid of the circular compliance here. Still I think the reading is somewhat confusing.

SuggestedRemedy

Suggested modified text for p.468:22-27:

Test patterns used for specific optical tests are designed to emulate system operation. Still, the specified performance is to be achieved in normal operation with valid 10GBASE-R or 10GBASE-W data.

The test patterns are specified in Table 52–22 for 10GBASER and in section 50.3.8 for 10GBASE-W unless specified otherwise.

Response Response Status C

REJECT. See #203, reordering also done.

CI 52 SC 52.9.1 P 468 L 26 # 202

Richard Taborek Sr. Intel Corporation

Comment Type E Comment Status R

Extraneous words "unless specified otherwise".

SuggestedRemedy

Delete them.

Response Response Status C

REJECT. These are not extraneous words, they are necessary. Some patterns are specified HERE.

CI 52 SC 52.9.1 P 468 L 28 # 203

Richard Taborek Sr. Intel Corporation

Comment Type E Comment Status A

"other" is ambiguous.

SuggestedRemedy

Specify and cross reference the "other" test pattern unambiguously.

Response Response Status C

ACCEPT IN PRINCIPLE. "Other" has been clarified (anything but a square wave is other). The alternate proposed patterns and usage are specified below the line in question and is appropriately cross-referenced.

CI 52 SC 52.9.1 P 469 L 5 # 145

Dawe, Piers Agilent

Comment Type E Comment Status R

"0x" notation is a programmer's trick that we don't need to introduce in an optics clause to be used just twice. It is an obstacle to understanding if the reader does not know what it means, and seems to have no significant meaning if the reader does know what it means. Other optical PMD clauses 38 and 53 do not use it, nor clauses 4 to 39. It is "legal", and it might be appropriate in a digital-oriented treatise. But here, it is a diversion and not required.

SuggestedRemedy

Add "in hexadecimal format" in p468 line 36, to read "specified in hexadecimal format in Table 52–20". Delete "0x" (4 times while we have the editor's box).

Response Response Status C

REJECT. "0x" has been ruled as acceptable hexadecimal notation.

CI 52 SC 52.9.1.1 P 469 L 20 # 72

Dawe, Piers Agilent

Comment Type E Comment Status A

These two references are dumb text not links: b This is the test pattern checker defined in 49.2.12 c This is the test pattern checker defined in 50.3.8.2

SuggestedRemedy

activate

Response Response Status C

ACCEPT. Chief editor!

P802.3ae Draft 4.2 Comments

CI 52 SC 52.9.10 P 475 L 35 # 20  
 Ohlen, Peter Optillion  
 Comment Type E Comment Status A  
 Remove "and description" from the title.  
 SuggestedRemedy  
 See comment.  
 Response Response Status C  
 ACCEPT.

CI 52 SC 52.9.10 P 475480 L # 74  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 An intelligent reader asked me "Sinusoidal AM interference: Does it modulate only the "1" level or both "1" and "0"?" We need to fix its name: this is not AM.  
 SuggestedRemedy  
 Provide text which answers the question. Delete "AM" throughout (including fig. 52-10), replace with interferer or interfering as necessary.  
 Response Response Status C  
 ACCEPT. Deleted by another comment.

CI 52 SC 52.9.10 P 47580 L # 111  
 Dawe, Piers Agilent  
 Comment Type E Comment Status R  
 I wonder if more of the spec numbers in this subclause could be collected up into a table, to make the document easier to use.  
 SuggestedRemedy  
 Response Response Status C  
 REJECT. Not easily.

CI 52 SC 52.9.10.1 P 475 L # 21  
 Ohlen, Peter Optillion  
 Comment Type T Comment Status A  
 Order of text should follow figure.  
 SuggestedRemedy  
 Remove: "The receiver of the system under test is tested for conformance by putting the PCS in test mode as specified in 49.2.12."

Insert "The receiver of the system under test is tested for conformance by enabling the error counter on the receiving side." before "As defined ..." on p.475:54.

A suitable test set is needed to characterize and verify that the signal used to test the receiver has the appropriate characteristics.

Response Response Status C  
 ACCEPT.

CI 52 SC 52.9.10.1 P 475 L 49 # 71  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Obsolete name.  
 SuggestedRemedy  
 Delete "jitter".  
 Response Response Status C  
 ACCEPT.

CI 52 SC 52.9.10.1 P 475 L 54 # 73  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Needs a bit more explanation to set the scene for the reader, good for the future. It also points out what level of stress is desired, worth pointing out this/next week because our work indicates that the actual optical power penalty can be on the order of 2 dB worse than the calculated penalty; collectively we need to get that discrepancy right down if this technique is to work.  
 SuggestedRemedy  
 Add another sentence following "... detecting the data pattern and reporting any errors received.", please add, "The optical power penalty for the stressed eye is intended to be very similar to its vertical eye closure penalty. This is not necessarily the same as the highest TDP anticipated in service but represents a standardized test condition for the receiver."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Use "The optical power penalty for the stressed eye is intended to be similar to its vertical eye closure penalty. This is not necessarily the same as the highest TDP anticipated in service but represents a standardized test condition for the receiver."

15:1

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.10.1 P 477 L 16 # 107  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Two one-sentence paragraphs on same topic  
 SuggestedRemedy  
 merge  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.1 P 477 L 19 # 176  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status R  
 Missed input per comment from previous ballot. The point is that peak to peak of Gaussian types of jitter is not measurable, whereas rms is.  
 SuggestedRemedy  
 Insert " (less than 0.02 UI rms)" after "peak to peak".  
 Response Response Status C  
 REJECT. No change (RMS does not have meaning).

Cl 52 SC 52.9.10.1 P 477 L 2 # 177  
 Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status A  
 Not implemented per the comment from the previous ballot.  
 SuggestedRemedy  
 In lines 2 and 4, add " interference" after "AM, 2 places.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Used amplitude infererer instead.

Cl 52 SC 52.9.10.1 P 477 L 21 # 180  
 Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status A  
 Typos.  
 SuggestedRemedy  
 Lines 21-22, add space between "levelof". Line 26, period in middle of line should be a comma.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. "levelof" corrected by another comment. Comma is a comma.

Cl 52 SC 52.9.10.1 P 477 L 21 # 83  
 Dawe, Piers Agilent  
 Comment Type E Comment Status R  
 The requirement that "The Bessel-Thomson filter should have the appropriate frequency response... The O/E converter should be fast and linear such that the waveshape and edge rates are predominantly controlled or limited by the electrical circuitry." is unnecessary. The argument is just the same as the one we have used for scope filters: the standard should specify the outcome not the method, and the outcome is the overall response. Also, let's give the reader a hint about what bandwidth might be "appropriate".

SuggestedRemedy  
 As in 52.9.7 and other standards, talk about "transfer function": Replace both sentences with: "The transfer function of the filter and the O/E converter should have an appropriate Bessel-Thomson frequency response to result in the appropriate level of initial ISI eye closure before the sinusoidal terms are added. An electrical bandwidth of 4 to 5 GHz is thought appropriate."  
 Response Response Status C  
 REJECT. This change is editorial and not required for completeness.

6:2

Cl 52 SC 52.9.10.1 P 477 L 21 # 109  
 Dawe, Piers Agilent  
 Comment Type T Comment Status D  
 Bessel-Thomson filter for slow eye: if the 10GBASE-S stressed eye is different to the others,  
 SuggestedRemedy  
 consider using the transversal filter as part of the slow eye generator. I don't know if this is a good idea - I thought I would raise the possibility in case we needed it.  
 Response Response Status Z  
 Withdrawn.

Cl 52 SC 52.9.10.1 P 477 L 22 # 32  
 Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A  
 missing space  
 SuggestedRemedy  
 insert a space between level and of  
 Response Response Status C  
 ACCEPT. Handled by another comment.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.10.1 P 477 L 22 # 204  
 Richard Taborek Sr. Intel Corporation  
 Comment Type E Comment Status A  
 Missing space between "level" and "of"  
 SuggestedRemedy  
 Add space.  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.1 P 477 L 26 # 108  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Missing word in "and add more RIN."  
 SuggestedRemedy  
 and will add more RIN.  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.1 P 477 L 28 # 183  
 Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status A  
 Typo.  
 SuggestedRemedy  
 Missing space at end of line.  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.1 P 477 L 28 # 18  
 Ohlen, Peter Optillion  
 Comment Type E Comment Status A  
 See remedy.  
 SuggestedRemedy  
 Insert space between "an" and "optical"  
 Response Response Status C  
 ACCEPT. Handled by another comment.

Cl 52 SC 52.9.10.1 P 477 L 28 # 33  
 Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A  
 missing space  
 SuggestedRemedy  
 insert a space between an and optical  
 Response Response Status C  
 ACCEPT. Handled by another comment.

Cl 52 SC 52.9.10.1 P 477 L 32 # 110  
 Dawe, Piers Agilent  
 Comment Type E Comment Status D  
 At this point we can add a sentence describing what would be expected when looking with the scope filter off.  
 SuggestedRemedy  
 Response Response Status Z  
 Withdrawn.

Cl 52 SC 52.9.10.1 P 477 L 35 # 112  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Suggested re-ordering of words.  
 SuggestedRemedy  
 line 34 lower case "clock". Then "To use an oscilloscope to calibrate the final stressed eye jitter that includes the sinusoidal jitter component using, a separate clock source (clean clock 2 of figure 52-10) is required that is synchronized to the source clock but not modulated with the jitter source."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. line 34 lower case "clock". Then "To use an oscilloscope to calibrate the final stressed eye jitter that includes the sinusoidal jitter component, a separate clock source (clean clock of figure 52-10) is required that is synchronized to the source clock but not modulated with the jitter source.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.10.1 P 477 L 4 # 69

Dawe, Piers Agilent

Comment Type E Comment Status A

"The AM signal also emulates some baseline wander." is not true. Baseline wander is noise-like and Gaussian, this signal is bounded. We have covered baseline wander very nicely with TDP, and established that the "worst" TDP-max signal is the least noisy one. So no need to emulate it here.

SuggestedRemedy

Delete the sentence.

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.10.2 P 477 L # 198

Raj Savara Network Elements

Comment Type T Comment Status R

The methodology has not been proven to be reproducible in the industry. A group of companies has to show the ability to meet the tests as suggested in the last plenary. This has not been completed.

The same comment applies to the TDP measurements.

SuggestedRemedy

Allow time for at least 3 companies to submit measured data confirming the test parameters and set up.

Response Response Status C

REJECT. The test methodology appears to be sufficient to ensure interoperability, but perhaps strict. The committee sympathizes, but it is not clear how to relax the methodology and still ensure interoperability.

Strawpoll: "The standard is adequate to ensure interoperability."

15:0 agree with this statement.

Cl 52 SC 52.9.10.2 P 477 L 42 # 115

Dawe, Piers Agilent

Comment Type T Comment Status A

1%, or 99th percentile, seems to give big errors between VECP and measured transmitter penalty. Don't know why. It looks like we need to go further down the curve. I hope someone has some detailed histograms to work this out from.

SuggestedRemedy

99.9th percentiles or 0.1% ?

Response Response Status C

ACCEPT IN PRINCIPLE. In addition, increase number of hits to 10000.

4:1

Cl 52 SC 52.9.10.2 P 477 L 42 # 114

Dawe, Piers Agilent

Comment Type E Comment Status R

More suggested wordsmithing.

SuggestedRemedy

For this test, these two components are defined by the 99th percentiles (on each side if appropriate) of their histograms. Histograms should include at least 1000 hits. Jitter histograms should be vertically thin while amplitude histograms should be less than ?0.02 UI? wide. Per above, residual low probability noise and jitter should be minimized -that is, the outer slopes of the final histograms should be very steep.

Response Response Status C

REJECT. Reads OK now.

Cl 52 SC 52.9.10.2 P 477 L 42 # 113

Dawe, Piers Agilent

Comment Type E Comment Status R

Suggested re-ordering of words.

SuggestedRemedy

simulated channel penalties at TP3, and a swept frequency sinusoidal jitter contribution.

Response Response Status C

REJECT. Like the long part last.

Cl 52 SC 52.9.10.2 P 477 L 49 # 19

Ohlen, Peter Optillion

Comment Type T Comment Status A

Do we really need a "shall" here ?? Is "~" a good notation ?

SuggestedRemedy

Change "shall .... width" to "should be around 1% wide"

Response Response Status C

ACCEPT IN PRINCIPLE. "should". "about".

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.10.2 P 477 L 50 # 184  
Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Further clarification will help, maybe.

SuggestedRemedy

Change to "...outer slopes of the [not "their"] final histograms should be as steep as possible down to very low probabilities.

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.10.2 P 478 L 1 # 34  
Dudek, Mike Cielo Communications

Comment Type T Comment Status A

The stressed receiver test should be tested with the data rate tolerance of the receiver specifications not the transmitter specifications

SuggestedRemedy

Change the following references  
52.5.1 to 52.5.2  
52.6.1 to 52.6.2  
52.7.1 to 52.7.2

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.10.2 P 478 L 10 # 205  
Richard Taborek Sr. Intel Corporation

Comment Type E Comment Status A

Missing semicolon at the end of a procedural list

SuggestedRemedy

Add semicolon. Change globally.

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.10.2 P 478 L 13 # 185  
Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Reference to wrong tables.

SuggestedRemedy

Should refer to Tables 52-9, 52-13, and 52-17.

Response Response Status C

ACCEPT IN PRINCIPLE. See #36.

Cl 52 SC 52.9.10.2 P 478 L 13 # 36  
Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Incorrect references. The stressed eye jitter values are given in the Rx tables not the Tx tables.

SuggestedRemedy

Change the table references as below  
52-7 to 52-9  
52-12 to 52-13  
52-16 to 52-17

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.10.2 P 478 L 13 # 116  
Dawe, Piers Agilent

Comment Type E Comment Status A

missing "or"

SuggestedRemedy

... 10GBASE-L, or Table 52- ...

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.10.2 P 478 L 15 # 181  
Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Typos.

SuggestedRemedy

1. Missing "d" in defined. 2. Change to "...vertical penalty when [not "if"] calculated...".

Response Response Status C

ACCEPT.

P802.3ae Draft 4.2 Comments

CI 52 SC 52.9.10.2 P 478 L 15 # 37  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Incorrect reference and English.

SuggestedRemedy

replace 52.9.5 with 52.9.7  
 Change "define" to "defined"  
 Delete the words "is the vertical eye closure penalty"

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 478 L 16 # 117  
 Dawe, Piers Agilent

Comment Type E Comment Status A

suggested word change

SuggestedRemedy

which can be obtained with

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 478 L 17 # 118  
 Dawe, Piers Agilent

Comment Type E Comment Status A

Not "peak" that's somewhere else on a histogram.

SuggestedRemedy

delete "peak"

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 478 L 24 # 178  
 Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Per comment from previous ballot.

SuggestedRemedy

Change A\_N to OMA. Also, delete "(OMA)" from same sentence, line 25.

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 478 L 26 # 38  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

AN is no longer on figure 52-11, and measuring OMA is to be done with the square wave and not on the eye diagram.

SuggestedRemedy

Change the sentence to read.  
 where A0 is the amplitude of the eye opening and OMA is the normal amplitude without ISI as shown in Figure 52-11

Response Response Status C

ACCEPT IN PRINCIPLE. See #178 but change "measured" to "shown".

CI 52 SC 52.9.10.2 P 478 L 27 # 119  
 Dawe, Piers Agilent

Comment Type T Comment Status A

There's a lot of text here that probably should not be in bullet 5. We are missing a statement of what is switched on or off as we approach bullet 1.

SuggestedRemedy

?

Response Response Status C

ACCEPT IN PRINCIPLE. Add to bullet 1 "... signalling speed of the test pattern generator....". No change to bullet 5 (it's long, but correct).

CI 52 SC 52.9.10.2 P 478 L 30 # 120  
 Dawe, Piers Agilent

Comment Type T Comment Status A

Sinusoidal interferer can cause error floors on standard receivers. Need to be very cautious with it.

SuggestedRemedy

Change "greater than one-half" to "greater than two thirds" (is this on a dB scale?) or, if using fixed VECP of 2 dB, "greater than 1.3 dB".

Response Response Status C

ACCEPT IN PRINCIPLE. Change "greater than one-half" to "greater than two thirds".

10:1

Note: This was a reconsideration of a change to "three quarters".

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.10.2 P 478 L 33 # 186  
 Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status R  
 Better wording.  
 SuggestedRemedy  
 Change "approximately" to "less than"  
 Response Response Status C  
 REJECT. "not to exceed" already occurs beforehand.

Cl 52 SC 52.9.10.2 P 478 L 35 # 187  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status A  
 Clarification required.  
 SuggestedRemedy  
 Last line of paragraph - "...calibration pattern, if different than the final test pattern specified in Table 52-22."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Change to:  
 Turn on the calibration pattern. A short pattern may be used for calibration if the conditions described in 52.9.10.1 are met, but increases the risk that the longer test pattern used during testing will overstress the device under test. In any case, a pattern shorter than PRBS10 is not recommended;  
 Note: This is a reconsideration to further caution about short patterns.

Cl 52 SC 52.9.10.2 P 478 L 41 # 121  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 In a world of synthesisers, we may not avoid "synchronous". Frequencies with no large common factor is enough. But need to mention the SJ.  
 SuggestedRemedy  
 "... avoid a harmonic relationship between the sinusoidal interference, the sinusoidal jitter, the data rate and the pattern repetition rate."  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.2 P 478 L 45 # 122  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 My first thought: can't be "above the flat portion of the template". My second thought: if there is no CRU in the cal, who cares?  
 SuggestedRemedy  
 "... well within the flat portion of the template ..." or Replace the paragraph with "Sinusoidal jitter (phase or frequency modulation) must be added in accordance with the limits in Table 52-19 for frequencies above 4 MHz."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Choose first solution.

Cl 52 SC 52.9.10.2 P 478 L 46 # 188  
 Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status A  
 Better word.  
 SuggestedRemedy  
 Replace "above" with "along".  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. See #122.

Cl 52 SC 52.9.10.2 P 478 L 50 # 123  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 repetition  
 SuggestedRemedy  
 Replace ", and that sinusoidal jitter is between 0.05-0.15 peak-peak above 4 MHz." with "and sinusoidal jitter."  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Handled by another comment.

Cl 52 SC 52.9.10.2 P 478 L 50 # 39  
 Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A  
 The wording is clumsy  
 SuggestedRemedy  
 Change "between 0.05-0.15" to "between 0.05 and 0.15"  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Change text "sinusoidal jitter above 4 MHz is as specified in Table 52-19". In Table 52-19, use "<=" signs instead of dash for ranges of S.



P802.3ae Draft 4.2 Comments

CI 52 SC 52.9.10.2 P 478 L 6 # 35

Dudek, Mike Cielo Communications

Comment Type E Comment Status A

It would be better to be more explicit

SuggestedRemedy

insert "Extinction Ratio (min) so that this line reads  
"Set the extinction ratio to approximately the Extinction Ratio (min) value given in ....."

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 479 L 11 # 40

Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Incorrect references

SuggestedRemedy

Change 52-14 to 52-13 and 52-18 to 52-7

Response Response Status C

ACCEPT IN PRINCIPLE. They were dumb links, corrected also for 10GBASE-S.

CI 52 SC 52.9.10.2 P 479 L 11 # 189

Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Wrong table references.

SuggestedRemedy

Line 11 should refer to Tables 52-9, 52-13, and 52-17. Line 13 should refer to Table 52-22. Also, line 9 is missing its period.

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 479 L 13 # 127

Dawe, Piers Agilent

Comment Type E Comment Status A

precise reference

SuggestedRemedy

Replace "Table 52-21" with "52.9.1".

Response Response Status C

ACCEPT.

CI 52 SC 52.9.10.2 P 479 L 16 # 128

Dawe, Piers Agilent

Comment Type T Comment Status A

Measuring OMA with interference

SuggestedRemedy

Replace "(difference of means of histogram)" with "(difference between outer peaks of histogram)". Lengthen the white jitter histogram area.

Response Response Status C

ACCEPT IN PRINCIPLE. Lengthened white jitter histogram per comment. See #65 for REJECTION of technical change.

CI 52 SC 52.9.10.2 P 479 L 17 # 165

Thaler, Pat Agilent

Comment Type E Comment Status A

The vertical eye closure histogram rectangle seems to be larger than it should be. What are the P0 and P1 rectangles? The text doesn't seem to mention them?

SuggestedRemedy

Reduce to go from the OMA line to the Ao line. Clarify P0 and P1.

Response Response Status C

ACCEPT IN PRINCIPLE. Used arrows to define P0, P1 boxes.

CI 52 SC 52.9.10.2 P 479 L 4 # 125

Dawe, Piers Agilent

Comment Type E Comment Status R

Have to redefine OMA in the face of interferer (definition is unchanged if no interferer).

SuggestedRemedy

Delete "If high linearity exists, then the sinusoidal interference should not change the OMA value."

Response Response Status C

REJECT. See #65.

CI 52 SC 52.9.10.2 P 479 L 41 # 41

Dudek, Mike Cielo Communications

Comment Type E Comment Status R

We now longer measure the transmitter jitter separately, and the text just adds confusion.

SuggestedRemedy

Delete the sentence "In the case of ..... effect interoperability."

Response Response Status C

REJECT. Provides good coverage in case of bad user test setups.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.10.2 P 479 L 8 # 126  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 not psec  
 SuggestedRemedy  
 ps  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.3 P 479 L 53 # 129  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Trying to get away from the "do this -do that" style inherited from elsewhere. We specify outcomes not inputs.  
 SuggestedRemedy  
 Replace "Set up the test apparatus" with "The test apparatus is set up".  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.10.3 P 480 L 1 # 42  
 Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A  
 Text is unnecessary and somewhat confusing, particularly as we no longer measure Tx jitter either.  
 SuggestedRemedy  
 Delete "does not result.....It does, however."  
 Delete the paragraph "The implementer ..." on line 5  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Removed implementor, kept rest because it's useful text that reiterates the interoperability goal.

Cl 52 SC 52.9.11 P 480 L 10 # 130  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Order as presented, completeness  
 SuggestedRemedy  
 Replace "the transmitter under test, a reference transmitter," with "a reference transmitter, the transmitter under test, a controlled optical reflection,".  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.11 P 480 L 12 # 80  
 Dawe, Piers Agilent  
 Comment Type E Comment Status R  
 Function of TDP measurement needs explanation.  
 SuggestedRemedy  
 Add "This measurement tests for modal (not chromatic) dispersion effects for 10GBASE-S, and for chromatic effects for 10GBASE-L and 10GBASE-W."  
 Response Response Status C  
 REJECT. Purpose of the test does not need to be justified in this text.

10:3

Cl 52 SC 52.9.11.1 P 478 L 21 # 99105  
 Pepeljugin, Petar IBM  
 Comment Type TR Comment Status A  
 The Bessel-Thompson filters built-in the measurement equipment have very loose tolerances. These tolerances are +/- 0.85 dB for frequencies up to 7.45 GHz, and grow up to +/- 4dB at 14.9 GHz. Using these components in the receiver conformance testing adds additional level of variability in the measurement setup.  
 Simulations show that instead of nominally 2.2 dB, these filters can generate ISI penalties in the range of 1.6 dB to 3.4 dB.  
 The standard does not prescribe how to correct for these type of errors. For instruments and test implementations where the filters are built-in, it is impossible (or at least very difficult) for the end user to know the magnitude and direction of the error.  
 For filters built-in the scopes and other instruments it is impossible for the end user to determine the actual bandwidth  
 SuggestedRemedy  
 Modify the receiver conformance test setup to eliminate the 7.5 GHz filter used to calibrate the VECP of the stress signal and mandate high bandwidth receiver. Accordingly, modify Tables 52.9, 52.14 and 52.18 (the entry for the required VECP).

Response Response Status U  
 ACCEPT IN PRINCIPLE. Replace text "The vertical and horizontal eye closures to be used for receiver conformance testing are verified using an optical reference receiver with a 7.5 GHz fourth order Bessel-Thomson response as specified in G.691 as the ITU-T STM-64 reference." with "The vertical and horizontal eye closures to be used for receiver conformance testing are verified using an optical reference receiver with a 7.5 GHz fourth order ideal Bessel-Thomson response. Use of G.691 tolerance filters may significantly degrade this calibration."  
 12:3

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.11.1 P 480 L 14 # 81  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Title is misleading.  
 SuggestedRemedy  
 Insert "Reference" before "transmitter".  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.11.1 P 480 L 24 # 131  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 style  
 SuggestedRemedy  
 Replace "Minimize RIN," with "RIN should be minimized, to".  
 Response Response Status C  
 ACCEPT.

Cl 52 SC 52.9.11.2 P 480 L 50 # 132  
 Dawe, Piers Agilent  
 Comment Type T Comment Status A  
 Don't specify a method - especially if the method has issues.  
 SuggestedRemedy  
 Replace "This is achieved with channels consisting of an ITU-T G.652 fiber or fibers with lengths chosen to meet the dispersion requirements." with "51 This may be achieved with fiber lengths chosen to meet the dispersion requirements."  
 Response Response Status C  
 ACCEPT.  
 7:0

Cl 52 SC 52.9.11.2 P 481 L 3 # 190  
 Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status A  
 Wrong word.  
 SuggestedRemedy  
 Replace "an" with "a".  
 Response Response Status C  
 ACCEPT. Removed by another comment.

Cl 52 SC 52.9.11.2 P 481 L 4 # 133  
 Dawe, Piers Agilent  
 Comment Type E Comment Status A  
 Follow-on from my comment beginning "Technical problem with Optical Return Loss Tolerance." Also not "an minimum".  
 SuggestedRemedy  
 "The channel provides a minimum optical back reflection (Optical Return Loss Tolerance)specified in Table 52 –23, which refers to the Optical Return Loss Tolerances in Table 52 –7 for 10GBASE-S and Table 52 –16 for 10GBASE-E.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE. Handled by resolution of #51 (TDP, VECP).

Cl 52 SC 52.9.11.3 P 481 L # 171  
 Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status A  
 Nominal sensitivity (S) of reference receiver requires clarification.  
 SuggestedRemedy  
 The differences between the sensitivity measurement setup for the reference Tx (to determine S) and the DUT are significant enough that I suggest another figure for the former.  
 Duplicate 52-12. In the duplicate figure,  
 1. Eliminate the DUT, single-mode fiber, note about polarization rotater, splitter, variable reflector, and test fiber blocks.  
 2. Add a block "Reference Tx" ahead of the attenuator.  
 3. Name the figure "Test setup for measurement of nominal sensitivity, S".  
 Change the end of line 12 to "...set up of Figure 52-xx.", where 52-xx is the new figure. Delete the rest of the sentence. The new figure should ideally appear right after this paragraph.  
 Insert ahead of the sentence starting near the end of line 14 "It should be measured while sampling at the eye center. It should be corrected for off-center sampling and calibrated at the wavelength...".  
 Insert "reference" ahead of "transmitter" in line 14.

Response Response Status C  
 ACCEPT IN PRINCIPLE. Other parts fixed by #134, also do:  
 Insert ahead of the sentence starting near the end of line 14 "It should be measured while sampling at the eye center or corrected for off-center sampling".  
 Insert "reference" ahead of "transmitter" in line 14.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.11.3 P 481 L 13 # 44

Dudek, Mike Cielo Communications

Comment Type E Comment Status R

In this paragraph it states "and the transversal filter removed". This is confusing as the transversal filter has not been described prior to this paragraph

SuggestedRemedy

Swap the order of this paragraph with the next paragraph where the transversal filter is described.

Response Response Status C

REJECT. Actually, it is described below.

Cl 52 SC 52.9.11.3 P 481 L 16 # 173

Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status A

Need to define eye center.

SuggestedRemedy

Add a new paragraph at line 16. "For all transmitter and dispersion penalty measurements, determination of the center of the eye is required. Center of the eye is defined as the time halfway between the left and right sampling points within the eye where the measured BER is greater than or equal to 1E-3."

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.11.3 P 481 L 18 # 172

Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status R

Use of transversal filter must be clarified.

SuggestedRemedy

Add to the end of line 18 "...is not used, nor is it used during measurement of the nominal sensitivity, S, of the reference receiver.

Response Response Status C

REJECT. Transversal filter already marked as removed above.

Cl 52 SC 52.9.11.3 P 481 L 18 # 182

Lindsay, Tom Stratos Lightwave

Comment Type TR Comment Status D

The requirements for the filter for -S are too stressful. The transversal model is too extreme (equal-magnitude 2-path split), and we have other controlled launch specs. Also, the transversal filter is too difficult to implement.

SuggestedRemedy

Replace the transversal filter with a realizable dispersive filter with equivalent bandwidth. If this is accepted, then delete all other instances of "transversal".

Response Response Status Z

Withdrawn.

Cl 52 SC 52.9.11.4 P 481 L 29 # 174

Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status D

0.05 UI is too little to be of good use.

SuggestedRemedy

Either increase the offset value(s) to at least 0.1 UI, or sample only at center. I prefer the latter.

Response Response Status Z

Withdrawn.

Cl 52 SC 52.9.11.4 P 481 L 30 # 191

Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Wrong word.

SuggestedRemedy

Replace "highest" with "higher".

Response Response Status C

ACCEPT IN PRINCIPLE. Used "larger".

Cl 52 SC 52.9.11.4 P 481 L 33 # 192

Lindsay, Tom Stratos Lightwave

Comment Type E Comment Status A

Better wording.

SuggestedRemedy

Replace "have" with "obtain".

Response Response Status C

ACCEPT.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.11.4 P 481 L 39 # 175

Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status A

Sentence is confusing. I have no idea what it means or why it is here.

SuggestedRemedy

Delete sentence or explain what regime is being referred to. Is it optical power? See also line 54 on page 480.

Response Response Status C

ACCEPT IN PRINCIPLE. Use "linear power regime" in both instances.

Cl 52 SC 52.9.12 P 482 L 30 # 135

Dawe, Piers Agilent

Comment Type E Comment Status A

Wordsmithing needed: suggestions welcome. b "Connect the laser output with no RF modulation" is problematical; which laser? c Do we want to maintain the OMA of the signal too? d dBm could be clarified

SuggestedRemedy

b ? c ? d "(in electrical dBm)"

Response Response Status C

ACCEPT IN PRINCIPLE. Changes as below:

b .... With the RF modulation turned off, and both optical sources turned on, set the Optical Modulation Amplitude to a level that approximates the stressed receiver sensitivity level in Table 52-9 for 10GBASE-S, Table 52-13 for 10GBASE-L, and Table 52-17 for 10GBASE-E;

c Turn on the RF modulation while maintaining the same average optical power and OMA established in step b;

d "(in electrical dBm)"

Cl 52 SC 52.9.12.3 P 481 L # 99106

Lindsay, Tom Stratos Lightwave

Comment Type TR Comment Status A

We discussed controlling the sampling point being +/- offset from the center. We need more verification of the "contract" between Tx and Rx (jitter and amplitude), but at least the Rx should represent typical behaviors and tolerance of receivers.

SuggestedRemedy

Specify the sampling point as +/-0.1 UI from the eye center.

Response Response Status C

ACCEPT IN PRINCIPLE. See #10.

Cl 52 SC 52.9.13 P 481 L 33 # 99107

Dawe, Piers Agilent

Comment Type TR Comment Status R

Coming under renewed pressure from the food chain to declare the minimum mean power. Let's just do it, it won't hurt!

SuggestedRemedy

Add normative Tx specifications to three tables 52-7, 12, 17 which impose a minimum mean power about 0.5 dB above the hypothetical minimum mean power for minimum OMA, the most favorable triple trade off point and a very high extinction ratio. Suggested values were -5.5 dBm for BASE-L, -3 for BASE-E. See [Pave\\_OMA-L.pdf](#) and [Pave\\_OMA-E.pdf](#) 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 Z

REJECT. This overspecifies a link and may confuse customers.

11:1

Cl 52 SC 52.9.4 P 470 L 48 # 15

Ohlen, Peter Optillion

Comment Type T Comment Status R

What is the origin of "[B13]" ??? I checked my copy of 526-4A but did not get the deeped understanding i hoped for... As far as I know, the title of the standard does not contain "[B13]".

SuggestedRemedy

Remove "[B13]" unless someone can see a good reason to keep it.

Response Response Status C

REJECT. [B13] is an internal IEEE reference to an external standard. Further editorial work to classify and format all such references is CLEARLY needed.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.5 P 469 L 38 # 99108

Dawe, Piers Agilent

Comment Type TR Comment Status R

Following improvements agreed last time, this subclause can be condensed and brought further into line with industry practice. This also makes for cheaper measurements (because the DUT has to be exercised in fewer modes), and makes for a more relevant measurement. We could have reduced this to a one-liner "per ANSI/TIA/EIA-526-4A" but because OMA is relatively new, let's spell it out.

SuggestedRemedy

"52.9.5 Optical modulation amplitude (OMA) measurement

OMA is the difference in optical power for the nominal "1" and "0" levels of the optical signal as defined as b1 and b0 in ANSI/TIA/EIA-526-4A-1997 [B13]. It should be assured during system operation. However, measurements with pattern 1 or 3 defined in 52.9.1, or other patterns such as a 2^23-1 PRBS or a valid 10GBASE-R or 10GBASE-W or OC192c or STM-64 signal will give equivalent results. The measurement system, e.g. digital communications analyzer, has a 4th order Bessel-Thomson filter as specified in 52.9.7. On an eye diagram, b1 is the mean of the histogram of the upper half of the diagram in the time window from 0.4 to 0.6 UI where 0 and 1 UI are the mean crossing times of the signal. Similarly, b0 is the mean of the histogram of the lower half of the diagram in the same time window. OMA, known as "Eye Amplitude" in some digital communications analyzers, is b1 - b0. It is equivalent to  $OMA = 2A((ER-1)/(ER+1))$

where A is the average optical power A (in mW) and ER = b1 /b0 is the extinction ratio (absolute ratio NOT dB). OMA may be quoted in dBm or mW."

Delete figures 52-6 and 52-7.

Response Response Status Z

REJECT. Revert to square wave method (D4.0). State "OMA can be approximated by AN on Fig. XXX". (goes in OMA measurement section, replacing "An alternative..." paragraph.)

13:4

Cl 52 SC 52.9.5 P 471 L 25 # 16

Ohlen, Peter Optillion

Comment Type T Comment Status R

We exchanged Figure 52-11 for a new figure which shows how the stressed eye would look like. Here, the figure should look more like a real eye as seen with a 7.5GHz BT filter. I think the old figure 52-11 did a good job here.

SuggestedRemedy

Insert the old figure 52-11 in somewhere close to p.471:25 and refer to this figure instead of the new 52-11. Also, because have renamed A\_N in the figure to OMA, change A\_N to OMA here.

Response Response Status C

REJECT. Figures adequately represents the approximate OMA measurement. But, changed AN to OMA and reworded sentence.

Cl 52 SC 52.9.5 P 471 L 25 # 65

Dawe, Piers Agilent

Comment Type T Comment Status R

Need to add more detail to cope with the unusual case of OMA in the stressed eye generator. By considering an individual pulse within an interfered signal, one can see that effectively, (explained in a linear approximation), the effective OMA with interference is the OMA without plus the pk-pk amplitude of the interferer, and the VECF is proportionally greater because of course the inner eye opening is the same.

SuggestedRemedy

Add "Only in the case of a stressed receiver conformance signal obtained using an interfering sine wave, two peaks rather than one should be evident in the histograms of the two measurement windows. Then, OMA is the difference between the two outer peaks."

Response Response Status C

REJECT. It is better to keep the OMA measurement identical in both cases. The intent of the change is to reduce the amount of stress in the stressed sensitivity test. Data has not been presented to justify this relaxation.

10:2

Cl 52 SC 52.9.6.2 P L # 206

Dawe, Piers Agilent

Comment Type E Comment Status A

Mike and I missed this one: in case another commenter hasn't put it in the database for you p.472 line 38 in sec. 52.9.6.2.  
In the 1st paragraph, the reference to tables #s are probably wrong:  
Table 52.9 should read table 52.7.  
Table 52.13 should read table 52.12.  
Table 52.17 should read table 52.16.  
Piers

SuggestedRemedy

Fix

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.6.2 P 472 L 49 # 147

Dawe, Piers Agilent

Comment Type E Comment Status A

standard abbreviation

SuggestedRemedy

DC

Response Response Status C

ACCEPT.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.6.2 P 473 L 4 # 146

Dawe, Piers Agilent

Comment Type T Comment Status A

The electrical power meter cannot be an RF type, any more than I heat my food up in an RF oven. It's a microwave oven. Maybe the sentence was OK in the lower speed standard we used as an example.

SuggestedRemedy

Combine the sentences: "The electrical power meter should be capable of being zeroed in the absence of input optical power to remove any residual noise."

Response Response Status C

ACCEPT IN PRINCIPLE. Remove first sentence. Specify "RMS electrical power meter" in second sentence.

Cl 52 SC 52.9.6.3 P 472 L 12 # 99109

Dawe, Piers Agilent

Comment Type TR Comment Status A

Wrong pattern. OMA in RIN test must use same pattern as OMA in OMA test!

SuggestedRemedy

Replace "square wave pattern of 52.9.1" by "a signal or pattern per 52.9.5"

Response Response Status C

ACCEPT IN PRINCIPLE. No change required because square wave already specified for OMA.

13:1

Cl 52 SC 52.9.6.3 P 473 L # 66

Dawe, Piers Agilent

Comment Type T Comment Status A

This measurement will maximise coherent interference at transmitter and, I think, at the O to E. This could cause an error in P\_M up to around one optical dB; this error should and can be avoided.

SuggestedRemedy

Add sentence after "surement, P\_M" ". It may be necessary to change or remove the effective reflection to obtain an accurate reading"

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.7 P 472 L 41 # 99110

Dawe, Piers Agilent

Comment Type TR Comment Status R

Time definitions "measured at the average value of the optical eye pattern" is what we want, but specifying it involves straying too far into the inner workings of oscilloscopes. I had a quick look at this: what they do seems to be good enough, and we have bigger issues to settle.

SuggestedRemedy

Delete "measured at the average value of the optical eye pattern".

Response Response Status U

REJECT. The definition is trying to emulate AC coupling which is typical for receivers.

12:2

Cl 52 SC 52.9.7 P 473 L 37 # 17

Ohlen, Peter Optillion

Comment Type T Comment Status A

Two sentences stating the same thing:

1. This should ....
2. Compliance is to ....

SuggestedRemedy

Remove the first one:

"This should be assured during system operation."

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.7 P 473 L 37 # 30

Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Repetition of "assured during system operation"

SuggestedRemedy

Remove the sentence "This should be assured during system operation."

Response Response Status C

ACCEPT. Removed by another similar comment.

P802.3ae Draft 4.2 Comments

Cl 52 SC 52.9.7 P 473 L 48 # 31

Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Figure 52-9 is useful, but is not referred to in the text.

SuggestedRemedy

Insert "as shown in figure 52-9" after "trigger the scope for mask measurements.

Response Response Status C

ACCEPT.

Cl 52 SC 52.9.7 P 474 L 2 # 152

Dawe, Piers Agilent

Comment Type T Comment Status R

H(y) ? Other standards have H(p). As y is a function of p alone, we can agree with the wise people who wrote G.957. This does not change the equation.

SuggestedRemedy

H(p)

Response Response Status C

REJECT. Nothing is broken. Omega would be an equally viable candidate, but that is not proposed, and y appears in the equation.

7:1

Cl 52 SC 52.9.8 P 474 L # 169

Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status A

Subclause no longer required since rise/fall is covered by TDP.

SuggestedRemedy

Remove all of clause 52.9.8.

Response Response Status C

ACCEPT. Removed by #155.

Cl 52 SC 6.2 P 450 L 14 # 99046

Geoffrey Garner Lucent Technologies

Comment Type TR Comment Status R D4.0 #11 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 with 139.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it is in Table 52-12.

Response Response Status U

REJECT.

See response to comment 96 of D4.2 for an updated explanation.

Cl 52 SC 6.2 P 450 L 14 # 99045

Rick Townsend Lucent Technologies

Comment Type TR Comment Status R D4.0 #35 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 with 139.95328 GBd as rate and +/-20ppm as clock tolerance in the same way as it is in Table 52-12.

Response Response Status U

REJECT.

See response to comment 96 of D4.2 for an updated explanation.



P802.3ae Draft 4.2 Comments

CI 52 SC 7.2 P 453 L 14 # 99048  
 Geoffrey Garner Lucent Technologies

Comment Type TR Comment Status R D4.0 #12 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. The receiver specification should be changed to what is required in line with the transmitter and transport network specification.

Suggested Remedy

Add an extra column for 10GBASE-LW 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 response to comment 96 of D4.2 for an updated explanation.

CI 52 SC 7.2 P 453 L 14 # 99047  
 Rick Townsend Lucent Technologies

Comment Type TR Comment Status R D4.0 #34 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. The receiver specification should be changed to what is required in line with the transmitter and transport network specification.

Suggested Remedy

Add an extra column for 10GBASE-LW 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 response to comment 96 of D4.2 for an updated explanation.

CI 52 SC 7.2 P 456 L 20 # 99100  
 Juergen Rahn Lucent Technologies

Comment Type TR Comment Status R

The sensitivity has again been made 1 dB more stringent. This is in contradiction to the feasibility investigation result.

Suggested Remedy

Replace the nominal sensitivity with 13.4 dBm and the stressed with 10.3 dBm

Response Response Status U

REJECT. Current specifications reflect feasibility study results, are consistent (but not identical) with SONET, and maintain current link budget.

CI 52 SC 8 P 466 L 12 # 99101  
 Juergen Rahn Lucent Technologies

Comment Type TR Comment Status R

The jitter methodology has been changed to a new not verified procedure. It is not clear if this gives feasible results.

Suggested Remedy

Change the method to industry practice. Reference ITUT G.783 for 10G WAN-Phy jitter specification.

Response Response Status U

REJECT. The SONET standard does not deal with jitter within a link. The SONET specification deals with accumulated jitter which is not relevant for an Ethernet (point-to-point) link.

P802.3ae Draft 4.2 Comments

CI 52 SC Figure 52-10 P 476 L 10 # 68

Dawe, Piers Agilent  
 Comment Type E Comment Status A

Bugs remain in figure.

SuggestedRemedy

Change "PCS" to "PCS or WIS". Move arrow to Signal Characterization Measurement to start upstream of attenuator. Label the clock coming into Signal Characterization Measurement as "Clean clock". Better still, change "Clock Source" to "Clock Source 1" and make this one ""Clean Clock 2". Need to get rid of the "AM", which isn't correct, when we have thought of a better name for it.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "PCS" to "PCS or WIS".

Move arrow to Signal Characterization Measurement to start upstream of attenuator.

Label the clock coming into Signal Characterization Measurement as "Clean clock".

"AM" to "Amplitude Interferer"

CI 52 SC Figure 52-11 P 479 L # 170

Lindsay, Tom Stratos Lightwave  
 Comment Type E Comment Status A

Figure needs some tweaks. See original comment input from previous ballot.

SuggestedRemedy

1. The 2 lines indicating OMA should be more in the vertical middles of the topline and baseline. 2. The histogram box for jitter (J) should be narrower and wider. 3. The topline and baseline histogram boxes should be a little longer in height (to be sure that all traces are measured). They could also be a little wider.

Response Response Status C

ACCEPT.

CI 52 SC Figure 52-12 P 481 L 42 # 134

Dawe, Piers Agilent  
 Comment Type E Comment Status A

Suggestions for figure

SuggestedRemedy

Swap Optical Attenuator and Test Fiber. Because then add Reference Transmitter, alternatively feeding attenuator. Add optional (dotted) transversal filter (10GBASE-S only) in Data path.

Response Response Status C

ACCEPT.

CI 52 SC Figure 52-4 P 467 L # 167

Lindsay, Tom Stratos Lightwave  
 Comment Type T Comment Status A

Comment from previous ballot not implemented correctly. Sloping portion of curve should also show x3 range for SJ.

SuggestedRemedy

I suggest not using black fill between the limits of the range. Rather, show the two limit lines equi-spaced over the entire frequency range (including sloping portion), then show two vertical arrow-pairs - 1 in the flat section, 1 in the sloping section, each labeled "3x range".

Response Response Status C

ACCEPT IN PRINCIPLE. Technical portion handled by #64. Put in 3x range arrows in parallel portion (HF).

CI 52 SC Figure 52-4 P 467 L 36 # 26

Dudek, Mike Cielo Communications  
 Comment Type E Comment Status A

The informative figure does not match the normative table 52-19

SuggestedRemedy

Change the figure to match the normative text so that the break point is at 4MHz for the complete band.

Response Response Status C

ACCEPT IN PRINCIPLE. See #64.

CI 52 SC Figure 52-9 P 475 L 20 # 67

Dawe, Piers Agilent  
 Comment Type E Comment Status A

Bugs remain in figure.

SuggestedRemedy

Change BERT to Oscilloscope. Remove Test Fiber and one connection, the other to be TP2.

Response Response Status C

ACCEPT IN PRINCIPLE. In addition, change "clock in" to "trigger" and "data in" to "input".

P802.3ae Draft 4.2 Comments

CI 52 SC Table 52-14 P 450 L 22 # 99049  
 Pepeljuginoski, Petar IBM

Comment Type TR Comment Status R D4.0 #114 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

CI 52 SC Table 52-15 P 464 L 35 # 150  
 Dawe, Piers Agilent

Comment Type E Comment Status A

Bad reference: Attenuation for B1.1 or B1.3 single mode fiber is not specified in for 1550 nm in Table 52-25.

SuggestedRemedy

"Attenuation for such links needs to be less than that guaranteed by B1.1 or B1.3 single mode fiber."

Response Response Status C

ACCEPT IN PRINCIPLE. Use: "Attenuation for such links needs to be less than that the minimum specified for B1.1 or B1.3 single mode fiber."

CI 52 SC Table 52-22 P 469 L 40 # 151  
 Dawe, Piers Agilent

Comment Type E Comment Status A

Keeping table up to date

SuggestedRemedy

Delete line of Transmit rise/fall characteristics. May need to delete line of Side mode suppression ratio. May need to change pattern for Vertical eye closure penalty calibration to "See 52.9.10".

Response Response Status C

ACCEPT IN PRINCIPLE. All changes accepted except: "Delete line of Transmit rise/fall characteristics." and SMSR removal (not gone).

CI 52 SC Table 52-12 P 462 L 29 # 24  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

The descriptions "OMA-TDP(Max)" and "Optical Modulation Amplitude (Min)" in the 1300nm table are confusing and "OMA-TDP(Max)" is inconsistent with the equivalent line in the equivalent 1550nm table.

SuggestedRemedy

Replace "OMA-TDP(Max)" with "Launch power (min) in OMA minus TDP". Footnote this line with "TDP is Transmitter and Dispersion Penalty"  
 Add a footnote to the line "Optical Modulation Amplitude (min)" reading "Even if the TDP is <1dB the OMA(min) must exceed this value".

Response Response Status C

ACCEPT.

CI 52 SC Table 52-12 P 462 L 45 # 25  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Return Loss has been replaced by Transmitter Reflectance in the table. It should be replaced in the footnote as well.

SuggestedRemedy

Change "return loss" to "Transmitter Reflectance"

Response Response Status C

ACCEPT.

CI 52 SC Table 52-12 P 462 L 25 # 55  
 Dawe, Piers Agilent

Comment Type T Comment Status R

Do we need an SMSR spec any more? Is it superseded by measured TDP?

SuggestedRemedy

Discuss, and possibly delete the row.

Response Response Status C

REJECT. See #60.

P802.3ae Draft 4.2 Comments

Cl 52 SC Table 52-12 P 462 L 28 # 61

Dawe, Piers Agilent

Comment Type T Comment Status A

Here we need to add at least a statement of minimum average launch power to make this standard more acceptable to operators in the telecoms tradition. This is important for a part of the 1310 nm market. At the last meeting I misunderstood my own diagrams but having cleaned that up:

SuggestedRemedy

Option 1 (technical): add new spec line "Average launch power (min ) -7.5 dBm" Add footnote "Average power is not the principal criterion of signal strength. A transmitted signal with average powers between -7.5 and -4 dBm may or may not be compliant. The user may inspect the signal's OMA and inner eye opening." Option 2 (editorial): Add footnote "Average power is not the principal criterion of signal strength. A transmitted signal below -8.2 dBm cannot be compliant."

Response Response Status C

ACCEPT IN PRINCIPLE. See #77.

Cl 52 SC Table 52-12 P 462 L 28 # 56

Dawe, Piers Agilent

Comment Type E Comment Status A

OMA-TDP (max) in dB should be ...

SuggestedRemedy

min in dBm

Response Response Status C

ACCEPT IN PRINCIPLE. Handled by #24.

Cl 52 SC Table 52-16 P 465 L 15 # 60

Dawe, Piers Agilent

Comment Type T Comment Status R

Do we need an SMSR spec any more? Is it superseded by measured TDP?

SuggestedRemedy

Discuss, and possibly delete the row.

Response Response Status C

REJECT. It is not expected that removing the specification will permit lower cost transmitters (for example, FP lasers)

Cl 52 SC Table 52-17 P 465 L 21 # 105

Dawe, Piers Agilent

Comment Type T Comment Status A

At the last meeting we changed the max TDP from 3.5 to 3 dB, I believe because while we had TDP and VECP linked, committing to test receivers against 3.5 dB VECP was too much of a risk. If as I believe we should, we decouple these so that the stressed Rx test becomes a standardised condition rather than a way-out extreme per PMD, then the rationale goes away. What are good values for max TDP? We want something a little more lenient than SONET, because we want to be cost effective and we have extra rigour in various places. 3 - not bad 3.2 - same as BASE-L - OK 3.5 - where we were - OK 3.6 - thought to be the limit in 802.3z

SuggestedRemedy

3.2?

Response Response Status C

ACCEPT IN PRINCIPLE. Changed VECP to 2.7 dB. See #51.

Cl 52 SC Table 52-17 P 465 L 18 # 63

Dawe, Piers Agilent

Comment Type T Comment Status A

Here we need to add at least a statement of minimum average launch power to make this standard more acceptable to operators in the telecoms tradition. This is most important for 1550 nm. At the last meeting I misunderstood my own diagrams but having cleaned that up:

SuggestedRemedy

Option 1 (technical): add new spec line "Average launch power (min) -5.0 dBm" Add footnote "Average power is not the principal criterion of signal strength. A transmitted signal with average powers between -5 and approximately +2 dBm may or may not be compliant. The user may inspect the signal's OMA and inner eye opening." Option 2 (editorial): Add footnote "Average power is not the principal criterion of signal strength. A transmitted signal below -5.4 dBm cannot be compliant."

Response Response Status C

ACCEPT IN PRINCIPLE. See #77.

P802.3ae Draft 4.2 Comments

Cl 52 SC Table 52-17 P 465 L 19 # 62  
 Dawe, Piers Agilent

Comment Type T Comment Status A

Here we should do like 10GBASE-L and define a minimum OMA. Because 1550 transmitters could be very expensive, with very low TDP, we can set it nearer to (OMA-TDP) than in that case. However, a TDP less than 0.4 dB would be very good, and an implementer with such a valuable transmitter would not set it up at the absolute minimum OMA. The purpose of this is to improve observability of the signal for network operators.

SuggestedRemedy

Add new spec line "Optical Modulation Amplitude (min) -2.0 dBm"

Response Response Status C

ACCEPT IN PRINCIPLE. Add row (-1.7 is OMA value due to another comment) and add footnote to OMA: "Even if the TDP < 0.4 dB, the OMA(min) must exceed this value"

Cl 52 SC Table 52-19 P 468 L 11 # 168  
 Lindsay, Tom Stratos Lightwave

Comment Type T Comment Status A

I missed a change needed from the previous ballot.

SuggestedRemedy

Remove "0.05 UI" from the 1st footnote of the table.

Response Response Status C

ACCEPT IN PRINCIPLE. See #27.

Cl 52 SC Table 52-19 P 468 L 11 # 27  
 Dudek, Mike Cielo Communications

Comment Type T Comment Status A

The footnote is incorrect. The high frequency jitter is now "S" a variable instead of "0.05UI"

SuggestedRemedy

Change the footnote to "Upper frequency bound for S UI added sine jitter" or just "upper frequency bound for added sine jitter"

Response Response Status C

ACCEPT IN PRINCIPLE. Choose "upper frequency bound for added sine jitter".

Cl 52 SC Table 52-19 P 467 L 10 # 64  
 Dawe, Piers Agilent

Comment Type T Comment Status A comment 64

In an attempt to sort out the stressed eye generator we have allowed part of the jitter tolerance test to vary by a factor of three, which is very bad practice: we have to decide what the criterion is and tie it down. Furthermore, D4.2 could be as demanding as SONET for low frequency jitter tolerance, for insufficient reason. Luckily there is a fix:

SuggestedRemedy

Change "S x 4 x 10<sup>6</sup>/f" to "2 x 10<sup>5</sup>/f + S - 0.05" If we can narrow the range of S to say 0.05 to 0.1, do so.

Response Response Status C

ACCEPT IN PRINCIPLE. Change "S x 4 x 10<sup>6</sup>/f" to "2 x 10<sup>5</sup>/f + S - 0.05" in Table 52-19. Change also figure 52-4 to make same. No change to the range of S is mandated.

Cl 52 SC Table 52-2 P 470 L 22 # 29  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

Transmitter jitter output is no longer measured separately from transmitter and dispersion penalty.

SuggestedRemedy

Remove the line "Transmitter jitter output"

Response Response Status C

ACCEPT.

Cl 52 SC Table 52-22 P 469 L 35 # 28  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

It was decided at the last meeting (and incorporated in the main text) that the square wave should be used for OMA measurement. This table hasn't been modified.

SuggestedRemedy

Change the Pattern for OMA from 1 or 3 to Square.

Response Response Status C

ACCEPT.

P802.3ae Draft 4.2 Comments

Cl 52 SC Table 52-23 P 480 L 38 # 43  
 Dudek, Mike Cielo Communications

Comment Type E Comment Status A

We now have a line in the transmitter tables for Optical Return Loss Tolerance. It would be less confusing to refer to this than the receiver tables. Footnote c then also needs to be re-worded

SuggestedRemedy

Replace the table references in the minimum return loss column  
 52-9 to 52-7  
 52-13 to 52-12  
 52-17 to 52-16

Change footnote c to read "The return loss is applied at TP2, and is given by the Optical Return Loss Tolerance in the referenced table.

Response Response Status C

ACCEPT IN PRINCIPLE. Handled by resolution of #51.

Cl 52 SC Table 52-23 P 480 L 39 # 58  
 Dawe, Piers Agilent

Comment Type T Comment Status A

Technical problem with Optical Return Loss Tolerance. The issue is that while we ask the transmitter to be tested for RIN with this much back reflection, we can't measure TDP in the same situation because of the significant but not harmful reflection noise which may be present in a low attenuation link. TDP should be measured with maximum reflection after the least attenuation for the maximum reach,  $12 + (5.85 * 2) = 23.7$  dB (although the test receiver does not have to follow that attenuation). We have shown that as the link attenuation is reduced, the improvement in signal strength outweighs the increase in reflection noise.

SuggestedRemedy

Change the 10GBASE-L return loss from "See Table 52-13" to "23.7 dB". (Maybe 21 would be tidier, same as BASE-E.) Might need a footnote to table 52-12 to explain what the return noise tolerance is used for.

Response Response Status C

ACCEPT IN PRINCIPLE. Chose 21 dB in resolution to #51.

Cl 52 SC Table 52-24 P 485 L 4 # 136  
 Dawe, Piers Agilent

Comment Type E Comment Status A

"10 um SMF" was deprecated. Copy table 52-25.

SuggestedRemedy

Type B1.1, B1.3 SMF

Response Response Status C

ACCEPT.

Cl 52 SC Table 52-7 P 459 L 12 # 10  
 Ohlen, Peter Optillion

Comment Type E Comment Status A

Should "See footnote" have a unit ??? I think the unit should be removed as it is specified in the footnote. The same applies to Tables 52-7.

SuggestedRemedy

Remove unit for these lines.

Response Response Status C

ACCEPT.

Cl 52 SC Table 52-7 P 459 L 27 # 11  
 Ohlen, Peter Optillion

Comment Type E Comment Status A

Remove "dB" from the value column.

SuggestedRemedy

See comment.

Response Response Status C

ACCEPT.

Cl 52 SC Table 52-7 P 459 L 27 # 22  
 Dudek, Mike Cielo Communications

Comment Type T Comment Status A

The maximum Transmitter and Dispersion penalty for 850nm is not calculated correctly. It should be calculated as the Link power penalty difference between the modelled worst case transmitter working into a reference receiver with the transversal filter with a short cable, and the link power penalty with a perfect Tx operating into the reference receiver without the transversal filter and with the short cable.

SuggestedRemedy

Change Transmitter and Dispersion Penalty (max) from 3.9dB to 4.3dB.

Response Response Status C

ACCEPT IN PRINCIPLE. 3.9 dB is correct. Add words to 52.9.11.3: "Baseline wander should be minimized for the reference receiver in this test." after first sentence.

P802.3ae Draft 4.2 Comments

Cl 52 SC Table 52-7 P 459 L 15 # 70

Dawe, Piers Agilent

Comment Type T Comment Status A

Here we may need to add at least a statement of minimum Average launch power to make this standard more acceptable to operators. We can take advice on how important this is for 10GBASE-S. At the last meeting I misunderstood my own diagrams but having cleaned that up:

*SuggestedRemedy*

Option 1 (technical): add new spec line "Average launch power (min) x dBm" Add footnote "Average power is not the principal criterion of signal strength. A transmitted signal with average powers between x and y dBm may or may not be compliant. The user may inspect the signal's OMA and inner eye opening." where x is 0.5 to 1 dB above the theoretical minimum derived from the normative specs, and y is the theoretical maximum. Option 2 (editorial): Add footnote "Average power is not the principal criterion of signal strength. A transmitted signal below xxx dBm cannot be compliant." where xxx is the theoretical minimum derived from the normative specs.

Response Response Status C

ACCEPT IN PRINCIPLE. See #77.

Cl 52 SC Table 52-7,12,16 P 459465 L # 59

Dawe, Piers Agilent

Comment Type E Comment Status D

Problem with "Optical Return Loss Tolerance (max)". These numbers may be the least positive that the transmitter need withstand but are the most positive that would be applied in a test. We can't decide if it should be max or min, readers will have the same problem. But the word "Tolerance" makes clear what we mean.

*SuggestedRemedy*

Delete "(max)" (three times).

Response Response Status Z

Withdrawn.

Cl 52 SC Table 52-9,13,17 P 4636 L # 57

Dawe, Piers Agilent

Comment Type E Comment Status A

Problem with "Vertical eye closure penalty (max)" and "Stressed eye jitter (max)". These numbers may be the most the receiver need withstand but are the least applied in the stress test. max or min? No need to go there, the footnote is clear.

*SuggestedRemedy*

Delete "(max)" (six times).

Response Response Status C

ACCEPT IN PRINCIPLE. See #179.

Cl 53 SC 53.9.14 P 520 L 14 # 166

Thaler, Pat Agilent

Comment Type E Comment Status D

Why are Figure 53-12 and Figure 52-11 so different when they seem to be showing the same thing?

*SuggestedRemedy*

Make the two figures the same unless there is a reason for a difference.

Response Response Status Z