*Cl* **00** *SC* *P* *L* # **513**

802.3ak Task Force

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

Comment Type: TR
Clause: 54
SubClause: 54.6
Page #: 28
Line #: 8
Comment: Time values reported in Table 54-5 are not specified in pS but in UI.
Proposed Remedy: Either report times in pS (therefore being consitent with Figure 54-6) or change columns 1,3,5,7 headers from "Time (pS)" to "Time (UI)".

Resolution: Accept, using UI nomenclature.

From Dan Dove:

PG 7/43 Line 40 Change "Clause 48, 53 and 54, refers" to "Clauses 48, 53 and 54, refer".

ACCEPT

PG 8/43 Line 36 the word "manufacturer" is underlined... I don't think it was supposed to be.

ACCEPT

PG 13/43 Line 41 "19GBASE-CX4" becomes "10GBASE-CX4".

ACCEPT

PG 14/43 Line 30 add a comma after "Clause 53"

Withdraw

PG 15/43 Line 19 add a comma and space after "Clause 53".

Accept, added space

PG 19/43 Figure 54-2 There is a black line under TP4 that I can't figure has any meaning. A thick black line.

ACCEPT

PG 21/43 Line 34 delete the words "by setting...1.0.0,"

ACCEPT

PG 21/43 Line 36 change "device is" to "device must be".

ACCEPT

PG 21/43 Line 53 Change "ONE otherwise" to "ONE. Otherwise"

ACCEPT, put comma in.

PG 22/43 Line 4 Change "ONE otherwise" to "ONE. Otherwise"

ACCEPT, put comma in.

PG 22/43 Line 9 Change "ONE otherwise" to "ONE. Otherwise"

ACCEPT, put comma in.

PG 22/43 Line 48 Change "low swing" to "low-swing"

ACCEPT

PG 23/43 Line 6 Change "operate up to..54.8." to "operate on twinaxial cables up to 15m in length, as described in 54.8."

ACCEPT

PG 23/43 Line 14 Do a global search for "transmiter" and change to "transmitter". Be sure to keep caps on those words that require them.

ACCEPT

PG 24/43 Line 20 Figure 54-3 the capacitor is bunged up and signal shield is partially dashed, partially solid.

ACCEPT

PG 25/43 Lines 3,23 "Transmiter" again.

ACCEPT

PG 27/43 Line4-6 Change "Figure 54--6--" and "Figure 54--6--" to "Figure 54-6 and Figure 54-5"

ACCEPT

PG 27/43 Line 7 Change ". All transmitters... SHALL be disabled" to "while all other transmitters are disabled" to remove the shall statement.

ACCEPT

PG 27/43 Line39 Figure 54-6 the lower limit should have a slope at time zero. The lower axis should be in UI. Change the title from "..at MDI.." to "..at TP2.." Add the Transition time lines to the figure.

ACCEPT

PG 28/43 Table 54-5 Change "Time(ps)" to "Time(UI)" on four columns.

ACCEPT

PG 29/43 Line 49 "transmiter" again.

ACCEPT

PG 30/43 Line 8 Change "between ports" to "between network ports"

ACCEPT

From Ze'ev,

Comment Type: (TR)
Clause: 54
SubClause: 8.5
Page #: 34
Line #:
Comment:
There seems to be a discrepancy between equations 54.10, 54.11 and figure 54-10.
In the figure itself I think the label of ELFEXT and MDELFEXT are crossed (MDELFEXT should be larger than ELFEXT hence the loss should be smaller therefore it should appear higher in the figure).

A. Regarding ELEFEXT In order for the equation to fit the figure we should have:

ELEFEXT(f)>= 17 -21.85* log(f/2000)
(2000 in the denominator of the log rather than 50).

I've taken 4 points off figure 54-10 and they seem to fit well the above equation

| f | ELFEXT (figure) | 17-21.85*log(f/2000) |
|---|---|---|
| 100 | 45.5 | 45.4 |
| 200 | 39 | 39 |
| 1000 | 23.5 | 23.6 |
| 2000 | 17 | 17 |

B. Regarding MDELFEXT in order for the equation to fit the figure we should have:

MDELEFEXT(f)>= 21 -21.85* log(f/2000)
(2000 in the denominator of the log rather than 50 & 21 instead of 15).

| f | MDELFEXT (figure) | 21-21.85*log(f/2000) |
|---|---|---|
| 100 | 49.5 | 49.4 |
| 200 | 43 | 42.9 |
| 1000 | 28 | 27.6 |
| 2000 | 21 | 21 |

Equation 54.11 as is makes little sense:
for f=50 they yield positive results while for f=500 they yield negative results. For instance
MDELFEXT (100) = 8.4225
MDELFEXT (200) = 1.8450
MDELFEXT(1000) =-13.4275
MDELFEXT(2000) =-20.0050
Implying that @2GHz you have 20 dB gain.

Proposed Remedy:
Replace equation 54.10 by:
ELEFEXT(f)>= 21 -21.85* log(f/2000)

Replace equation 54.11 by:
MDELEFEXT(f)>= 17 -21.85* log(f/2000)

Regards,
Ze'ev

ACCEPT in Principle: f/50 changed to f/2000

From Peter Bradshaw
Table 54-4, line 26 change minimum to maximum

ACCEPT

*SuggestedRemedy*

See comment

*Proposed Response* *Response Status* **C**

ACCEPT.

No opposition to resolution.

---

*Cl* **00** *SC* **0** *P* *L* # **342**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E342*

IEEE Std 802.3ae uses ""interoperability"" and P802.3ak uses ""inter operability"" in multiple places.

*SuggestedRemedy*

Search and replace to be consistent.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **00** *SC* **0** *P* **2** *L* **8** # **320**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E320*

Though used in published standards, somewhere this EDITORIAL NOTE is inconsistent. There are four instructions described and used, not three.

*SuggestedRemedy*

Change ""Three"" to ""Four"".

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **00** *SC* **0** *P* **3** *L* **1** # **56**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E056*

Line numbering is always on the left side of the page. Are you using right and left pages, or did you just place the number always on the left side?

*SuggestedRemedy*

This is only an issue if you're not using right and left paging throughout the document which is preferred by the IEEE editors.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

We are using right and left paging throughout the document, therfore no change is made per suggested remedy.

---

*Cl* **00** *SC* **0** *P* **7** *L* **33** # **380**

Thompson, Geoff Nortel

*Comment Type* **E** *Comment Status* **A** *E380*

thru line 35 ""f)"" should not be in underscored and ""h)"" should be in underscore.

*SuggestedRemedy*

Remove underscore from ""f)"" Add underscore to ""h)""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will delete all unchanged list items and mark as recommended.

---

*Cl* **00** *SC* **1.4** *P* *L* # **14**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **A** *TR386*

Need to add definitions for ""FR4"" and ""Twinaxial""

*SuggestedRemedy*

Add definitions for ""FR4"" and ""Twinaxial""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The occurance of "FR4" has been deleted, see comment #386
See comment #82 for usage of twinaxial.

*Cl* **00** *SC* **Cover** *P* **1** *L* **21** # **319**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E319*

The entire document isn't changes, there are two parts: the changes to the published standard, and a new clause.

*SuggestedRemedy*

Cut the two lines beginning ""Changes to ..."" and replace the heading on page two with the cut lines.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **00** *SC* **Front matter** *P* **2** *L* **3** # **379**

Thompson, Geoff Nortel

*Comment Type* **E** *Comment Status* **A** *E379*

The text: ""This amendment is based on the current edition of IEEE Std 802.3-2002 plus changes incorporated by IEEE 802.3ae-2002."" ..doesn't (or shouldn't) descibe the document being changed.

*SuggestedRemedy*

Perhaps: ""This amendment is based on the current revision of IEEE Std 802.3-2002 plus changes incorporated by all subsequently approved projects. These are IEEE 802.3ae-2002, P802.3af and P802.3aj (both expected to be approved in 2003). Changes dues to P802.3ah are expected to follow rather than lead this project. (also on page 46)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change first sentence of first paragraph to: "This amendment is based on the current revision of IEEE Std 802.3-2002 plus changes incorporated by all subsequently approved projects. These are IEEE 802.3ae-2002, P802.3af and P802.3aj (both expected to be approved in 2003). Changes dues to P802.3ah are expected to follow rather than lead this project."

For page 14 modification see comment #333.

*Cl* **30B** *SC* **0** *P* *L* # **385**

Thompson, Geoff Nortel

*Comment Type* **TR** *Comment Status* **R** *TR385*

The list: ""TypeValue::= ENUMERATED"" has not added the appropriate value for your new aMauType

*SuggestedRemedy*

Fix

*Proposed Response* *Response Status* **C**

REJECT.

It is in fact already there.

*Cl* **44** *SC* **1.1** *P* **7** *L* **11** # **322**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E322*

Typos

*SuggestedRemedy*

Missing comma after ""10GBASE-CX4"". The change marks are strange, ""10GBASE-CX4,"" should be underlined and nothing else.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **1.1** *P* **7** *L* **11** # **72**

Plunkett, Timothy NSWCDD

*Comment Type* **E** *Comment Status* **A** *E072*

comma needed after ""10GBASE-CX4""

*SuggestedRemedy*

add comma in specified location

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **1.1** *P* **7** *L* **11** # **15**

Daines, Kevin World Wide Packets

*Comment Type* **E** *Comment Status* **A** *E015*

Need comma.

*SuggestedRemedy*

Add comma so line reads ""...10GBASE-CX4, 10GBASE-LX4...""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **1.1** *P* **7** *L* **11** # **2**

Marris, Arthur — Cadence

*Comment Type* **E** *Comment Status* **A** *E002*

Missing comma

*SuggestedRemedy*

Add comma 10GBASE-CX4, 10GBASE-LR,

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **44** *SC* **1.1** *P* **7** *L* **8** # **321**

Grow, Robert — Intel

*Comment Type* **E** *Comment Status* **A** *E321*

Only paragraph 1 is changed.

*SuggestedRemedy*

Delete ""& 2"" from the instruction, delete the second paragraph of text.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **44** *SC* **1.2** *P* **7** *L* **21** # **323**

Grow, Robert — Intel

*Comment Type* **E** *Comment Status* **A** *E323*

Missing space. (I assume you have replacated the Heading3 style instead of applying that style.)

*SuggestedRemedy*

Insert space following section number.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **44** *SC* **1.2** *P* **7** *L* **21** # **57**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E057*

Missing space between heading number and heading title.

*SuggestedRemedy*

Re-apply ""heading3"" to the text.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **44** *SC* **1.2** *P* **7** *L* **21** # **92**

Dove, Daniel — hp ProCurve Networki

*Comment Type* **E** *Comment Status* **A** *E092*

The word Objectives is mashed against the section number

*SuggestedRemedy*

add a space between them.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **44** *SC* **1.2** *P* **7** *L* **33** # **58**

Booth, Brad — Intel

*Comment Type* **TR** *Comment Status* **A** *TR058*

f) is a Clause 54 specific objective. g) is a big change in objectives because as written will apply to all 802.3ae PMDs.

*SuggestedRemedy*

Move f) and g) into Clause 54 as a set of objectives for that clause.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove g)

Change f) to "Support operation over a twinaxial cable assembly for wiring closet and data center applications."

---

*Cl* **44** *SC* **1.2** *P* **7** *L* **33** # **93**

Dove, Daniel — hp ProCurve Networki

*Comment Type* **E** *Comment Status* **A** *TR058*

suggested wording change

*SuggestedRemedy*

change ""operation over 15m"" to ""operation over distances up to 15m""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #58

*Cl* **44** *SC* **1.2** *P* **7** *L* **33** # **324**

Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR058*

New retroactive requirement in item g) that is outside the scope of the 802.3ak PAR.

*SuggestedRemedy*

Either combine with item f) so Class A operation is limited to the CX4 objective, or move both items f) and g) to clause 54.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved with comment #58

*Cl* **44** *SC* **1.2** *P* **7** *L* **34** # **449**

Thaler, Pat Agilent Technologies

*Comment Type* **T** *Comment Status* **A** *TR058*

Objective g shouldn't have been added. Of all the objective lists in 802.3, only clause 40 lists such an objective though in all of the electrical PHY developements we have had an EMC objective for the PAR. It doesn't belong on the objectives list because it isn't a distinguishing objective. This objective reflects the minimum performance necessary to be able to sell products in much of the world. Also, unless they have changed something one of the specs uses ""Level A"" and the other uses ""Class A"" so that ""FCC/CISPR Class A"" isn't quite correct.

*SuggestedRemedy*

Delete objective g.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Resolved with #58

*Cl* **44** *SC* **1.3** *P* **7** *L* **41** # **59**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **R** *E059*

Bullet point on its own is confusing.

*SuggestedRemedy*

Include referring text for clarity.

*Proposed Response* *Response Status* **C**

REJECT.

Instructions say to change just this one item.

*Cl* **44** *SC* **1.3** *P* **7** *L* **41** # **325**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E325*

The change marking is not correct

*SuggestedRemedy*

The additions start with the comma, not LX4, therefore no strikeout/insertion is required for LX4.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **1.4.4** *P* **7** *L* **46** # **326**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E326*

The change marking though technically correct is unconventional.

*SuggestedRemedy*

Add an underlined "", 53"" after ""Clause 48"", strike through ""53"", and add an underlined ""54"". Alternatively, change to read ""The term 10GBASE-X in Clause 48, refers to ..."" by striking out the ""s"" in Clauses up through ""Clause 53"".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #300

*Cl* **44** *SC* **1.4.4** *P* **7** *L* **48** # **16**

Daines, Kevin World Wide Packets

*Comment Type* **E** *Comment Status* **A** *E326*

Extra word.

*SuggestedRemedy*

Change to read ""...Clauses 48, 53 and 54...""

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #300

*Cl* **44** *SC* **1.4.4** *P* **7** *L* **48** # **300**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E326*

extra word

*SuggestedRemedy*

Replace ""Clauses 48, 53 and Clause 54"" with ""Clauses 48, 53 and 54""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **1.4.4** *P* **7** *L* **48** # **60**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E060*

Inserted reference for Clauses 53 and 54 are not required. 10GBASE-X is only specified in Clause 48, and not in Clauses 53 and 54.

*SuggestedRemedy*

Remove change and return the text to original form.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The strikethru and underscore were incorrect. A reference to Clasue 54 and 10GBASE-CX4 is added to keep consistancy.

*Cl* **44** *SC* **1.4.4** *P* **8** *L* **10** # **447**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E447*

""Cu"" is an implementation choice. Silver plated steel wires could be compliant too.

*SuggestedRemedy*

Replace ""Cu"" with ""electrical"".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **44** *SC* **3** *P* **9** *L* **21** # **390**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **R** *TR290*

If other clauses include 2 m in the delay I don't see why this one should be different.

*SuggestedRemedy*

Change ""1 meter"" to ""2 meters"".

*Proposed Response* *Response Status* **C**

REJECT.

Resolved with comment #290

*Cl* **44** *SC* **3** *P* **9** *L* **26** # **391**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *TR290*

A reader might assume that ""bit time"" referred to the signalling period (320 ps). We should make it clear that it doesn't.

*SuggestedRemedy*

Add to 44.3: NOTE - ""Bit time"" refers to the duration of one bit as transferred to and from the MAC (approximately 100ps in this case).

*Proposed Response* *Response Status* **C**

REJECT.

See comment #290.

*Cl* **44** *SC* **3** *P* **9** *L* **27** # **61**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E061*

Information was provided in Clause 44 to determine the cable delay. There is no equivalent equation (44-1) or table (Table 44-3) to reference.

*SuggestedRemedy*

Provide information to determine cable delay.

*Proposed Response* *Response Status* **C**

ACCEPT.

Paragraph #2 of Clause 44.3 will be modified to:
"Equation (44-1) specifies the calculation of bit time per meter of fiber or electrical cable based upon the parameter n, which represents the ratio of the speed of light in the fiber or electrical cable to the speed of light in a vacuum. The value of n should be available from the fiber or electrical cable manufacturer, but if no value is known then a conservative dela estimate can be calculated using a default value of n = 0.66. The speed of light in a vacuum is c = 3 x 10^8 m/s. Table 44-3 can be used to convert fiber or electrical cable delay values specified relative to the speed of light or in nanoseconds per meter."

*Cl* **44** *SC* **Table 44-1** *P* **8** *L* **5** # **301**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **R** *E301*

Lines/boundaries missing from table

*SuggestedRemedy*

This applies to numerous tables throughout the draft. If a full list of the tables are necessary, I'll provide it in a comment against D4.1

*Proposed Response* *Response Status* **C**

REJECT.

Do not see any missing lines, perhaps this is a screen resolution issue. Printed copies appear fine.

*Cl* **44** *SC* **Table 44-2** *P* **9** *L* **21** # **327**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E327*

Inconsistent ordering of PMDs

*SuggestedRemedy*

Move CX4 PMD row below LX4 PMD row for consistency with all other table to which a CX4 row has been added.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **0** *P* **10** *L* **4** # **328**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E328*

Font problem.

*SuggestedRemedy*

Incorrect font for Clause title.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **2.1.6.1** *P* **10** *L* **13** # **330**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *TR001*

The second line of the paragraph needs to be edited for the new status bit (1.8.9).

*SuggestedRemedy*

Change to read ""are advertised in bits 9 and 7 through 0"", marked with appropriate underscore of ""9 and "".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.6.1** *P* **10** *L* **17** # **125**

Martin, David Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E125*

Typo?

*SuggestedRemedy*

The term ""MMD"" is used twice in this line. Should it say ""PMD"", or is it simply an acronym I'm not familiar with?

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Acronym you're not familiar with. (MMD = MDIO Manageable Device see 44.1.4.3)

*Cl* **45** *SC* **2.1.6.1** *P* **10** *L* **29** # **115**

Jonathan Thatcher WWP

*Comment Type* **E** *Comment Status* **A** *TR329*

There is no insufficient reason to skip PHY types 1000 to 1011 in order to have this be 1100.

*SuggestedRemedy*

Just go in order and have this be 1000.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #329

*Cl* **45** *SC* **2.1.6.1** *P* **10** *L* **30** # **62**

Booth, Brad Intel

*Comment Type* **TR** *Comment Status* **A** *TR329*

In Table 45-7, the Reserved space between 10GBASE-CX4 and 10GBASE-SR doesn't make any sense.

*SuggestedRemedy*

Change 10GBASE-CX4 value to be 1000.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #329

*Cl* **45** *SC* **2.1.6.1** *P* **10** *L* **6** # **329**

Grow, Robert Intel

*Comment Type* **T** *Comment Status* **A** *TR329*

The change made to the heading is unnecessary. If it weren't for a change that wasn't made, that should have been made, there would be no reason to edit this paragraph. There is no reason to add bit 1.7.3 to the PMA/PMD type selection field, the ""000"" code point is a logical selection for CX4. (If 10GBASE-T becomes a project, they can make the change to bit 1.7.3.)

*SuggestedRemedy*

Do not change the definition of bit 1.7.3. 1. No change to the title on line 8 2. No change to the first line of the paragraph on line 12 3. No change to the table on line 26 4. No (unmarked) change to the ""Bit(s)"" column on line 28 5. Delete the bit 3 column within the cell under the ""Description"" column (lines 27-38) 6. Move the ""10GBASE-CX4 PMA/PMD type"" to be the previously reserved ""000"" code point 7. Delete the now undefined code points in the description column (lines 28-31) 8. No PICs change required, delete page 11, lines 33-42.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **2.1.7,Table 45-8** *P* **11** *L* **6** # **1**

Bradshaw, Peter BitBlitz Communicatio

*Comment Type* **TR** *Comment Status* **A** *TR001*

In Table 45-8, Bit 1.8.9 is the last bit available for listing device abilities, and to use it as suggeated is to close off future enhancements. Editorial note: current 45.2.1.7.6 text lists bit as 1.8.4, but it should be 1.8.9

*SuggestedRemedy*

Use bit 1.8.9 to indicate 'Extended Abilities', and modify 'Description' to: ""1 = PMA/PMD has extended abilities listed in register 1.11 0 = PMA/PMD does not have extended abilities"" Modify 45.2.1.7.6 title to ""PMA/PMD Extended Abilities (1.8.9)"" and text to ""When read as a one, bit 1.8.9 indicates that the PMA/PMD has extended abilities listed in register 1.11. When read as a zero, bit 1.8.9 indicates that the PMA/PMD does not have extended abilities. "" Renumber original section 45.2.1.10 to 45.2.1.11, and add the following as section 45.2.1.10: 45.2.1.10 Extended Ability Register (Register 1.11) Renumber all subsequent tables 45-11 through 45-65 to 45-12 through 45-66, and add new Table 45-11, with contents like that of Table 45-8 in draft D4p0 modified as:- Bits | Name | Description | R/W 1.11.15:5 | Reserved | ignore on read | RO 1.11.4 | 10GBASE-CX4 Ability |1=PMA/PMD is able to perform 10GBASE-CX4|RO |0=PMA/PMD is not able to perform 10GBASE-CX4 1.11.3:0 | Reserved | ignore on read | RO Comment Note: If an MDIO read of register 11 in a PMA/PMD device not implementing the proposed changes is performed, all bits will read a 0 (section 45.2, paragraph 3), which is correct for no extended abilities.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **19** # **302**

Brown, Benjamin Independent

*Comment Type* **T** *Comment Status* **A** *TR001*

Heading uses bit 1.8.9 Text uses bit 1.8.4

*SuggestedRemedy*

Resolve to the appropriate bit - I think this is 1.8.9

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #63

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **21** # **392**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **A** *TR001*

Wrong bit

*SuggestedRemedy*

1.8.9 (twice)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **21** # **331**

Grow, Robert — Intel

*Comment Type* **TR** *Comment Status* **A** *TR001*

Incorrect reference to the bit number in the text.

*SuggestedRemedy*

Change ""1.8.4"" to 1.8.9"" two occurences.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **21** # **126**

Martin, David — Nortel Networks

*Comment Type* **E** *Comment Status* **A** *TR001*

Typo?

*SuggestedRemedy*

""bit 1.8.4"" is mentioned twice in lines 21-22. Shouldn't it say ""bit 1.8.9""?

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **21** # **393**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **R** *E393*

This doesn't make much sense: ""PMA/PMD is able to support a 10GBASE-CX4 PMA/PMD type."" It doesn't support, it must be - or comply - or perform as.

*SuggestedRemedy*

Change to something like ""... able to act as a 10GBASE-CX4 PMA/PMD."" or ""... able to comply to the 10GBASE-CX4 PMA/PMD type."" (twice).

*Proposed Response* *Response Status* **C**

REJECT.

Will keep description the same as existing.

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **22** # **76**

Cravens, George — Mindspeed

*Comment Type* **E** *Comment Status* **A** *TR001*

PMD type bit is described in text as bit 1.8.4, but in the subclause header and in Table 45-8, it is shown as bit 1.8.9

*SuggestedRemedy*

Fix text to call out bit 1.8.9 not 1.8.4

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **22-24** # **501**

Steve Dreyer — Intel

*Comment Type* **E** *Comment Status* **A** *TR001*

This section has two references to bit 1.8.4 that should have been references to bit 1.8.9.

*SuggestedRemedy*

In section 45.2.1.7.6, change the two references to bit 1.8.4 to bit 1.8.9.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.7.6** *P* **11** *L* **22-24** # **489**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *TR001*

This section has two references to bit 1.8.4 that should have been references to bit 1.8.9.

*SuggestedRemedy*

In section 45.2.1.7.6, change the two references to bit 1.8.4 to bit 1.8.9.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #1

*Cl* **45** *SC* **2.1.8.5** *P* **174** *L* # **512**

Peter Bradshaw

*Comment Type* **E** *Comment Status* **A** *E512*

3rd paragraph only specifies multiple wavelength PMDs. Also 45.2.1.9 as well.

*SuggestedRemedy*

Change to ".. wavelength or lane PMDs ..."

*Proposed Response* *Response Status* **C**

ACCEPT.

Editor to do global search and replace in Clause 45.2.1

*Cl* **45** *SC* **2.17** *P* **11** *L* **11** # **63**

Booth, Brad Intel

*Comment Type* **TR** *Comment Status* **A** *TR001*

In Table 45-8, bit 1.8.9 and in 45.2.1.7.6, use of this bit for 10GBASE-CX4 ability prevents future expansion.

*SuggestedRemedy*

Make this bit an expansion bit and create a new register for expansion. I would recommend using register 1.15. Put CX4 ability into bit 1.15.0.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use register 1.11, see comment #1

*Cl* **45** *SC* **5.5.3** *P* **11** *L* **41** # **64**

Booth, Brad Intel

*Comment Type* **TR** *Comment Status* **D** *TR064*

Changing the range of MM23 from 2:0 to 3:0 changes the existing conformance test.

*SuggestedRemedy*

Create a new PICS entry MM44 that permits the testing of bit 3. Support would be Yes[], No[], N/A[]. Leave MM23 as written in 802.3ae-2002.

*Proposed Response* *Response Status* **Z**

Withdrawn

*Cl* **48** *SC* **1** *P* **12** *L* **14** # **3**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **A** *E003*

The text ""PMD"" is missing

*SuggestedRemedy*

Change ""10GBASE-CX4 described"" to ""10GBASE-CX4 PMD described""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **1** *P* **12** *L* **15** # **94**

Dove, Daniel hp ProCurve Networki

*Comment Type* **E** *Comment Status* **A** *E094*

missing word

*SuggestedRemedy*

change ""CX4 described"" to ""CX4 PMD described""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **1.2** *P* **12** *L* **35** # **65**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *T286*

In Figure 48-1, remove the CX4 portion of the diagram as it is not required.

*SuggestedRemedy*

Change the ""10GBASE-LX4"" to read ""10GBASE-LX4 or 10GBASE-CX4"".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #286

*Cl* **48** *SC* **1.2** *P* **12** *L* **36** # **286**

Frazier, Howard SW

*Comment Type* **T** *Comment Status* **A** *T286*

In Figure 48-1, the addition within the dashed box is not necessary. The layer diagram is identical for LX4 and CX4.

*SuggestedRemedy*

Remove the additions and the dashed box. In their place, simply add the legend ""10GBASE-CX4"" under the existing legend ""10GBASE-LX4"".

*Proposed Response* *Response Status* **C**

ACCEPT.

Added the following per change instruction "(added 10GBASE-CX4 below 10GBASE-LX4)'

*Cl* **48** *SC* **1.2** *P* **12** *L* **38** # **4**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **A** *T286*

Figure 48-1 could be improved

*SuggestedRemedy*

Delete text ""To 10GBASE-X PHY"" Delete dashed line surrounding 10GBASE-CX4 Narrow the two boxes containing ""10GBASE-X PCS"" and ""10GBASE-X PMA"" Move 10GBASE-LX4 PMD box so that it aligns with the left hand sides of these boxes

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #286

*Cl* **48** *SC* **1.3.3** *P* **13** *L* **1** # **109**

Dallesasse, John Molex Incorporated

*Comment Type* **E** *Comment Status* **A** *E109*

Line 1 text ""10GBASE-X supports the PMD sublayer and MDI specified in Clause 53."" should be changed to ""10GBASE-X supports the PMD sublayer and MDI specified in Clauses 53 and 54.""

*SuggestedRemedy*

See above.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **1.3.3** *P* **13** *L* **1** # **66**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E109*

Missing reference to Clause 54.

*SuggestedRemedy*

Change to read ""... specified in Clause 53 and Clause 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #109

*Cl* **48** *SC* **1.3.3** *P* **13** *L* **1** # **394**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E109*

Can higher layers support lower ones? Missing reference to 54.

*SuggestedRemedy*

Get rid of the sentence. Consider copying language from e.g. 34.1.2.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #109

*Cl* **48** *SC* **2.6.1.3** *P* **13** *L* **3** # **448**

Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR448*

This clause is not updated in the current draft of 48.2.6.1.3, but should be. rx_lane<3:0> and tx_lane have a reference to Clause 53. Same applies to 48.2.6.1.6: PMD_signal.indicate(signal_detect<3:0>)

*SuggestedRemedy*

""as specified in Clause 53."" to ""as specified in Clause 53 or 54."" in all 3 places.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **2.6.1.3** *P* **13** *L* **3** # **363**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E363*

This is against 48.2.6.1.3, on page 301 of 802.3ae-2002. The variable rx_lane<3:0> contains a reference to Clause 53.

*SuggestedRemedy*

Add text to reference Clause 54. Change end of sentence to read ""...as specified in Clause 53 or 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **2.6.1.3** *P* **13** *L* **3** # **362**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E362*

This is against 48.2.6.1.3, on page 302 of 802.3ae-2002. The variable tx_lane<3:0> contains a reference to Clause 53.

*SuggestedRemedy*

Add text to reference Clause 54. Change end of sentence to read ""...as specified in Clause 53 or 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **2.6.1.3** *P* **13** *L* **3** # **367**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E367*

This is against 48.2.6.1.3, on page 301 of 802.3ae-2002. The variable rx_lane<3:0> contains a reference to Clause 53.

*SuggestedRemedy*

Add text to reference Clause 54. Change end of sentence to read ""...as specified in Clause 53 or 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **2.6.1.6** *P* **13** *L* **3** # **364**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E364*

This comment is against 48.2.6.1.6 on page 304 of 802.3ae-2002. The PMD_SIGNAL.indicate(signal_detect<3:0>) variable only references Clause 53.

*SuggestedRemedy*

Add text to reference Clause 54. Change end of sentence to read ""...as specified in Clause 53 or 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **2.6.1.3** *P* **13** *L* **3** # **366**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E366*

This is against 48.2.6.1.3, on page 302 of 802.3ae-2002. The variable tx_lane<3:0> contains a reference to Clause 53.

*SuggestedRemedy*

Add text to reference Clause 54. Change end of sentence to read ""...as specified in Clause 53 or 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **2.6.1.6** *P* **13** *L* **3** # **368**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E368*

This comment is against 48.2.6.1.6 on page 304 of 802.3ae-2002. The PMD_SIGNAL.indicate(signal_detect<3:0>) variable only references Clause 53.

*SuggestedRemedy*

Add text to reference Clause 54. Change end of sentence to read ""...as specified in Clause 53 or 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **3.1** *P* **13** *L* **3** # **369**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E369*

This comment is against 48.3.1 on page 310 of 802.3ae-2002. The note here mentions Clause 47 and 53.

*SuggestedRemedy*

Change text to ""jitter specifications of Clauses 47, 53, and 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **3.1** *P* **13** *L* **3** # **365**

Lynskey, Eric UNH-IOL

*Comment Type* **E** *Comment Status* **A** *E365*

This comment is against 48.3.1 on page 310 of 802.3ae-2002. The note here mentions Clause 47 and 53.

*SuggestedRemedy*

Change text to ""jitter specifications of Clauses 47, 53, and 54.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **3.1** *P* **7** *L* **48** # **450**

Thaler, Pat Agilent Technologies

*Comment Type* **T** *Comment Status* **A** *T450*

The note in this clause should probably also reference Clause 54.

*SuggestedRemedy*

Change ""Clause 47 and Clause 53"" to ""Clause 47, Clause 53, and Clause 54"".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **48** *SC* **Figure 48-1** *P* **12** *L* **20** # **332**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *T286*

There are a number of minor problems with this figure. This instruction should be ""Replace Figure 48-1 with:"" or alternative leave as ""Change"" and add what has changed below the instruction (see IEEE Std 802.3ae-2002, p. 16). The architectural Figure is not consistent for PCS clauses, but we don't need to invent a new one. (Clause 36 has a PCS--PMD stack for each PMD type, Clause 52 only has WAN and LAN stacks.) I recommend consistency within a speed of operation (e.g., more like Clause 52).

*SuggestedRemedy*

1. The background of the PCS and PMA boxes should be diagonal lines, not shading (probably a platform translation problem of FrameMaker). 2. Use the model of clause 52 and only have one stack, delete ""To 10GBASE-X PHY"", name at bottom becomes ""10GBASE-X"". (If the TF chooses two stacks, do it like clause 36.)

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #286

*Cl* **54** *SC* **0** *P* **14** *L* **22** # **395**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *T395*

Add references.

*SuggestedRemedy*

IEC 61196-1 SFF-8470 or appropriate international standard equivalent

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will add the actual connector reference, to Clause 1.3.

*Cl* **54** *SC* **0** *P* **14** *L* **3** # **333**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E333*

The EDITORIAL NOTE is not necessary since clause 54 is an addition.

*SuggestedRemedy*

Delete EDITORIAL NOTE (both paragraphs).

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **1** *P* **15** *L* **8** # **110**

Gaither, Justin Xilinx, Inc

*Comment Type* **TR** *Comment Status* **A** *TR110*

""PMD shall be integrated with the appropriate physical sublayers (see Table 54 1) and with the management functions which are accessible through the Management Interface defined in Clause 45"" seems to indicate that MDIO is required because of the shall statement

*SuggestedRemedy*

remove ""and with the management functions which are accessible through the Management Interface defined in Clause 45""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change text to:
"and with the management functions which are optionally accessible through the Management Interface defined in Clause 45"

*Cl* **54** *SC* **1** *P* **15** *L* **9** # **396**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *TR110*

MDIO is optional, as 54.5 says.

*SuggestedRemedy*

Change to ""and optionally with the management functions that may be accessible ...".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #110

*Cl* **54** *SC* **1** *P* **16** *L* **1** # **397**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E397*

Not IEEE reference model. This is a typo in 53.1; I think 52.1 has it right.

*SuggestedRemedy*

Change to ""ISO/IEC Open System Interconnection (OSI) reference model."".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **1** *P* **16** *L* **24** # **5**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **R** *TR287*

Figure 54–1 tidy up

*SuggestedRemedy*

Move ""PMA = PHYSICAL MEDIUM ATTACHMENT"" so that it is above ""PMD = PHYSICAL MEDIUM DEPENDENT""

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335

*Cl* **54** *SC* **1** *P* **16** *L* **26** # **67**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **R** *TR287*

Minor editorial, but the columns listing the acronyms in Figure 54-1 should have 3 definitions each.

*SuggestedRemedy*

Fix as per comment.

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **31** # **335**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *TR287*

With the exception of the ""-CX4"" instead of ""-LX4"" this subclause is identical to 53.1.1. It is neither necessary nor prudent to include this duplicate information.

*SuggestedRemedy*

Rewrite 54.1.1 to reference clause 53.1.1. ""The 10GBASE-CX4 PMD uses the same PMD interface as 10GBASE-LX4. The following PMD service primitives are defined in 53.1.1: PMD_UNITDATA.request PMD_UNITDATA.indicate PMD_SIGNAL.indicate"" Delete the 54.1.2 through 54.1.4.3.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **1.1** *P* **16** *L* **31** # **287**

Frazier, Howard SW

*Comment Type* **TR** *Comment Status* **A** *TR287*

Since 54.1.1 through 54.1.4.3 are identical to 53.1.1 through 53.1.4.3, there is no point in reproducing them. Rather, you can simply refer to them. Saves pages, avoids confusion, less to maintain. (it's all informative, anyway)

*SuggestedRemedy*

Replace 54.4.1 through 54.1.4.3 with the following 54.4.1 Physical Medium Dependent (PMD) service interface The service interface provided by the 10GBASE-CX4 PMD is identical in all respects to the service interface provided by the 10GBASE-LX4 PMD, as described in 53.4.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **34** # **127**

Martin, David Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E127*

Typo.

*SuggestedRemedy*

Replace ""and do not imply"" with ""and does not imply""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **34** # **398**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E398*

Grammar: ""The service interface ... do not imply""

*SuggestedRemedy*

Change to ""The service interface for this PMD is described in an abstract manner which does not imply ..."".

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **34** # **375**

Ewen, John JDS Uniphase

*Comment Type* **E** *Comment Status* **A** *E375*

Subject / verb mismatch

*SuggestedRemedy*

Replace: ... and do not imply ... with ... and does not imply ...

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **35** # **77**

Cravens, George Mindspeed

*Comment Type* **E** *Comment Status* **A** *E077*

Minor grammatical change: Current sentence: The service interface for this PMD is described in an abstract manner and do not imply any particular implementation. Change ""and do not"" to ""and does not""

*SuggestedRemedy*

Change second sentence to: The service interface for this PMD is described in an abstract manner and does not imply any particular implementation.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **35** # **6**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **A** *E006*

grammar

*SuggestedRemedy*

Replace ""do"" with ""does""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #335

*Cl* **54** *SC* **1.1** *P* **16** *L* **43** # **68**

Booth, Brad Intel

*Comment Type* **T** *Comment Status* **R** *TR287*

PMD_SIGNAL.indicate is an optics-based signal used to determine if the data being received is related to a signal of light being received. Considering that we're dealing with electrical only signals, no photonics, why do we require complicating this service primitive.

*SuggestedRemedy*

Specify that PMD_SIGNAL.indicate should tied high in a CX4 implementation and that other implementations of setting PMD_SIGNAL.indicate to 1 is either up to the implementer or beyond the scope of the standard.

*Proposed Response* *Response Status* **C**

REJECT.

See comment #287.

*Cl* **54** *SC* **1.2** *P* **16** *L* **47** # **79**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **T** *Comment Status* **A** *TR287*

The text in the parentheses is quite confusing. It gives the impression that the quantum of data transferred by the service primitive is an "8B/10B character", which is clearly not the case.

*SuggestedRemedy*

Delete the text in the parentheses.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #287

*Cl* **54** *SC* **1.2** *P* **16** *L* **52** # **407**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E407*

Syntax

*SuggestedRemedy*

Remove the space before ""("" here, in 54.1.3.1 and in 54.1.4.1.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #335

*Cl* **54** *SC* **1.2.1** *P* **16** *L* **52** # **111**

Gaither, Justin Xilinx, Inc

*Comment Type* **T** *Comment Status* **R** *TR287*

The lanes are identified with <0:3> This is different than all other parts of the standard which refer to busses as <3:0>. Even though 53 uses this syntax, I feel that it is incorrectl used and should also be changed.

*SuggestedRemedy*

change all <0:3> to <3:0>

*Proposed Response* *Response Status* **C**

REJECT.

See comment #287

*Cl* **54** *SC* **1.2.3** *P* **17** *L* **12** # **336**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **R** *TR287*

Grammar problem.

*SuggestedRemedy*

Change ""stream"" to ""streams"".

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335

*Cl* **54** *SC* **1.3** *P* **17** *L* **17** # **80**

Shimon Muller Sun Microsystems, Inc

*Comment Type* **T** *Comment Status* **A** *TR287*

The text in the parentheses is quite confusing. It gives the impression that the quantum of data transferred by the service primitive is an "8B/10B character", which is clearly not the case.

*SuggestedRemedy*

Delete the text in the parentheses.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #287

*Cl* **54** *SC* **1.3.2** *P* **17** *L* **30** # **337**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **R** *TR287*

Grammar problem.

*SuggestedRemedy*

Change ""stream"" to ""streams"".

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335

*Cl* **54** *SC* **1.3.2** *P* **17** *L* **30** # **7**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **R** *TR287*

""stream"" should be plural

*SuggestedRemedy*

""The PMD continuously sends four parallel streams of bits to the PMA corresponding to the signals received from the MDI.""

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335

*Cl* **54** *SC* **1.3.3** *P* **17** *L* **35** # **400**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *TR287*

This subclause has no value: it says as much itself. There is no need for such unhelpful material.

*SuggestedRemedy*

Delete it, and 54.1.4.3.

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335

*Cl* **54** *SC* **10** *P* **39** *L* **40** # **124**

Jonathan Thatcher WWP

*Comment Type* **TR** *Comment Status* **A** *TR124*

The specific requirements for testing jitter are not clear. All we have is that it SHALL be performed with an unspecified test procedure that results in a BER bathtub curve such as that which is described in the Informative Annex 48B.

*SuggestedRemedy*

Highly recommend including a more complete jitter test methodology. One that you would be proud to put in the PICs.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The jitter test method specified in 54.10.1 is consistent with the jitter test method specified in 47.4.3. Annex 48B, paragraph 1, will be changed to "... XAUI described in Clause 47, the 10GBASE-LX4 PMD described in Clause 53 and the 10GBASE-CX4 PMD described in Clause 54."

*Cl* **54** *SC* **10.1.2** *P* **40** *L* **5** # **134**

Martin, David Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E134*

Typo

*SuggestedRemedy*

Replace ""as define in 54.7.3.6"" with ""as defined in 54.7.3.6""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #374

*Cl* **54** *SC* **10.1.2** *P* **40** *L* **5** # **318**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E318*

wrong tense

*SuggestedRemedy*

Replace ""define"" with ""defined""

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #374

*Cl* **54** *SC* **10.1.2** *P* **46** *L* **3** # **374**

Healey, Adam — Agere Systems

*Comment Type* **TR** *Comment Status* **A** *TR374*

Jitter tolerance test signal is not adequately defined. I understand that the intent of the test is to verify that the receiver can tolerate 0.65 UIpp jitter. However, this test proposes that a minimally compliant transmitter (0.35 UIpp jitter) and a complaint channel are used to synthesize the jitter tolerance signal. However, a short cable is a ""compliant channel"" but cannot be expected to add 0.2 UIpp DJ to create a robust compliance test. Furthermore, a minimally compliant channel would introduce crosstalk-induced jitter which is already being simulated by the additional sinusoidal jitter and therefore would be double-counted.

*SuggestedRemedy*

1. State that the output of the compliance channel, when driven by transmitter compliant to 54.7.3 has at least 0.37 UIpp DJ and at least 0.18 UIpp RJ. 2. State that, to minimize crosstalk, Global_PMD_Transmit_Disable is set on the device under test and PMD_Transmit_Disable is for all lanes not equal to n, where n is the lane under test. 3. State that additional sinusoidal jitter will be added per 54.7.4.6.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Upon further inspection we realize that Clauses 54.7.4.6 and 54.10.1.2 are redundant specifications that are covered by 54.7.4.1, 54.10.1 and 54.7.3.8. Clauses 54.7.4.6 and 54.10.1.2 will be removed. Clauses 54.10.1.1 will also be removed since a single subclause does not make sense and this is covered in Clause 54.7.3.1.

*Cl* **54** *SC* **11** *P* **40** *L* **10** # **444**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **R** *E444*

Subclause title doesn't tell the whole story.

*SuggestedRemedy*

Please change to ""Environmental and safety"".

*Proposed Response* *Response Status* **C**

REJECT.

Clauses 51.9, 52.10, 53.10, etc. all label this Clause title as "Environment Specifications".

*Cl* **54** *SC* **11** *P* **40** *L* **13** # **87**

Cobb, Terry — Avaya

*Comment Type* **E** *Comment Status* **A** *E087*

Is ISO/IEC 11801:1995 the correct reference for environmental requirements?

*SuggestedRemedy*

Add correct reference.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change 54.11 to: "All equipment subject to this clause shall conform to the applicable requirements of 14.7.".

*Cl* **54** *SC* **11** *P* **40** *L* **15** # **445**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **R** *E445*

Do you want to recommend anything about labelling?

*SuggestedRemedy*

?

*Proposed Response* *Response Status* **C**

REJECT.

No recommendation.

*Cl* **54** *SC* **12** *P* **40** *L* **16** # **38**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E038*

PICS should start on their own page.

*SuggestedRemedy*

Insert page break before 54-12.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.1** *P* **40** *L* **22** # **460**

Thaler, Pat — Agilent Technologies

*Comment Type* **E** *Comment Status* **A** *E460*

Dan, I think you are being rather pessimistic here. I expect you can say IEEE Std 802.3ak-200x as we will probably get this approved before the end of 2009. :^)

*SuggestedRemedy*

There should be an editor's note that the appropriate year should be entered before publication. Otherwise, it might slip through and get published with this still saying 20xx.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Editor's note exists on first page of Clause 54, page 14

*Cl* **54** *SC* **12.2.2** *P* **41** *L* **25** # **39**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **R** *E039*

Unnecessary period after ""Clause 54"".

*SuggestedRemedy*

Remove.

*Proposed Response* *Response Status* **C**

REJECT.

Period is a remanent of framemaker cross-reference.

*Cl* **54** *SC* **12.4** *P* **42** *L* **11** # **42**

Booth, Brad — Intel

*Comment Type* **T** *Comment Status* **A** *T042*

Change MC2 to match 802.3ae format.

*SuggestedRemedy*

Change to read: XGXS; Support of XAUI/XGXS; 47, 54.1; ; O; Yes[] No[]

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.4** *P* **42** *L* **13** # **43**

Booth, Brad — Intel

*Comment Type* **T** *Comment Status* **A** *T043*

Change format to match 802.3ae.

*SuggestedRemedy*

Change to read: PCS; Support of 10GBASE-X PCS/PMA; 48, 54.1, 54.2; ; M; Yes[]

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.4** *P* **42** *L* **16** # **44**

Booth, Brad — Intel

*Comment Type* **T** *Comment Status* **A** *T044*

Update MC4 for previous changes.

*SuggestedRemedy*

Change to read: LANE; XAUI lane to MDI lane assignment; 54.3; As per Table 54-2; M; Yes[]

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.4** *P* **42** *L* **22** # **45**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E045*

Remove value/comment for TP1 and TP4 as information is redundant.

*SuggestedRemedy*

Fix as per comment.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.4** *P* **42** *L* **6** # **40**

Booth, Brad — Intel

*Comment Type* **T** *Comment Status* **A** *T040*

CX4 PICS is not required as you wouldn't fill this out unless you were doing CX4.

*SuggestedRemedy*

Remove.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.4** *P* **42** *L* **7** # **12**
Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **A** *E012*
Comment/value field empty

*SuggestedRemedy*
Put something in the comment/value field or delete this PICS item

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

Item to be deleted

*Cl* **54** *SC* **12.4** *P* **42** *L* **9** # **446**
Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *T041*
Asking if a PMD integrates Clause 46 XGMII seems a bit odd: it can never be directly attached (in terms of signal path) to one.

*SuggestedRemedy*
Delete MC1, tweak main text if necessary.

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

See comment #41

*Cl* **54** *SC* **12.4** *P* **42** *L* **9** # **41**
Booth, Brad Intel

*Comment Type* **T** *Comment Status* **A** *T041*
MC1 should follow previous format established in 802.3ae.

*SuggestedRemedy*
Change to be: XGE; XGMII compatability interface; 46, 54.1; Compatability interface is supported; O; Yes[] No[]

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

*Cl* **54** *SC* **12.4** *P* **43** *L* **41** # **46**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E046*
No[] not required for a mandatory PICS.

*SuggestedRemedy*
Remove No[].

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

*Cl* **54** *SC* **12.4.1** *P* **43** *L* **43** # **358**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E358*
PF16 through PF18 are management functions.

*SuggestedRemedy*
Move to MF, relable and renumber MF PICS items.

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

PF16 is a mandatory function this PMD must have. PF16 status will be changed from "MD:M" to "M".

See comment #412 for PF17 resolution

PF18 is a mandatory function this PMD must have and therefore has to stay.

*Cl* **54** *SC* **12.4.1** *P* **43** *L* **50** # **359**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **R** *E359*
The loopback function described in 54.6.9 is per an MDIO bit, therefore should be MD:M.

*SuggestedRemedy*
Change Status to MD:M.

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

The loopback function is mandatory, its control is optionally done through an MDIO register bit.

*Cl* **54** *SC* **12.4.2** *P* **44** *L* **19** # **48**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E048*

Remove No[] from MF5.

*SuggestedRemedy*

As above.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #361

*Cl* **54** *SC* **12.4.2** *P* **44** *L* **19** # **361**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E361*

Though basically copied from clause 53, these PICs items are not internally consistent or consistent with the style of other clauses. All management functions are dependent on MDIO. I found nothing in the text that indicates that any of the capabilities (e.g. lane by lane transmit disable) are optional.

*SuggestedRemedy*

Delete MF1, it is covered by *MD. Change all Status entries in MF PICS to MD:M Change all Support entries to Yes[ ], NA[ ].

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **12.4.2** *P* **44** *L* **22** # **49**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E049*

Remove NA[] from MF6.

*SuggestedRemedy*

As per above.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #361

*Cl* **54** *SC* **12.4.2** *P* **44** *L* **25** # **50**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E050*

Remove No[] and NA[] from mandatory MF7.

*SuggestedRemedy*

As per above.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #361

*Cl* **54** *SC* **12.4.2** *P* **44** *L* **28** # **51**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E051*

Add N/A[] to MF8, MF9 and MF10.

*SuggestedRemedy*

As per above.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #361

*Cl* **54** *SC* **12.4.2** *P* **44** *L* **6** # **47**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E047*

Insert No[] value.

*SuggestedRemedy*

As per comment.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #361

*Cl* **54** *SC* **12.4.3** *P* **45** *L* **14** # **101**
Dove, Daniel hp ProCurve Networki

*Comment Type* **TR** *Comment Status* **A** *TR388*
Added Shall in previous TR comment regarding amplitude deviation.

*SuggestedRemedy*
Add a table row to address transmit amplitude deviation.

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

See comment #388

*Cl* **54** *SC* **12.4.3** *P* **45** *L* **28** # **52**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E052*
DS13 appears to have an extra carriage return in the Value/Comment field.

*SuggestedRemedy*
Delete so row format matches others.

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

*Cl* **54** *SC* **12.4.4** *P* **46** *L* **20** # **53**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E053*
RS8 appears to have an extra carriage return in the Value/Comment field.

*SuggestedRemedy*
Delete so row format matches others.

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

*Cl* **54** *SC* **12.4.5** *P* **46** *L* **29** # **54**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E054*
CA1 is optional; therefore, it requires a No[].

*SuggestedRemedy*
Add a No[].

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

*Cl* **54** *SC* **12.4.5** *P* **46** *L* **48** # **55**
Booth, Brad Intel

*Comment Type* **TR** *Comment Status* **A** *TR036*
CA12 reference to SFF-8470 needs to be an international reference.

*SuggestedRemedy*
Update reference.

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

See comment #36

*Cl* **54** *SC* **2** *P* **18** *L* **7** # **399**
Dawe, Piers Agilent

*Comment Type* **TR** *Comment Status* **A** *TR399*
re ""The 10GBASE-CX4 PCS and PMA shall conform to the PCS and PMA defined in clause 48 unless otherwise noted herein."": If the PCS or PMA are to be in any way different to present, modify 48, don't try to modify them in 54.

*SuggestedRemedy*
Delete this subclause.

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

*Cl* **54** *SC* **2** *P* **18** *L* **7.5** # **69**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **R** *TR287*
Capitalize the C for clause.

*SuggestedRemedy*
Fix as per comment.

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

See comment #335

*Cl* **54** *SC* **3** *P* **18** *L* **11** # **387**

Brown, Kevin Broadcom Corp

*Comment Type* **TR** *Comment Status* **A** *TR387*

Sub-clause 54-3 ""Input / Output mapping"" does not specify the mapping for all of the connector pins, but rather leaves their definition / assignment open to the referenced infiniband connector.

*SuggestedRemedy*

Specify all remaining pins as ground.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remaining G1-G8 pins specified as signal shield and G9 as link shield.

*Cl* **54** *SC* **3** *P* **18** *L* **11** # **408**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *TR401*

This subclause seems out of sequence.

*SuggestedRemedy*

Should it come in or just after 54.6.1?

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #401

*Cl* **54** *SC* **3** *P* **18** *L* **11** # **288**

Frazier, Howard SW

*Comment Type* **T** *Comment Status* **A** *TR401*

It seems odd to jump right into the XAUI lane to 10GBASE-CX4 connector mapping without explaining the relationship between XAUI and CX4, and without introducing the connector. I think this subclause lacks helpful context.

*SuggestedRemedy*

Either A) Include a sketch of the connector (less detailed than in Figures 54-13/14) before Table 54-2, or B) Insert the following sentences at the begining of the first paragraph of this subclause: The signals conveyed by the 10GBASE-CX4 PMD map directly to the XAUI lanes defined in Clause 47. The mechanical connector used in 10GBASE-CX4 comprises 16 signal pins, as described in 54.9.1.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #401

*Cl* **54** *SC* **3** *P* **18** *L* **11** # **401**

Dawe, Piers Agilent

*Comment Type* **TR** *Comment Status* **A** *TR401*

This subclause needs some work. 1. Is 10GBASE-CX4 supposed to be some kind of XAUI, or vice versa, or not? If so, explain in 54.1 and address the question of ""distinct identity"" in the appropriate place (44?). If not, don't use XAUI here. 2. Is it introducing the DL, SL notation? If so, do it without reference to 47. Create a table mapping Rx lane 0 to DL0<p,n> to rx_bit<0> and so on. 3. Really the connector pin information should come in the MDI section, but you might save a table by leaving it here. If you do, refer forward to 54.9.1.

*SuggestedRemedy*

Per comment.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Subclause moved right above subclaused titled "PMD to MDI Electrical specifications for 10GBASE-CX4" and all XUAI references removed.

Clause wording will be: "The mechanical connector used in 10GBASE-CX4 comprises 16 signal pins, as described in 54.8.1.1 The 10GBASE-CX4 PMD MDI connector pin assignments shall be as defined in Table 54–3"

*Cl* **54** *SC* **3** *P* **18** *L* **13** # **289**

Frazier, Howard SW

*Comment Type* **E** *Comment Status* **A** *TR401*

Missing word: ""PMD"".

*SuggestedRemedy*

Insert ""PMD"" after 10GBASE-CX4 in the sentence starting at line 13 in the current draft.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #401

*Cl* **54** *SC* **4** *P* **18** *L* **36** # **290**

Frazier, Howard SW

*Comment Type* **TR** *Comment Status* **A** *TR290*

It seems needlessly complicated to specify the delay for the 10GBASE-CX4 PMD as including the delay associated with 1 meter of cable, and then making the user add in the delay for the other 13 meters of cable. For optical media, the complication is worth it, since the cable delay is such a large component of the end to end to delay, and can vary greatly since the cables can be either very short, or very looooooong. For CX4, we should simply account for the worst case cable delay in the PMD delay. Given the fact that the worst possible delay associated with a CX4 link will be very small compared to the worst case delay associated with an optical link, this change should make absolutely no difference to system implementers, but it should make a user's life a little easier.

*SuggestedRemedy*

On line 44, change 1 meter of cable to 15 meters of cable. Also change 512 to 1024 BT, or 2 pause quanta. Table 44-2 should be changed accordingly. If the committee thinks they should allow for more delay and specify 1536, or even 2048 BT, I would have no objection whatsoever. It's all tiny compared to fiber.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

All PHYs have this delay specified at the MDI, see 31B.3.7. In the case of 10Gbps fiber PHYS the MDI is at the end of 1m of fiber.

Will remove the words "(including 1m of cable)". Also Table 44-2 CX4-PMD note to be changed to "See 54.4".

*Cl* **54** *SC* **4** *P* **18** *L* **44** # **70**

Booth, Brad Intel

*Comment Type* **T** *Comment Status* **A** *TR290*

Should also state the pause_quantum value.

*SuggestedRemedy*

Change to read ""... 512 BT, or 1 pause_quantum, including 1 meter of cable.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will add "... 512 BT, or 1 pause_quantum ...' with the response of #290.

*Cl* **54** *SC* **4** *P* **18** *L* **44** # **402**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **R** *TR290*

If other clauses include 2 m in the delay I don't see why this one should be different. This is a repeat of a comment against 44.3.

*SuggestedRemedy*

Change ""1 meter"" to ""2 meters"".

*Proposed Response* *Response Status* **C**

REJECT.

See comment #290

*Cl* **54** *SC* **4** *P* **18** *L* **46** # **403**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *TR290*

A reader might assume that ""bit time"" referred to the signalling period (320 ps). We should make it clear that it doesn't. This is a repeat of a comment against 44.3.

*SuggestedRemedy*

Add: NOTE - ""Bit time"" refers to the duration of one bit as transferred to and from the MAC (100ps in this case).

*Proposed Response* *Response Status* **C**

REJECT.

See comment #290. Bit time is defined in Clause 1.4.50

*Cl* **54** *SC* **5** *P* **19** *L* **31** # **404**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *E338*

Might as well complete the table.

*SuggestedRemedy*

Include bit 1.8.9 in the table.

*Proposed Response* *Response Status* **C**

REJECT.

See comment #338

*Cl* **54** *SC* **5** *P* **19** *L* **5** # **338**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E338*

With the exception of the table references in the text, this subclause is identical to 53.3. It is neither necessary nor prudent to include this duplicate information.

*SuggestedRemedy*

Change all references to ""Table 54-3"" to ""Table53-2"" and references to ""Table 54-4"" to ""Table 53-3"". Delete Tables 54-3 and 54-4. Search for references to 54.5 and replace as appropriate with 53.3.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

This subclause changed to:
"The 10GBASE-CX4 PMD uses the same MDIO function mapping as 10GBASE-LX4 as defined in Clause 53.3"

*Cl* **54** *SC* **6.1** *P* **20** *L* **13** # **294**

Frazier, Howard SW

*Comment Type* **T** *Comment Status* **A** *T294*

Should the parenthetical (TP4) be (TP3), or should the TP3 at the end of this sentence be TP4? It looks strange.

*SuggestedRemedy*

Change (TP4) to (TP3).

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete (The electrical .. (TP4)) sentences
Change (.. are made at TP3) to (.. are made at the input end of the mated connector (TP3)).

*Cl* **54** *SC* **6.1** *P* **20** *L* **13** # **304**

Brown, Benjamin Independent

*Comment Type* **T** *Comment Status* **A** *T294*

All receive test measurements seem to be taken at TP3 but there is a sentence that describes exactly where TP4 is. When I compare this to the 2 previous sentences for the transmitter, it describes where TP2 is then references all test measurements to TP2. Why is the receiver described differently? Clause 53 also references TP3 here, not TP4.

*SuggestedRemedy*

Please review and consider changing this sentence to describe TP3 instead of TP4.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #294

*Cl* **54** *SC* **6.1** *P* **20** *L* **14** # **78**

Cravens, George Mindspeed

*Comment Type* **T** *Comment Status* **A** *T294*

The text describes the receive signal as being defined at TP4, but then states that all measurements are made at TP3. It seems that the measurements should be made at TP4.

*SuggestedRemedy*

Change TP3 in line 14 to TP4.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #294

*Cl* **54** *SC* **6.1** *P* **20** *L* **14** # **405**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *TR432*

Is the cable assembly effectively specified at TP1 and TP4?

*SuggestedRemedy*

Clarify.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #432

*Cl* **54** *SC* **6.1** *P* **20** *L* **14** # **376**

Ewen, John JDS Uniphase

*Comment Type* **T** *Comment Status* **A** *T294*

The electrical recieve signal is defined at TP4, yet all receiver measurements are assumed to be at TP3. Is this what's intended? The receiver characteristics subclause (54.7.4) does not offer additional clarification.

*SuggestedRemedy*

It seems more consistent that the signal definition and measurement are at the same point.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #294

*Cl* **54** *SC* **6.1** *P* **20** *L* **Figure 54-** # **466**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E466*

The "+" and "-" notations used here to designate the two signals comprising a differential pair differ from the notation used in Table 54-2 which uses "<p>" and "<n>". This or a similar inconsistency occurs in a number of places and needs to be uniformly addressed.

*SuggestedRemedy*

Select and use consistent notation. I suggest the "+" and "-" notation.

*Proposed Response* *Response Status* **C**

ACCEPT.

"<p>" and "<n>" will be used to match the style in Clause 47.

*Cl* **54** *SC* **6.10** *P* **22** *L* **53** # **453**

Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR453*

This comment also applies to 54.6.11 and 54.6.12. The condition for which these variables shall be set to ONE is defined. However, there is no requirement that the variable be ZERO when the fault condition is not present so the definitions of variable operation are incomplete. I know Clause 53 has the same problem, but it is easier to spot a problem in 46 pages than in 529 and some recent events have brought the ambiguity of such text to my attention.

*SuggestedRemedy*

For each clause, add ""Otherwise the PMD shall set xxxx to ZERO."" xxxx above to be replaced with the relevant variable name.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.2** *P* **20** *L* **42** # **292**

Frazier, Howard SW

*Comment Type* **T** *Comment Status* **A** *T292*

The PMD service interface doesn't ""really convert the four electronic bit streams requested by the PMD service interface message..."" because the service interface is abstract, not electronic. I realize that this text was copied from 802.3ae clause 53, but that doesn't make it right.

*SuggestedRemedy*

Change this sentence to: The PMD Transmit function shall convert the four logical bit streams requested by the PMD service interface message..., in other words, delete replace ""electronic"" with ""logical"".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.2** *P* **20** *L* **44** # **356**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *T292*

Though ""electrical"" is the most likely implementation approach for bit streams, it is implementers choice as to how the logic is implemented.

*SuggestedRemedy*

Line 44 -- delete ""electronic"" Line 52 -- delete ""electronic"" Page 43, PF5 -- delete ""electrical"" from the second line of Value

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #292

*Cl* **54** *SC* **6.3** *P* **20** *L* **52** # **293**

Frazier, Howard SW

*Comment Type* **T** *Comment Status* **A** *T293*

The PMD Receive function doesn't really ""convert the four electrical signal streams from the MDI into four electronic bit streams for delivery to the PMD service interface"" because the service interface is abstract, not electronic. I realize that this text was copied from 802.3ae clause 53, but that doesn't make it right.

*SuggestedRemedy*

Change this sentence to: The PMD Receive function shall convert the four electrical signal streams from the MDI into four logical bit streams for delivery to the PMD service interface..., in other words, replace ""electronic"" with ""logical"".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.3** *P* **20** *L* **53** # **406**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *T293*

Strange language: ""The PMD Receive function shall convert the four electrical signal streams from the MDI into four electronic bit streams for delivery to the PMD service interface"". The PMD has to actually deliver, not just convert.

*SuggestedRemedy*

""The PMD Receive function shall convert the four electrical signal streams from (at?) the MDI to the message PMD_UNITDATA.indicate(rx_bit <0:3>) which is delivered to the PMA at the PMD service interface, all according to the receive electrical specifications in this clause.""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #293

*Cl* **54** *SC* **6.3** *P* **21** *L* **4** # **340**

Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *T409*

The paragraph basically describes what happens on loopback.

*SuggestedRemedy*

Either move it ot 54.6.9 or rewrite in terms of remote TX signals to local RX signals.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #409

*Cl* **54** *SC* **6.3** *P* **21** *L* **4** # **409**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *T409*

This paragraph contradicts the ones above it.

*SuggestedRemedy*

Insert new subclause heading: ""54.6.4 PMD loopback function."". In text, say something like ""When in loopback mode, the PMD shall ...""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the second paragraph of Clause 54.6.3.
"The PMD shall convey the bits received from the MDI lanes to the PMD service interface using the message PMD_UNITDATA.indicate(rx_bit<0:3>), where rx_bit<0:3> =(DL0+/-,DL1+/-,DL2+/-,DL3+/-)." Pics item to be modified to match.

Add a second paragraph to Clause 54.6.2
"The PMD shall convey the bits received from the PMD service interface using the message PMD_UNITDATA.request(tx_bit<0:3>) to the MDI lanes, where (SL0+/-,SL1+/-,SL2+/-,SL3+/-)=tx_bit<0:3>." Pics item to be modified to match.

*Cl* **54** *SC* **6.4** *P* **21** *L* **17** # **116**

Jonathan Thatcher WWP

*Comment Type* **TR** *Comment Status* **A** *TR116*

Technically speaking, if a 101010... pattern exists "on the wire," there won't be a 1 UI interval where the MDI has exceeded 175 mVppd (that would require infinite rise/fall times, which is won't meet spec).

*SuggestedRemedy*

It might be better to specify SD using energy (e.g. AC power). This would decouple (no pur intended) this specification from the DC blocking CAP and its inherent impact (e.g. filter time) on the detection times. This can be done without specifying the implementation.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

An indefinate 101010... pattern cannot exist on the wire. The minimum IPG contains sufficient low frequency content to cause SIGNAL_DETECT to be asserted. As long as a minimum IPG is received at an interval that is less than or equal to the minimum SIGNAL_DETECT deassertion time SIGNAL_DETECT will remain asserted.

Will add "absolute differential voltage" to clarify.

Will add note paragraph: "Note: SIGNAL_DETECT may not activate with a continuous 1010… patern such as the high frequency pattern of 48A.???, but it will trigger durning the IPG.

*Cl* **54** *SC* **6.4** *P* **21** *L* **17** # **410**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **R** *T410*

The draft seems to imply that signal detect must be triggered by a single bit, albeit with up to 100 us delay. I don't believe this is what you mean.

*SuggestedRemedy*

Clarify. Do you mean that the signal detect must respond to isolated bits (1010, but only D21.2 and D10.2 in the whole 8B/10B code book are like this), or pairs of bits - but presumably many occurrences of whichever it is?

*Proposed Response* *Response Status* **C**

REJECT.

Clause 54.6.4, paragraph 2 states '... has exceeded 175mVppd for at least 1 UI." This is exactly what we intend it to say.

*Cl* **54** *SC* **6.4** *P* **21** *L* **24** # **357**

Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR357*

The sentence doesn't properly describe that 500us is the maximum time for assertion of SIGNAL_DETECT.

*SuggestedRemedy*

Change to read: ""... has dropped below and remained below 50mVppd within 500us.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change text to "The PMD shall have asserted SIGNAL_DETECT ...."

*Cl* **54** *SC* **6.4** *P* **21** *L* **32** # **468**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E468*

The unit "mVppd" appears to be used in Table 54-5 without definition. I infer that it means "milliVolts peak-peak differential".

*SuggestedRemedy*

Define the term or change the table so that "mVpp" can be used as is the case in Table 54-6.

*Proposed Response* *Response Status* **C**

ACCEPT.

Also change mVppd to mVpp differential in paragraphs above table.

*Cl* **54** *SC* **6.4** *P* **21** *L* **42** # **411**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E411*

You want very rapid signal detect yet less rapid de-assert. Opposite to what I would expe

*SuggestedRemedy*

Please explain.

*Proposed Response* *Response Status* **C**

ACCEPT.

Explanation: We want to know if there is a signal present as soon as possible so the link can be brought up as soon as possible. We do not want to drop the link for any random noise event.

*Cl* **54** *SC* **6.4** *P* **21** *L* **42** # **412**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *E412*

There should be something in here about a compliant signal (both electrically and in coding), and a get out: behaviour unspecified in all other conditions.

*SuggestedRemedy*

Per comment.

*Proposed Response* *Response Status* **C**

REJECT.

Signal detect is only meant to detect the presence of a signal, not whether there is a CX4, compliant, coded signal.

*Cl* **54** *SC* **6.4** *P* **21** *L* **43** # **295**

Frazier, Howard SW

*Comment Type* **TR** *Comment Status* **A** *TR295*

Why does the specification assume that the signal detect assertion time (or any signal detect response time) is measured using MDIO/MDC? There is no need to assume this if the signal can be directly measured with a 'scope. The fact that there is no electrical spec for signal detect makes the timing parameters meaningless, and there is no way to bound the sampling time or response time at the MDIO/MDC. If you want to put timing parameters in for signal detect, you should add in the essential components of an electrical spec.

*SuggestedRemedy*

Remove the note at line 43, and set the assertion time at whatever you feel is both technically and economically feasible, assuming that the parameter can be measured by directly observing the signals with a 'scope, and that things like the rise/fall times of the signals are tiny in comparison to the measurement interval. To get around the need for an electrical spec, you could state that ""The signal detect assertion and deassertion times are measured at the logic thresholds indentified in the PMD manufacturer's specification."" This would permit a wide range of implementations, tighten up the times, circumvent the need for an electrical spec, and avoid the ambiguity and complexity associated with sampling the intervals via MDIO/MDC.

*Proposed Response* *Response Status* **C**

ACCEPT.

Note removed. All other suggested remedy criteria met.

*Cl* **54** *SC* **6.6** *P* **22** *L* **3** # **413**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR413*

Duelling PICS. This subclause points to 45.2.1.1.1 which has its own ""shall""s and PICS. We need to have an agreed policy: do the ""shall""s and PICS for MDIO related features go in the ""datapath"" clause or in 45? Not both.

*SuggestedRemedy*

Depending on policy, replace this ""shall be"" with ""is"" - also some others.

*Proposed Response* *Response Status* **C**

ACCEPT.

Will delete this sub-clause and associted PICS.

*Cl* **54** *SC* **6.7** *P* **22** *L* **12** # **341**

Grow, Robert — Intel

*Comment Type* **TR** *Comment Status* **A** *TR341*

The term ""absolute output voltage limits"" is not defined in Table 54-6.

*SuggestedRemedy*

Change to read ""... and does not exceed the maximum differential peak amplitude in Table 54-6."" Fix similar problem on line 24.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.7** *P* **22** *L* **12** # **128**

Martin, David — Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E128*

Font.

*SuggestedRemedy*

Correct font size for ""absolute output voltage limits""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.7** *P* **22** *L* **46** # **414**

Dawe, Piers — Agilent

*Comment Type* **T** *Comment Status* **A** *T414*

I don't believe this is what you really want (or mean): ""If a PMD_fault is detected, then the PMD may set the Global_PMD_transmit_disable to ONE, turning off the electrical transmitter in each lane."". The effect would be that if a transmitter unexpectedly turns itself off, you cannot so surely tell whether this was because of fault detection, or it was to to via the register, or a combination: because it has just overwritten part of the evidence.

*SuggestedRemedy*

Copying 52: ""If a PMD_transmit_fault (optional) is detected, then the PMD_global_transmit_disable function should also be asserted."" (meaning: you should turn the transmitter off, but we don't tell you what you must do with the register). Similarly in 54.6.8.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Item "b)' in sub-clause 54.6.7 and 54.6.8 will be changed to: "... the PMD may turn off ..."

*Cl* **54** *SC* **6.8** *P* **22** *L* **24** # **129**

Martin, David — Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E129*

Font.

*SuggestedRemedy*

Correct font size for ""absolute output voltage limits""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.8** *P* **22** *L* **29** # **71**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **R** *E071*

Missing the word ""optional"" in front of PMD_transmit_disable_n.

*SuggestedRemedy*

Fix as per comment.

*Proposed Response* *Response Status* **C**

REJECT.

PMD_transmit_disable_n is not optional.

*Cl* **54** *SC* **6.9** *P* **22** *L* **34** # **360**

Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR360*

The loopback function does not describe what happens on the MDIO. (Are transmit signals disabled or not?)

*SuggestedRemedy*

Add text to specify the transmitters are disabled, or a warning that loopback does not disable the transmitters (unless disabled by the global PMD transmit disable.

*Proposed Response* *Response Status* **C**

ACCEPT.

Will add text stating loopback does not disable transmitters and continues to send out what is on the transmit path.

*Cl* **54** *SC* **6.9** *P* **22** *L* **34** # **20**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E020*

Wording is redundant.

*SuggestedRemedy*

Remove ""as specified in this subclause"".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.9** *P* **22** *L* **35** # **89**

Joergensen, Thomas Vitesse Semiconducto

*Comment Type* **E** *Comment Status* **A** *E089*

Loopback mode might be selected through either MDIO management or other means, so there should not be any reference to how loopback mode is selected in the subclause.

*SuggestedRemedy*

Remove the words ""by setting the loopback control bit of 1.0.0""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **6.9** *P* **22** *L* **45** # **381**

Thompson, Geoff Nortel

*Comment Type* **T** *Comment Status* **A** *T381*

There should be a ""warning"" or ""caution"" to users that placing a network port into loopback can be highly disruptive to a network.

*SuggestedRemedy*

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will add note to same affect for loopback and transmitter disable.

*Cl* **54** *SC* **7** *P* **23** *L* **11** # **388**

Brown, Kevin — Broadcom Corp

*Comment Type* **TR** *Comment Status* **A** *TR388*

The complete link budget of: transmiter level (54.7.3.4), return loss (54.7.3.5), template (54.7.3.6), jitter (54.7.3.8), cable assembly insertion loss (54.8.2), return loss (54.8.3), NEXT (54.8.4), FEXT (54.8.5), Receiver amplitude (54.7.4.4), return loss (54.7.4.5), jitter tollerance (54.7.4.6) when taken all together produces a non working link. The amount of allowable noise in the system from return losses, NEXT, FEXT and jitter is higher than what is required to obtain error free opperation, for a BER of 10^-12, with the given insertion loss, transmit level, transmit template and a reasonable simple receiver equalization (at the minimum ould need next & fext cancilation).

*SuggestedRemedy*

A presentation is to be given by Howard Baumer for a suggested link budget at the May interim in Portsmouth, NH.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Based upon presentations given in Portsmouth, N.H. that address this comment, the following changes will be made:

1) Clause 54.8.3 change equuations 54.4a, 54.4b, 54.4c to:
Return Loss(f) >= 22.35 - 17.17 x log10(f/100) for 100MHz < f <= 400MHz
Return Loss(f) >= 12 for 400MHz < f <= 2000Mz

2) Clause 54.7.3.4 change the first sentence in the first paragraph to: 'Driver differential output amplitude shall be less than 1200 mVp-p."

3) Clause 54.7.3.4 after the third sentence of the first paragraph add the following sentenc
The difference between any two lanes' differential peak-to-peak output amplitude shall be less than or equal to 150mVpp.
differential peak-to-peak output amplitude difference will be added to Table 54-6.

4) Clause 54.8.4.2 change equation 54.6 to:
MDNext(f) >= 27 - 17 x log10(f/2000)

5) Change the transmit template and table to the one presented in Ottawa by Dimitry Taich, dt_ottawa.pdf. Change the 54.7.3.1 item 6 to "... Normalized Waveform = (Original Waveform - Voff) * (0.69 / Vnorm).".

6) All related figures, tables and other references will be updated accordingly.

Ammend the above to incorporate the following changes as recommended by CX4_July03_DiMinico1.pdf

*Cl* **54** *SC* **7** *P* **26** *L* **24** # **435**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **R** *TR297*

Too many graphs. Other editorial.

*SuggestedRemedy*

Combine the three ""return loss"" graphs. Remove gratuitous trailing zeroes in y axes. Remove ""E+0"" in y axes. Remove grey borders. Start f axis below, not at, 100 MHz. Commas are forbidden in numbers. It would be nice to have shading to show which side o each mask is compliant. Figures are orphans; each needs a mention in the text.

*Proposed Response* *Response Status* **C**

REJECT.

Graphs stay and will be labeled informative and will be black & white, see comment #297

*Cl* **54** *SC* **7.1** *P* **23** *L* **16** # **309**

Brown, Benjamin — Independent

*Comment Type* **E** *Comment Status* **A** *E309*

In ""inter operability"" 2 words?

*SuggestedRemedy*

Replace ""inter operability"" with ""interoperability"". This results in a hyphen at the end of this line. This comment also applies to 54.7.4.3, page 29, line 43

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.1** *P* **23** *L* **16** # **454**

Thaler, Pat — Agilent Technologies

*Comment Type* **E** *Comment Status* **A** *E454*

When you have a two word adjective, it should be hyphenated. For instance, ""low swing AC coupled differential interface"" should be ""low-swing AC-coupled differential interface"" Another example is ""peak to peak"" in 54.7.3.4 which should be ""peak-to-peak"". By the way, it is not clear why the first sentence of this subclause says ""differenti output amplitude"" when describing the maximum while the next sentence describing the minimum for the same signal characteristic calls it ""differental peak to peak output voltage"". Both are obviously peak-to-peak voltages as the units are mVp-p. I suggest you use the same name for the characteristic in both sentences.

*SuggestedRemedy*

Check for unhypenated adjectives and correct. Also, make the wording of 54.7.3.4 more consistant.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.2** *P* **23** *L* **23** # **305**
Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E305*
Wrong word usage

*SuggestedRemedy*
Replace ""is comprised of"" with ""comprises""

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

*Cl* **54** *SC* **7.2** *P* **23** *L* **25** # **82**
Cobb, Terry Avaya

*Comment Type* **T** *Comment Status* **A** *T082*
Does it operate at 15 meters and what is meant by standard twinaxial cable?

*SuggestedRemedy*
Remove the words approximately and standard from the sentance.

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

Will modify text to read (... are intended to operate on twinaxial cables up to 15m in length, as described in 54.8)

*Cl* **54** *SC* **7.2** *P* **23** *L* **25** # **13**
Marris, Arthur Cadence

*Comment Type* **T** *Comment Status* **A** *T082*
The text talks of ""standard twinaxial cables as described in 54.8"". I have read clause 54.8 and can't find any reference to a ""standard"" cable.

*SuggestedRemedy*
Please reference the ""standard"" for twinaxial cables.

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

See comment #82

*Cl* **54** *SC* **7.2** *P* **23** *L* **25** # **74**
Alan Flatman LAN Technologies

*Comment Type* **E** *Comment Status* **A** *T082*
cannot say "up to approximately 15m"

*SuggestedRemedy*
delete "approximately"

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

See comment #82

*Cl* **54** *SC* **7.2** *P* **23** *L* **25** # **455**
Thaler, Pat Agilent Technologies

*Comment Type* **E** *Comment Status* **A** *T082*
This is admittedly a picky comment re: ""standard twinaxial cables"" There is no standard for the cables called out in 54.8. If there is a cable standard that satisfies the requirements of 54.8, then it should at least be called out in a note. If there is not and you simply mean ""common"", then please delete ""standard"" as it is confusing to use this casual sense of the word in a standard.

*SuggestedRemedy*
See comment

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

See comment #82

*Cl* **54** *SC* **7.2** *P* **23** *L* **25** # **21**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *T082*
Bad wording.

*SuggestedRemedy*
Remove ""approximately"". Scan specification for other occurrences.

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

See comment #82

*Cl* **54** *SC* **7.3** *P* **24** *L* **11** # **415**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **A** *E415*

Standard terminology

*SuggestedRemedy*

Replace ""Baud rate tolerance"" with ""Signaling speed (range)"" here and in 54.7.3.3 (twice), replace ""Baud period"" there with ""unit interval"". Also for receiver, 54.7.4.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **54** *SC* **7.3.1** *P* **24** *L* **37** # **344**

Grow, Robert — Intel

*Comment Type* **E** *Comment Status* **A** *E344*

Awkward language.

*SuggestedRemedy*

Change first line to read: ""The test fixture of Figure 54-3, or its functional equivalent, ...""

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **54** *SC* **7.3.1** *P* **24** *L* **38** # **416**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR416*

You say ""The transmitter under test includes the driver, pcb traces, any AC coupling components and the MDI connector described in 54.9.1"". The transmitter under test is a port. It may have a card, a shelf, a box, .... As you would have to have something equivalent about the receiver,

*SuggestedRemedy*

Delete the sentence. You need some text at 54.7 anyway: insert something like this: ""A compliant 10GBASE-CX4 PMD meets the requirements of this clause as part of a complete item of data terminal equipment (DTE). If performance differs between component level measurements and port measurements, appropriate margin may be needed in component specification and procurement.""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove last sentence.

---

*Cl* **54** *SC* **7.3.1** *P* **24** *L* **38** # **22**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E022*

Use caps for abbreviation.

*SuggestedRemedy*

Change ""pcb"" to ""PCB"".

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #386

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*Cl* **54** *SC* **7.3.2** *P* **25** *L* **24** # **469**

Bill Quackenbush — Cisco Systems, Inc.

*Comment Type* **TR** *Comment Status* **A** *TR469*

Impedance is a complex quantity (R+jX). I infer that the specification of the impedance as 50 Ohms really means 50+j0 Ohms (50 Ohms resistive). What is unclear to me is how the specified tolerance of +/- 0.5% is to be applied a complex quantity. For instance, is the tolerance applied individually to the resistive and reactive components of the specified impedance resulting in a permitted impedance range of 49.5+j0 to 50.5+j0 Ohms? If so, this is a specification that no physical resistor can meet over the specified frequency range due to parasitic inductance and capacitance. I suspect that some other meaning was intended, but such meaning is not evident in the text. In particular, I suspect that the intent was to specify an impedance whose resistive component is 50 Ohms +/- 1% and whose reactive component is assumed to be small and is ignored.

*SuggestedRemedy*

Change the specification to an "impedance whose resistive component is 50 Ohms +/- 1%". If the reactive component is of concern, then a more complex specification is required.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Clause 54.7.3.2 to:
"The nominal differential impedance of the transmit test fixture depicted in Figure 54-3 shall be 100 ohms with a return loss greater than 20dB from 100MHz to 2.0GHz."

*Cl* **54** *SC* **7.3.2** *P* **25** *L* **24-24** # **467**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **TR** *Comment Status* **A** *TR467*

The specification is not clear and does no agree with Figure 54-3 which shows no clear connection to the signal shield. The impedance being specified is not clearly stated.

*SuggestedRemedy*

Change the text to something like "The test fixture shall terminate each signal of a differential pair with an impedance of 50 Ohms +/- 1% to the signal shield. The impedance specification shall be met over the frequency range of 100 MHz to 2.0 GHz."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will revise figure 54-3 to improve clarity.
Will expand figure so signal lines are not so crowded.

Proposed text change is adddresed in response to comment #469

The following changes will be to D4.1 as this comment is being resolved through the recirculation ballot of D4.1
"Will remove grouping of AC cap and R, relabeld Z=50ohm to R=50ohm for R to Figure 54-3.

*Cl* **54** *SC* **7.3.4** *P* **25** *L* **33** # **75**

Alan Flatman LAN Technologies

*Comment Type* **E** *Comment Status* **A** *E075*

Title "Amplitude and Swing" duplicates same meaning

*SuggestedRemedy*

rename "Output Amplitude"

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.4** *P* **25** *L* **35-37** # **510**

Steve Dreyer Intel

*Comment Type* **TR** *Comment Status* **A** *TR388*

The output level on each lane can be 800-1600mV. Am concerned about the NEXT/FEXT from one lane having output level of 1600mV to an adjacent lane with a much smaller 800mV output level. I think it would be prudent to have a spec requiring all four lanes to have a max output level within a certain range that is much smaller than the 800-1600mV absolute spec.

*SuggestedRemedy*

Add a spec that requires that all lane differential output amplitudes match to within 20%. That is, the ratio of the lane with the highest amplitude to the lane with the smallest amplitude is less than or equal to 1.20.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #388

*Cl* **54** *SC* **7.3.4** *P* **25** *L* **35-37** # **498**

Steve Dreyer Intel

*Comment Type* **TR** *Comment Status* **A** *TR388*

The output level on each lane can be 800-1600mV. Am concerned about the NEXT/FEXT from one lane having output level of 1600mV to an adjacent lane with a much smaller 800mV output level. I think it would be prudent to have a spec requiring all four lanes to have a max output level within a certain range that is much smaller than the 800-1600mV absolute spec.

*SuggestedRemedy*

Add a spec that requires that all lane differential output amplitudes match to within 20%. That is, the ratio of the lane with the highest amplitude to the lane with the smallest amplitude is less than or equal to 1.20.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #388

*Cl* **54** *SC* **7.3.4** *P* **25** *L* **37** # **95**

Dove, Daniel hp ProCurve Networki

*Comment Type* **TR** *Comment Status* **A** *TR388*

The current spec allows for any transmitter to be from 800mV to 1600mV maximum amplitude on any lane. I believe this is way too loose. I believe we need to spec the relative amplitudes of all 4 transmitters so that we can have better control over the impact of MDNEXT and ELFEXT. In fact, the term ELFEXT assumes equal levels. THe current spec allows a 6dB difference in transmit levels

*SuggestedRemedy*

Add to the end of the sentence on line 37. ""The peak-to-peak amplitude on all lanes shall not deviate by more than 10% from any other lane.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #388

*Cl* **54** *SC* **7.3.4** *P* **25** *L* **39** # **296**

Frazier, Howard SW

*Comment Type* **E** *Comment Status* **A** *E296*

D.C. vs DC. Both appear in the same sentence.

*SuggestedRemedy*

Use DC, not D.C.

*Proposed Response* *Response Status* **C**

ACCEPT.

Will also search entire text and make all consistant

*Cl* **54** *SC* **7.3.4** *P* **25** *L* **Figure 54-** # **470**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E470*

The designations "<N>" and "<P>" for the two signals comprising a differential pair are inconsistent with the designations used elsewhere in the Clause 54.

*SuggestedRemedy*

Select and use consistent notation. I suggest the "+" and "-" notation.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

<p> and <n> adopted

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **10** # **86**

Cobb, Terry Avaya

*Comment Type* **E** *Comment Status* **A** *TR297*

In the past this is usually a table.

*SuggestedRemedy*

Move the return loss to a table. This would need to be changed throughout the document. In addition the picture should not be included. It is best not to show a requirement with both a picture and equation or table. As in a previous comment, the table is generally used for specifing the requirement. It also makes the PIC easier.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

All graphic pictures will be labeled informative, see comment #297

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **24** # **24**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **R** *TR297*

Figure 54-5, -6, -7, -9, -10, -11, and -12 appear to be imported graphics. These graphics need to be in editable FrameMaker format.

*SuggestedRemedy*

Eliminate imported graphics.

*Proposed Response* *Response Status* **C**

REJECT.

IEEE Standards Style Manual Section 16 allows for imported graphics. Files for each graphic will be maintained per Section 16. See comment #297

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **3** # **88**

Joergensen, Thomas Vitesse Semiconducto

*Comment Type* **E** *Comment Status* **A** *E088*

It is not the output impedance of the driver, but the output impedance of the total circuit including PCB and connector.

*SuggestedRemedy*

Change the word ""driver"" to ""output"" in line 3

*Proposed Response* *Response Status* **C**

ACCEPT.

"driver" canged to "transmitter" throught document

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **35** # **417**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR417*

We aren't specifying an IC.

*SuggestedRemedy*

Replace ""driver"" with ""transmitting port"".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Delete second sentence

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **4** # **83**

Cobb, Terry — Avaya

*Comment Type* **E** *Comment Status* **A** *E083*

Correct text.

*SuggestedRemedy*

Use ""shall be greater than or equal to"" (note: this needs to be changed throughtout the document) and on the following line change output impedance to return loss.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **6** # **502**

Steve Dreyer — Intel

*Comment Type* **E** *Comment Status* **A** *E502*

Looks like missing period at end of line 6.

*SuggestedRemedy*

Add period to end of line 6.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **6** # **490**

Steve Dreyer — Intel

*Comment Type* **E** *Comment Status* **A** *E490*

Looks like missing period at end of line 6.

*SuggestedRemedy*

Add period to end of line 6.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.5** *P* **26** *L* **9** # **23**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E023*

Equation format is incorrect.

*SuggestedRemedy*

Apply the ""Equation"" format to each equation. Numbering should be ""(54-1)"" and should have no ""Eq."" and no ""a"" or ""b"". Apply to all equations in the specification.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.5** *P* **27** *L* **52** # **117**

Jonathan Thatcher — WWP

*Comment Type* **T** *Comment Status* **A** *TR487*

Figure 54-6 should be informative (change in text on line 19). The normative information comes from Table 54-7.

*SuggestedRemedy*

Change text to

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See coomment #487

*Cl* **54** *SC* **7.3.5** *P* **28** *L* **38** # **118**

Jonathan Thatcher — WWP

*Comment Type* **E** *Comment Status* **A** *E118*

Remove the note to the editors note box below. IEEE has no permanent means to ensure availability of this file.

*SuggestedRemedy*

Put note in editors box, which will be removed "prior to publication." Or, fix the IEEE process and rules so that we have permanent, managed repository for such files.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Removed note.

*Cl* **54** *SC* **7.3.6** *P* **26** *L* **52** # **418**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR418*

It's not our concern if each port is tested or not; what we ask is that it should perform as required, in service.

*SuggestedRemedy*

Replace ""shall be tested using"" with ""be compliant when transmitting"".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first sentence of the first paragraph of Clause 54.7.3.6 to:
"The transmitter differential output signal is defined at TP2, as shown in Figure 54-2. The transmitter shall provide equalization such that the output waveform falls within the template shown in Figure 54-6 for the test pattern specified in Annex 48A.2. Voltage and time coordinates for inflection points on Figure 54-6 are given in Table 54-7. These measurements are to be made for each pair while observing the differential signal output at TP2 using the transmitter test fixture."

Delete paragraph immediately above Figure 54-6.

*Cl* **54** *SC* **7.3.6** *P* **26** *L* **53** # **25**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E025*

Leading in text for list should be on the same page as the list.

*SuggestedRemedy*

Fix as per comment.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.6** *P* **27** *L* **1** # **26**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E026*

Numbered list does not appear to be an IEEE numbered list.

*SuggestedRemedy*

Apply IEEE format to the numbered list.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.6** *P* **27** *L* **13** # **377**

Ewen, John — JDS Uniphase

*Comment Type* **E** *Comment Status* **R** *E377*

Definition of Vnorm and Normalized Waveform include factors of 2 and 0.5 that cancel. This seems redundant.

*SuggestedRemedy*

Define Vnorm and Normalized Waveform as: Vnorm = (Vlowp - Vlowm) Normalized Waveform = (Original Waveform - Voff) / Vnorm

*Proposed Response* *Response Status* **C**

REJECT.

The factor of 0.5 represents the nominal pre-emphasis value chosen by the study group. This number can change from other comments to this draft and might therefore change here.

*Cl* **54** *SC* **7.3.6** *P* **27** *L* **19** # **421**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **A** *TR418*

Don't use figures for normative specs.

*SuggestedRemedy*

Replace ""defined in Figure 54–6 and the piece-wise linear interpolation between the points in Table 54–7."" with ""defined in piece-wise linear format by Table 54–7 and illustrated by Figure 54–6.""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #418

*Cl* **54** *SC* **7.3.6** *P* **27** *L* **23** # **462**

van Doorn, Schelto — Intel

*Comment Type* **TR** *Comment Status* **A** *TR487*

The transmit template does not reflect the latest presentations.

*SuggestedRemedy*

Adjust the transmit template to the latest presentations

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

see comment #487

Cl **54** SC **7.3.6** P **27** L **24** # **97**
Dove, Daniel hp ProCurve Networki

*Comment Type* **TR** *Comment Status* **A** *TR487*

This template needs to be verified over all conditions. I would like to see complete simulations to ensure that it is not too loose.

*SuggestedRemedy*

Complete system simulations and make necessary adjustments to template.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #487

Cl **54** SC **7.3.6** P **27** L **24** # **456**
Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR456*

If I'm reading the description of the normalization correctly, it looks like the signal will never lie within the template. Vlowp will be the normalized 1.0 and Vlown will be the normalized -1. A signal that hugged the upper boundary would average less than 1 for the first two baud of the +1 level on the template. Any other signal within the template will average less. A similar situation exists for the -1 level.

*SuggestedRemedy*

Please either explain what I've misinterpreted or correct the template.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

To be explained to Pat when possible, prior to recirc of next draft.

Cl **54** SC **7.3.6** P **27** L **24** # **112**
Gaither, Justin Xilinx, Inc

*Comment Type* **TR** *Comment Status* **A** *TR112*

The time scale on Figure 54-6 should be UI not ps. This needs to be normalized inorder to allow +/- 100ppm baud rate differences

*SuggestedRemedy*

normalize timescale to UI.

*Proposed Response* *Response Status* **C**

ACCEPT.

Update normilization instructions to use UI instead of ps.

Cl **54** SC **7.3.6** P **27** L **27** # **426**
Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *TR297*

Colour printing costs more; colour triggers a cost within IEEE secretariat.

*SuggestedRemedy*

In these figures you can use shades of grey. Continuous lines will look better than dashed.

*Proposed Response* *Response Status* **C**

ACCEPT.

Cl **54** SC **7.3.6** P **27** L **3** # **419**
Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E419*

The two levels are not called +1 and -1

*SuggestedRemedy*

1 and 0, or one and zero.

*Proposed Response* *Response Status* **C**

ACCEPT.

Cl **54** SC **7.3.6** P **27** L **3** # **420**
Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E420*

""continuous baud""?

*SuggestedRemedy*

successive unit intervals?

*Proposed Response* *Response Status* **C**

ACCEPT.

Cl **54** SC **7.3.6** P **27** L **45** # **422**
Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **R** *TR418*

The pattern is 10 UI or 3200 ps long. The table and figure should extend over the same range.

*SuggestedRemedy*

Delete last row of table, truncate figure at 3200 ps or continue template to chosen end of time axis.

*Proposed Response* *Response Status* **C**

REJECT.

See comment #418

*Cl* **54** *SC* **7.3.6** *P* **27** *L* **45** # **423**

Dawe, Piers — Agilent

*Comment Type* **T** *Comment Status* **A** *T423*

If crosstalk is a concern, need to say if this template is to be met with the other lanes transmitting or quiet. It would be preferable to be able to test in mission mode, therefore with other lanes transmitting.

*SuggestedRemedy*

Clarify.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will add clarifying sentence stating transmitters are to be off.

*Cl* **54** *SC* **7.3.6** *P* **27-28** *L* **23-50 on 2** # **464**

Naresh Raman — Independent

*Comment Type* **TR** *Comment Status* **A** *TR487*

There were simulation results presented at the MARCH Plenary that showed that some changes had to be made to the template in the draft. The presentations were CX4_Mar03_Mysticom.ppt and cx4_tx_template_update_03_10_03.pdf

*SuggestedRemedy*

Replace Fig. 54-6 and Table 54-7 with the figure and Table in the attached document.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #487

*Cl* **54** *SC* **7.3.6** *P* **27-28** *L* **23-54 on P** # **487**

Steve Dreyer — Intel

*Comment Type* **TR** *Comment Status* **A** *TR487*

Transmit output template limits should be adjusted to accomodate typical simulation results. Detailed presentations describing these proposed changes were made at Mar. 2003 Dallas plenary and can be found on CX4 public website under the following filenames (1) CX4_Mar03_Mysticom.ppt;04 (2) cx4_tx_template_update_03_10_03.pdf

*SuggestedRemedy*

Replace Table 54-7 and Figure 54-6 with the ones in attached file named cx4_xmt_template.xls.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Also added changes from Analog_PE.pdf presented by Clark Foley at DFW Plenary.

*Cl* **54** *SC* **7.3.6** *P* **27-28** *L* **23-54 on P** # **499**

Steve Dreyer — Intel

*Comment Type* **TR** *Comment Status* **A** *TR487*

Transmit output template limits should be adjusted to accomodate typical simulation results. Detailed presentations describing these proposed changes were made at Mar. 2003 Dallas plenary and can be found on CX4 public website under the following filenames (1) CX4_Mar03_Mysticom.ppt;04 (2) cx4_tx_template_update_03_10_03.pdf

*SuggestedRemedy*

Replace Table 54-7 and Figure 54-6 with the ones in attached file named cx4_xmt_template.xls.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Duplicate of #487

*Cl* **54** *SC* **7.3.6** *P* **28** *L* **Table 54-7** # **471**

Bill Quackenbush — Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E471*

The table contains 4 sets of duplicated number pairs whose purpose is unclear and that do not seen to be needed.

*SuggestedRemedy*

Remove the duplicate upper limit number pairs for 283 and 709 ps and the duplicate lower limit number pairs for 1883 and 2309 ps.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will pare down duplicated numbers to pairs to indicate a straight line.

*Cl* **54** *SC* **7.3.7** *P* **28** *L* **45** # **90**

Joergensen, Thomas — Vitesse Semiconducto

*Comment Type* **T** *Comment Status* **A** *T090*

I very much prefer if the transitions times were defined as a transition time between two defined voltage levels and not 20% and 80% levels. What are the 20% and 80% levels of a signal with pre-emhpasis? When we have an output template I don't see why we need to specify the transition times at all. If the signal fits into the template, tha trasition times should be OK.

*SuggestedRemedy*

Remove section 54.7.3.7

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will add rise and fall time compliance test lines to transmit template at the -0.2 and +0.7 for the rising transition and 0.2 and -0.7 for the falling transititons.

Add to Clause 54.7.3.7:
'The rising edge transition time is to be measured from the -0.2 to the 0.7 normalized levels as specified in Clause 54.7.3.6. The falling edge transition time is to be measured from the 0.2 to the -0.7 normalized levels as specified in Clause 54.7.3.6."

*Cl* **54** *SC* **7.3.7** *P* **28** *L* **45** # **424**

Dawe, Piers — Agilent

*Comment Type* **T** *Comment Status* **A** *T424*

If EMI and crosstalk are of concern, and 4G Fibre Channel (4.25 GBd) can use 75 to 192 ps, how come you need faster edges for a slower line rate?

*SuggestedRemedy*

Raise the high end - or explain why you need it as it is.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

10GBASE-CX4 is a closed eye system therefor it has a more demanding channel and increased transition times will reduce system margin.

*Cl* **54** *SC* **7.3.7** *P* **28** *L* **47** # **307**

Brown, Benjamin — Independent

*Comment Type* **E** *Comment Status* **A** *E307*

Wrong tense

*SuggestedRemedy*

Replace ""increase"" with ""increased""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Last sentence deleted.

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **45** # **425**

Dawe, Piers — Agilent

*Comment Type* **T** *Comment Status* **A** *TR465*

Most standards (e.g. Gigabit Ethernet, 10GE, Fibre Channel) specify DJ and TJ; no need to specify RJ separately.

*SuggestedRemedy*

Delete the RJ spec limit - or explain why you need it.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **47** # **130**

Martin, David — Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E130*

Typo

*SuggestedRemedy*

Replace ""and increase EMI"" with ""and increased EMI""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Last sentence deleted.

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **51** # **371**

Healey, Adam — Agere Systems

*Comment Type* **E** *Comment Status* **A** *E371*

Should have a reference the test methodology, 54.10.1.

*SuggestedRemedy*

Add sentence, ""Transmit jitter test requirements are specified in section 54.10.1.""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **51** # **347**

Grow, Robert — Intel

*Comment Type* **T** *Comment Status* **A** *TR465*

The text of this subclause changes the requirements from those of XAUI.

*SuggestedRemedy*

Change the text to read: ""The transmitter shall satisfy the jitter requirements with a maximum total jitter of ± 0.175 UI peak from the mean and a maximum deterministic component of ± 0.085 UI peak from the mean. Note that these values assume symmetrical jitter distributions about the mean. If a distribution is not symmetrical, its peak to peak total jitter value must be less than these total jitter values to claim compliance. Jitter specifications include all but 10E-12 of the jitter population. The maximum random jitter is equal to the maximum total jitter minus the actual deterministic jitter. Jitter measurement requirements are described in 54.10.1.""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

Elevated to from "E" to "T"

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **51-53** # **488**

Steve Dreyer — Intel

*Comment Type* **TR** *Comment Status* **A** *TR465*

CX4 and XAUI have same limits for TJ, same limits for DJ, but different limits for RJ. Specifically, CX4 XAUI No presentation was made to Study Group or Task Force justifying the RJ limit or why it should be changed relative to XAUI. The Study Group and Task Force did make explicit efforts on all other parameters to keep limits same as XAUI and only make changes where technically necessary in order to leverage the work done for XAUI. This same procedure should be followed for RJ as well.

*SuggestedRemedy*

Change RJ limits to match XAUI spec. Specifically, change text under 54.7.3.8 to The transmitter shall satisfy the jitter requirements with a a maximum total jitter of ± 0.175 UI peak from the mean and a maximum deterministic component of ± 0.085 UI peak from the mean. Note that these values assume symmetrical jitter distributions about the mean. If a distribution is not symmetrical, its peak to peak total jitter value must be less than these total jitter values to claim compliance. Jitter specifications include all but 10E-12 of the jitter population. The maximum random jitter is equal to the maximum total jitter minus the actual deterministic jitter. Jitter measurement requirements are described in 54.10.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **51-53** # **500**

Steve Dreyer — Intel

*Comment Type* **TR** *Comment Status* **A** *TR465*

CX4 and XAUI have same limits for TJ, same limits for DJ, but different limits for RJ. Specifically, CX4 XAUI No presentation was made to Study Group or Task Force justifying the RJ limit or why it should be changed relative to XAUI. The Study Group and Task Force did make explicit efforts on all other parameters to keep limits same as XAUI and only make changes where technically necessary in order to leverage the work done for XAUI. This same procedure should be followed for RJ as well.

*SuggestedRemedy*

Change RJ limits to match XAUI spec. Specifically, change text under 54.7.3.8 to The transmitter shall satisfy the jitter requirements with a a maximum total jitter of ± 0.175 UI peak from the mean and a maximum deterministic component of ± 0.085 UI peak from the mean. Note that these values assume symmetrical jitter distributions about the mean. If a distribution is not symmetrical, its peak to peak total jitter value must be less than these total jitter values to claim compliance. Jitter specifications include all but 10E-12 of the jitter population. The maximum random jitter is equal to the maximum total jitter minus the actual deterministic jitter. Jitter measurement requirements are described in 54.10.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **51-53** # **465**

Naresh Raman Independent

*Comment Type* **TR** *Comment Status* **A** *TR465*

The total jitter for XAUI and CX4 are the same. The DJ limit is also the same but the RJ limits have been specified differently in the CX4 Standard. There has been no presentation made to the Study group to warrant this change. The study group has only changed the limits from XAUI if there was a technical requirement. If there is no clear justification for this change to the RJ limit then it should also be the same as the XAUI limits.

*SuggestedRemedy*

Change text under 54.7.3.8 to The transmitter shall satisfy the jitter requirements with a maximum total jitter of ± 0.175 UI peak from the mean and a maximum deterministic component of ± 0.085 UI peak from the mean. Note that these values assume symmetrical jitter distributions about the mean. If a distribution is not symmetrical, its peak to peak total jitter value must be less than these total jitter values to claim compliance. Jitter specifications include all but 10E-12 of the jitter population. The maximum random jitter is equal to the maximum total jitter minus the actual deterministic jitter. Jitter measurement requirements are described in 54.10.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change Clause 54.7.3.8. To '... and a maximum random component of ± 0.135 UI peak"

*Cl* **54** *SC* **7.3.8** *P* **28** *L* **54** # **461**

Van Doorn, Schelto Intel

*Comment Type* **TR** *Comment Status* **A** *TR465*

Because new technologies use lower voltage levels, the random jitter is expected to increase due to a lower signal to noise ratio. Putting a cap on the RJ this low might hinder future technologies. Our objectives state to use the XAUI ""as is"" and adding the RJ cap is not needed and contradicts to the objective. No presentation has been made to prove that the original XAUI will not work.

*SuggestedRemedy*

Remove the RJ cap to be compliant with in XAUI or justify and a max value that we can live with.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **2** # **84**

Cobb, Terry Avaya

*Comment Type* **T** *Comment Status* **A** *T465*

to claim compliance is not a requirement

*SuggestedRemedy*

Change must to shall and end sentence after values.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **98**

Dove, Daniel hp ProCurve Networki

*Comment Type* **E** *Comment Status* **A** *TR298*

Editorial note appears obsolete.

*SuggestedRemedy*

Remove editorial note

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **382**

Thompson, Geoff Nortel

*Comment Type* **T** *Comment Status* **A** *TR298*

Editor's note should have been removed and updated jitter specs should have been put in.

*SuggestedRemedy*

Remove note and update jitter specs.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **114**
Say-Otun, Sabit Next Level Communic

*Comment Type* **E** *Comment Status* **A** *TR298*
Editor's note still references March 2003 meeting

*SuggestedRemedy*
delete edirot's note

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

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **298**
Frazier, Howard SW

*Comment Type* **TR** *Comment Status* **A** *TR298*
The editor's note at the top of the page is inappropriate for inclusion in a WG ballot draft, especially since the March, 2003 plenary was history at the time the ballot was launched.

*SuggestedRemedy*
Remove the note prior to offering the draft for sale. If the transmit jitter allocation is still subject to analysis, then it was inappropriate to launch a WG ballot on this draft, and the ballot should be halted and voided.

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

Note is a typo and was indaverdently left in. It will be removed.

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **17**
Daines, Kevin World Wide Packets

*Comment Type* **E** *Comment Status* **A** *TR298*
This editror's note should have been removed, shouldn't it?

*SuggestedRemedy*
Remove editor's note if transmit jitter allocation was resolved in Dallas.

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

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **348**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *TR298*
Obsolete Editor's Note.

*SuggestedRemedy*
Remove the note.

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

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **27**
Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *TR298*
Editor's note should be resolved.

*SuggestedRemedy*
Remove editor's note.

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

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **458**
Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR298*
The note seems to indicate some uncertainty in the correctness of the current transmit jitter spec (which seems to be drawn directly from the XAUI jitter spec). Also, receiver jitter is inadequately specified (see my other comment on the subject). Therefore, it is not clear that jitter allocation is sufficiently understood.

*SuggestedRemedy*
Establish a jitter budget allocation and correct transmit jitter to correspond to that.

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

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **73**

Plunkett, Timothy NSWCDD

*Comment Type* **E** *Comment Status* **A** *TR298*

Editor's note is not outdated

*SuggestedRemedy*

Editor's note should be updated or removed.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4** # **131**

Martin, David Nortel Networks

*Comment Type* **E** *Comment Status* **A** *TR298*

Editor's Note

*SuggestedRemedy*

The March 2003 plenary has come and gone. Shouldn't this note be removed by now?

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #298

*Cl* **54** *SC* **7.3.8** *P* **29** *L* **4-5** # **463**

Don Alderrou Intel Corporation

*Comment Type* **TR** *Comment Status* **A** *TR465*

The Jitter budget for CX4 is critical. Any difference from the XAUIbudget may cause interoperability issues. I can't vote to Approve thisdraft with an Editor's note stating that the jitter budget will bereconsidered.

*SuggestedRemedy*

Specify the XAUI jitter budget for CX4 and remove the Editor's note.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #465

*Cl* **54** *SC* **7.4** *P* **29** *L* **1** # **372**

Healey, Adam Agere Systems

*Comment Type* **T** *Comment Status* **A** *T372*

Should be specific on what ""these total jitter values"" are. Only peak-mean values are given outside of Table 54-9. I assume the intent of the sentence is to state assymetrical jitter distributions comply to the peak-peak values in Table 54-9 (or twice the peak-mean value)? If this is the case, I question the value of specifying peak-to-mean values if a device is allowed to use peak-peak values in the case where peak-mean cannot be satisfied. Why not just define the peak-peak values?

*SuggestedRemedy*

Replace ""these total jitter values"" with ""twice the peak-mean jitter values"". As an alternative, we could use peak-peak jitter values exclusively.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.4** *P* **29** *L* **12** # **85**

Cobb, Terry Avaya

*Comment Type* **E** *Comment Status* **R** *E085*

Tables are generally used for requirements and the text that follows points to the table. I found this throughout the document.

*SuggestedRemedy*

Correct usuage in the document to the practice that we have used in the past.

*Proposed Response* *Response Status* **C**

REJECT.

Will add wording to indicate this table is informative.

*Cl* **54** *SC* **7.4** *P* **29** *L* **24** # **119**

Jonathan Thatcher WWP

*Comment Type* **TR** *Comment Status* **A** *TR119*

It seems absolutely unreasonable to define the minimum input amplitude based on a non-existent and unspecified golden transmitter, a non-existent worst case cable assembly, etc Related text in 54.7.4.4 on page 30, line 6.

*SuggestedRemedy*

Spec it.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The following text will be deleted from the first paragraph of Clause 54.7.4.4:

"The minimum input amplitude is defined by the transmit driver, the channel and the actual receiver input impedance. Note that the transmit driver is defined using a well controlled load impedance. The minimum signal amplitude into an actual receiver may vary from the minimum height due to the actual receiver input impedance."

---

*Cl* **54** *SC* **7.4** *P* **29** *L* **25 (Table** # **472**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E472*

The value of minimum differential return loss in the table does not reflect the frequency dependence specified in 54.7.4.5 and is therefore misleading.

*SuggestedRemedy*

Either show the frequency dependence in the table or removed the parameter from the table.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will make it the same format as the transmitter return loss in table 54-6.

---

*Cl* **54** *SC* **7.4.1** *P* **29** *L* **33-34** # **473**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E473*

The wording less than precise.

*SuggestedRemedy*

Change the sentence to "The receiver shall operate with a BER of better than 10^-12 when receiving a compliant transmit signal, as defined in 54.7.3, through a compliant channel as defined in 54.8."

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **54** *SC* **7.4.1** *P* **29** *L* **35** # **28**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E028*

Extra space between ""in"" and ""54.8.""

*SuggestedRemedy*

Remove extra space.

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **54** *SC* **7.4.2** *P* **29** *L* **38** # **474**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E474*

The requirement is poorly stated.

*SuggestedRemedy*

Change the sentence to "A 10GBASE-CX4 receiver shall comply with the requirements of 54.7.4.1 for any Baud rate in the range 3.125 GBd +/- 100 ppm."

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **54** *SC* **7.4.2** *P* **29** *L* **39** # **308**

Brown, Benjamin Independent

*Comment Type* **T** *Comment Status* **A** *T308*

This subclause isn't specific about the Unit Interval time as specified in Table 54-8 and as is done for the transmitter in 54.7.3.3

*SuggestedRemedy*

Add the sentence: ""The corresponding Baud period is nominally 320 ps.""

*Proposed Response* *Response Status* **C**

ACCEPT.

---

*Cl* **54** *SC* **7.4.2** *P* **29** *L* **39** # **29**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E029*

Different font type for +/-100 ppm.

*SuggestedRemedy*

Change font to match previous text.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.4.3** *P* **29** *L* **43** # **30**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E099*

Extra space between ""inter"" and ""operability"".

*SuggestedRemedy*

Change to be ""interoperability"".

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #99

*Cl* **54** *SC* **7.4.3** *P* **29** *L* **43** # **99**

Dove, Daniel hp ProCurve Networki

*Comment Type* **E** *Comment Status* **A** *E099*

typo

*SuggestedRemedy*

add a hyphen between ""inter"" and ""operability"".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use "interoperability" throughout the document.

*Cl* **54** *SC* **7.4.3** *P* **29** *L* **43** # **132**

Martin, David Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E099*

Typo

*SuggestedRemedy*

Replace ""for maximum inter operability"" with ""for maximum interoperability""

*Proposed Response* *Response Status* **C**

ACCEPT.

See Comment #99

*Cl* **54** *SC* **7.4.3** *P* **29** *L* **48** # **31**

Booth, Brad Intel

*Comment Type* **E** *Comment Status* **A** *E031*

Note is not in IEEE Note format.

*SuggestedRemedy*

Change to be in IEEE Note format.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.4.4** *P* **30** *L* **3** # **113**

Gaither, Justin Xilinx, Inc

*Comment Type* **TR** *Comment Status* **A** *TR113*

Input sensitivity is not properly specified. This would require me to qualify my part against every other vendor out their through maximum cable length in order to verify compliance.

*SuggestedRemedy*

Please specify the worst case output amplitude against the worst possible mismatch case of output transmitter impedance, cable and input impedance.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Input sensitivity for a system that uses receive side equalization is an inappropriate parameter.

*Cl* **54** *SC* **7.4.4** *P* **30** *L* **4-5** # **475**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E475*

The second sentence could be clearer.

*SuggestedRemedy*

Change the second sentence to "Note that these may be greater than the 1600 mVpp maximum differential amplitude specified in 54.7.3.3 due to the actual transmitter output and receiver input impedances."

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **7.4.4** *P* **30** *L* **7-8** # **476**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E476*

The sentence makes little sense as stated and the use of the word "height" seems inappropriate. I infer that the intent was to say that input impedance of a receiver can cause the minimum signal into a receiver to differ from that measured when the receiver is replaced with a 100 Ohm test load.

*SuggestedRemedy*

Change the sentence beginning in line 7 to "The input impedance of a receiver can cause the minimum signal into a receiver to differ from that measured when the receiver is replaced with a 100 Ohm test load."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

The 4th sentence will be changed to "... the minimum specified value due to ..."

*Cl* **54** *SC* **7.4.5** *P* **30** *L* **15** # **427**

Dawe, Piers Agilent

*Comment Type* **TR** *Comment Status* **A** *TR427*

Port vs. chip; input and output.

*SuggestedRemedy*

Change to ""Differential return loss of the DTE's input port is defined at TP3 and includes contributions from on-chip circuitry, chip packaging, the connector and any off-chip components related to the receiver. This input impedance requirement applies to all valid input levels.""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Clause 54.7.4.5 will now be:
"For frequencies from 100 MHz to 2.0 GHz, the differential return loss, in dB with f in MHz, of the receiver shall be greater than or equal to Equation 54.1 and Equation 54.2. This input impedance requirement applies to all valid input levels. The reference impedance for differential return loss measurements is 100ohms."

*Cl* **54** *SC* **7.4.5** *P* **30** *L* **16** # **91**

Joergensen, Thomas Vitesse Semiconducto

*Comment Type* **E** *Comment Status* **A** *E091*

The word ""driver"" should be replaced with ""receiver"". In the next sentence the text still refers to the output impedance and not the input impedance.

*SuggestedRemedy*

Replace line 16 and 17 with: ""...and any off-chip components related to the receiver. This input impedance requirement applies to all valid input levels..""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #349

*Cl* **54** *SC* **7.4.5** *P* **30** *L* **17** # **491**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E491*

Looks like missing period at end of line 17.

*SuggestedRemedy*

Add period to end of line 17.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #349

*Cl* **54** *SC* **7.4.5** *P* **30** *L* **17** # **503**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E503*

Looks like missing period at end of line 17.

*SuggestedRemedy*

Add period to end of line 17.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #349

*Cl* **54** *SC* **7.4.5** *P* **30** *L* **46** # **349**

Grow, Robert — Intel

*Comment Type* **E** *Comment Status* **A** *TR427*

This section is unnecessarily redundant with the transmit section. For maintenance of the document it is better to specify in one location and reference. It isn't clear that the impedance specifications of the transmitter and reciever are identical after teing transmitted through a conformant channel (including the cabling).

*SuggestedRemedy*

Replace section and Figure 54-7 with: ""The reciever shall accept a signal generated by a transmitter meeting the output impedance requirements of 54.7.3.5 over a compliant channel (including cable assembly).""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #427

*Cl* **54** *SC* **7.4.6** *P* **31** *L* **30** # **457**

Thaler, Pat — Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR457*

This appears to leave determination of the required receiver jitter tolerance as an exercise for the implementor. This is complicated to determine and should be specified by the standard.

*SuggestedRemedy*

Specify the quantity of jitter that the receiver must tolerate.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #374

Will also add the following note to 54.7.4.1, D4.1:

"Note: BER should be tested with worst case insertion loss, long cable, as well as a low loss, short, cable. The low loss cable may be a more stringent test on the system due to a higher ratio of return loss, NEXT and FEXT to the amplitude of the low frequency components within the transmitted signal."

*Cl* **54** *SC* **7.4.6** *P* **31** *L* **32** # **311**

Brown, Benjamin — Independent

*Comment Type* **E** *Comment Status* **A** *E311*

wrong comma placement

*SuggestedRemedy*

Replace ""54.7.3.8 with any compliant transmit signal, as defined in 54.7.3 through"" with ""54.7.3.8, with any compliant transmit signal as defined in 54.7.3, through""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #374

*Cl* **54** *SC* **7.4.6** *P* **31** *L* **33** # **373**

Healey, Adam — Agere Systems

*Comment Type* **TR** *Comment Status* **A** *TR457*

Paragraph states that receiver shall tolerate deterministic, random, and total jitter as defined in 54.7.3. Then goes on to say that the receiver shall tolerate additional sinusoidal jitter per figure 54-8. I believe the intent is DJ+RJ be 0.55 + 0.1 UI sinusoidal for 0.65 UI jitter tolerance, where the sinusoidal emulates the ""Others"" component of Table 54-9. Some would interpret this to be the DJ+RJ of 0.65 UI + 0.01 UI sinusoidal for 0.75 UI jitter tolerance, where the ""compliant channel"" includes components allocated to ""Others"".

*SuggestedRemedy*

State that: ""The 10GBASE-CX4 receiver shall have a peak-to-peak total jitter amplitude tolerance of at least 0.65 UI. This total jitter is composed of three components: deterministic jitter, random jitter, and an additional sinusoidal jitter. Deterministic jitter tolerance shall be at least 0.37 UIp-p. Tolerance to the sum of deterministic and random jitter shall be at least 0.55 UIp-p. The 10GBASE-CX4 receiver shall tolerate an additional sinusoidal jitter with any frequency and amplitude defined by the mask of Figure 54-8. This additional component is intended to ensure margin for low frequency jitter, wander, noise, crosstalk and other variable system effects.""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #457.

*Cl* **54** *SC* **7.4.6** *P* **31** *L* **33-34 and** # **477**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **TR** *Comment Status* **A** *TR457*

The specification of the allowable sinusoidal jitter component is unclear. There is no indication whether the allowable sinusoidal component must be above or below the line on Figure 54-8.

*SuggestedRemedy*

Shade the portion of Figure 54-8 above the upper bound line or label the line with "upper bound". Change the sentence beginning on line 33 to "The receiver shall tolerate an additional sinusoidal jitter with any combination of frequency and amplitude in the unshaded portion of Figure 54-8."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #457

*Cl* **54** *SC* **7.4.6** *P* **31-32** *L* **1** # **504**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E504*

Graphic for Figure 54-8 is on one page, title for that figure is on the next page, that is confusing.

*SuggestedRemedy*

Put title and graphic for Figure 54-8 on same page.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #374

*Cl* **54** *SC* **7.4.6** *P* **31-32** *L* **1** # **492**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E492*

Graphic for Figure 54-8 is on one page, title for that figure is on the next page, that is confusing.

*SuggestedRemedy*

Put title and graphic for Figure 54-8 on same page.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #374

*Cl* **54** *SC* **8** *P* **32** *L* **15** # **430**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **R** *TR386*

Table 54-9 says driver and package DJ, 0.17 UIpp plus PCBs DJ, 0.02 UI. But DJ limit at TP2 is +/-0.085 UI.

*SuggestedRemedy*

Reconcile. If the normative specs are correct, could have 0.16, 0.02 UIpp here.

*Proposed Response* *Response Status* **C**

REJECT.

See comment #386, table 54-9 has been deleted.

*Cl* **54** *SC* **8** *P* **32** *L* **16 (Table** # **478**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *TR386*

"PCBs" is rather non description of this item.

*SuggestedRemedy*

Change "CBs" to "printed circuit board traces" or "PCB traces".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #386

*Cl* **54** *SC* **8** *P* **32** *L* **17** # **120**

Jonathan Thatcher WWP

*Comment Type* **TR** *Comment Status* **A** *TR386*

It seems completely unreasonable to define cross talk characteristics on a limited rise / fall time signal and have a zero random jitter component.

*SuggestedRemedy*

Yes, this is hard. But it is reasonable to have specifications for the RJ contribution for PCB, Cable, and "Other."

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #386, Informative table has been removed

*Cl* **54** *SC* **8** *P* **32** *L* **17** # **429**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **A** *TR386*

Table 54-9 needs an indication of how much random jitter is added by the cable assembly. Surely it's not zero?

*SuggestedRemedy*

Per comment.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #386

*Cl* **54** *SC* **8** *P* **32** *L* **19** # **431**

Dawe, Piers — Agilent

*Comment Type* **T** *Comment Status* **R** *TR386*

Crosstalk, noise, and interaction between jitter and eye height do not cause loss; they cause impairment.

*SuggestedRemedy*

Change heading to second column to ""Loss or impairment at 1.5625 GHz"".

*Proposed Response* *Response Status* **C**

REJECT.

See comment #386, table 54-9 has been deleted.

*Cl* **54** *SC* **8** *P* **32** *L* **23** # **9**

Marris, Arthur — Cadence

*Comment Type* **T** *Comment Status* **A** *TR386*

5.08cm is too precise

*SuggestedRemedy*

Replace ""5.08cm"" with either ""5cm"" or ""50mm""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #386, Tabale 54-9 has been deleted.

*Cl* **54** *SC* **8** *P* **32** *L* **25** # **479**

Bill Quackenbush — Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *TR386*

The meaning of "eye height" in note "d" is unclear.

*SuggestedRemedy*

Clarify the note or remove the phrase "eye height" from the note.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #386

*Cl* **54** *SC* **8** *P* **32** *L* **30** # **33**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E033*

Table 54-10 has improper line weighting.

*SuggestedRemedy*

Fix line weights.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8** *P* **32** *L* **37** # **433**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR433*

This ""crosstalk loss"" terminology has passed its sell by date: this oxymoron ""Minimum NEXT loss ... (max.)"" makes the point. Anyway what does ""NEXT loss"" mean? It's not NEXT, nor the impairment due to it. It seems to be -NEXT.

*SuggestedRemedy*

Specify all crosstalks in their usual units . Delete every mention of ""loss"" associated with crosstalk. Change sign of quantities. Example: NEXT(f) <= -30 +17.log(f/2000) This saves you having to show so many graphs with the y axis running backwards (a neat trick though!). If you want to be thorough, you can turn the ""return loss""s into ""reflectance""s. Now you can use S11, S22 terminology.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Remove "(max)" from the NEXT, MDNEXT, ELFEXT and MDELFEXT entries in Table 54-10.

*Cl* **54** *SC* **8** *P* **32** *L* **37** # **434**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **R** *E434*

The crosstalk material needs a diagram.

*SuggestedRemedy*

Add a diagram illustrating the different forms of crosstalk and reflection.

*Proposed Response* *Response Status* **C**

REJECT.

This is tutorial and is not consistent with other IEEE.

*Cl* **54** *SC* **8** *P* **32** *L* **46** # **133**

Martin, David — Nortel Networks

*Comment Type* **E** *Comment Status* **A** *E133*

Capital letter

*SuggestedRemedy*

Replace ""of the Jumper cable"" with ""of the jumper cable""

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Jumper cable will be replaced with cable assembly

*Cl* **54** *SC* **8** *P* **32** *L* **47** # **10**

Marris, Arthur — Cadence

*Comment Type* **T** *Comment Status* **A** *T010*

""The impedance for the jumper cable assembly, shall be recorded 4.0 ns following the reference location determined by an open connector at TP2 and TP3."" does not make any sense to me.

*SuggestedRemedy*

Discuss

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change last sentence of note a of Table 54-10 to:
"The impedance for the cable assembly, shall be recorded at half the length of the cable but not to exceed 1ns away from the MDI." Will remove all instances of "jumper" in this Clause.

*Cl* **54** *SC* **8** *P* **32** *L* **5** # **32**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E032*

Remove the word ""approximately"".

*SuggestedRemedy*

Fix as per comment.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8** *P* **32** *L* **5** # **432**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR432*

It's not clear where the reference points for the cable assembly are. I would guess they should be TP1 and TP4 because they are accessible - but then might have to take care about double-counting the connectors. Or do you have some way of de-embedding them?

*SuggestedRemedy*

Specify reference points for the cable assembly.

*Proposed Response* *Response Status* **C**

ACCEPT.

Change Clause 54.8 to "... using controlled impedance cables. All cable assembly measurements are to be made between TP1 and TP4 as shown in Table 54-2. Loss and jitter budgets ..."

Add to the end of Clause 54.6.1:
"A mated connector pair has been included in both the transmitter and receiver specifications defined in 54.7.3 and 54.7.4. Two mated connector pairs have been included in the cable assembly specifications defined in Clause 54.8."

*Cl* **54** *SC* **8** *P* **32** *L* **5** # **8**

Marris, Arthur — Cadence

*Comment Type* **E** *Comment Status* **A** *E008*

Delete the redundant word ""approximately""

*SuggestedRemedy*

Delete the redundant word ""approximately""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8** *P* **32** *L* **7** # **428**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E428*

""intended as a point-to-point interface of up to approximately 15 m between integrated circuits"" - NOT. You use PCB to connect ICs. Twinax cable, between boxes

*SuggestedRemedy*

""between ports"".

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use "between network ports".

*Cl* **54** *SC* **8** *P* **32** *L* **na** # **505**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E505*

Table 54-10 has inconsistent line widths

*SuggestedRemedy*

Make Table 54-10 line widths consistent.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8** *P* **32** *L* **na** # **493**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E493*

Table 54-10 has inconsistent line widths

*SuggestedRemedy*

Make Table 54-10 line widths consistent.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.1** *P* **32** *L* **54** # **484**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **TR** *Comment Status* **A** *TR484*

Impedance is a complex quantity (R+jX). I infer that specification of the impedance as 100 Ohms really means 100+j0 Ohms (100 Ohms resistive). What is unclear to me is how the specified tolerance of +/- 10% is to be applied a complex quantity. For instance, is the tolerance applied individually to the resistive and reactive components of the specified impedance resulting in a permitted impedance range of 90+j0 to 110+j0 Ohms? If so, this is a specification that no lossy transmission line can meet over the specified frequency range due to its losses. I suspect that some other meaning was intended, but such meaning is not evident in the text. In particular, I suspect that the intent was to specify an impedance whose resistive component is 100 Ohms +/- 10% and whose reactive component is assumed to be small and is ignored.

*SuggestedRemedy*

Change the specification to an "impedance whose resistive component is 100 Ohms +/- 10%". If the reactive component is of concern, then a more complex specification is required.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change 54.8.1 from "The recommended differential characteristic impedance of circuit board trace pairs and the cable assembly is 100 W ± 10% from 100 MHz to 2000 MHz." to "The nominal differential characteristic impedance of the cable assembly is 100 ohms."

Add the following to the end of 54.8.3: "The reference impedance for differential return loss measurements is 100ohms.".

Remove CA1 from 54.12.4.5 and renumber table, and remove from table 54-10.

All of the above changes to D4.1 as this comment is being resolved through the recirculation ballot of D4.1

*Cl* **54** *SC* **8.2** *P* **33** *L* **10** # **436**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **R** *T436*

Especially with the way ELFEXT is defined, don't you need a channel to channel loss difference spec also?

*SuggestedRemedy*

Per comment.

*Proposed Response* *Response Status* **C**

REJECT.

Clause 54.8.5.1, page 36, line 47 states that ELFEXT is calculated using the disturbed channel's insertion loss.

*Cl* **54** *SC* **8.2** *P* **33** *L* **10-11** # **481**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **TR** *Comment Status* **A** *TR432*

The measurement points for the cable assembly insertion loss are not clearly stated. Reference to a diagram or figure would be useful such as Figure 54-2. Are TP1 and TP4 o Figure 54-2 the correct measurement points for this measurement?

*SuggestedRemedy*

Clarify the measurement points for the cable assembly insertion loss.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #432

*Cl* **54** *SC* **8.2** *P* **33** *L* **11** # **480**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E480*

It appears that "connector" at the end of the sentence should be plural.

*SuggestedRemedy*

Change "connector" to "connectors".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.2** *P* **33** *L* **3** # **351**

Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR297*

It is not clear which takes precedence, the equations or Figure 54-9. I assume the Figure is a plot of the function in equation 54.3.

*SuggestedRemedy*

Clarify precedence and relationship of equation and figure, or remove the figure.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will specify figures as informative. See comment #297

*Cl* **54** *SC* **8.2** *P* **33** *L* **38** # **121**

Jonathan Thatcher WWP

*Comment Type* **E** *Comment Status* **A** *E121*

Figure 54.-9 is informative.

*SuggestedRemedy*

Add "(Informative)" to the title of the figure.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.3** *P* **33** *L* **42** # **352**

Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR207*

It is not clear which takes precedence, the equations or Figure 54-10. I assume the Figure is a plot of the functions in equation 54.4a, 54.4b and 54.4c.

*SuggestedRemedy*

Clarify precedence and relationship of equation and figure or remove the figure.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will specify figures as informativ, see comment #297

*Cl* **54** *SC* **8.3** *P* **34** *L* **15** # **482**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E482*

It appears that "connector" at the end of the sentence should be plural.

*SuggestedRemedy*

Change "connector" to "connectors".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.3** *P* **34** *L* **42** # **122**

Jonathan Thatcher WWP

*Comment Type* **E** *Comment Status* **A** *E122*

Figure 54-10 is informative.

*SuggestedRemedy*

Add "(Informative)" to the title of the figure.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.3** *P* **34** *L* **6** # **313**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E313*

For commonality with ""2.0 GHz""...

*SuggestedRemedy*

Replace ""1000 MHz"" with ""1.0 GHz"" both here and on line 14.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change all "GHz" to their equivalent "MHz".

*Cl* **54** *SC* **8.4** *P* **21** *L* **14** # **451**

Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR451*

Use of ""shall"" needs attention. For instance, ""shall be required to assert"" is stating a requirement on the standard. It should be ""shall assert"" or ""is required to assert"".

*SuggestedRemedy*

""SIGNAL_DETECT shall be a global indicator"" should be ""SIGNAL_DETECT is a global indicator"" as the statement is definition rather than requirement on the device. The requirement is stated later by saying when the device shall drive SIGNAL_DETECT to OK. ""shall be required to assert"" should be ""shall assert""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4** *P* **21** *L* **24** # **452**

Thaler, Pat Agilent Technologies

*Comment Type* **TR** *Comment Status* **R** *TR452*

For transition from FAIL to OK, there is a requirement that it occur within 100 us after the condition for SIGNAL_DETECT=OK has been received. There is no transition time stated for the transition from OK to FAIL

*SuggestedRemedy*

Add a requirement for the transtion time from OK to FAIL.

*Proposed Response* *Response Status* **C**

REJECT.

The third paragraph of 54.6.4 specifies the SIGNAL_DETECT = OK to FAIL times to be between 250us and 500us and is summarized in the last row of table 54-5.

*Cl* **54** *SC* **8.4** *P* **36** *L* **26** # **123**

Jonathan Thatcher WWP

*Comment Type* **E** *Comment Status* **A** *E123*

Figure 54.-11 is informative.

*SuggestedRemedy*

Add "(Informative)" to the title of the figure.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.1** *P* **34** *L* **49** # **11**

Marris, Arthur Cadence

*Comment Type* **E** *Comment Status* **A** *E011*

Unnecessary ""the""

*SuggestedRemedy*

Reword ""between the any of the four transmit channels"" to ""between any of the four transmit channels""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.1** *P* **34** *L* **49** # **483**

Bill Quackenbush Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E483*

Extra "the".

*SuggestedRemedy*

Delete "the" from the phrase "loss between the any of the four transmit channels".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.1** *P* **34** *L* **50** # **314**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E314*

wrong word

*SuggestedRemedy*

""bit error rate"" should be ""bit error ratio"" but replacing it with ""BER"" would match 54.8.5.1

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.1** *P* **34** *L* **51** # **495**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E495*

Missing colon after "at least".

*SuggestedRemedy*

Add colon.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.1** *P* **34** *L* **51** # **507**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E507*

Missing colon after "at least".

*SuggestedRemedy*

Add colon.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.1** *P* **35** *L* **6** # **312**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E312*

no comma needed

*SuggestedRemedy*

Remove the comma at the end of this line. This comment also applies ti 54.8.5.1, page 37, line 1

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.2** *P* **35** *L* **16** # **437**

Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **A** *T437*

As you can't assume the lanes are uncorrelated, voltage sum would be the natural way to go, not power sum. But then the spec could be converted to power sum terms.

*SuggestedRemedy*

Explain to the reader how this spec makes sense for the likely strong lane to lane correlation.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

We agree with your statements, the limits placed in the specification make numerous pessimistic assumptions that we believe address your concerns. For example we assumec two adjacent disturbers and two more disturbers 2 signal pairs away when setting the limit as opposed to one adjacent, one 2 away, one 3 away and one 4 away (t T R T t instead of R T t t t).

*Cl* **54** *SC* **8.4.2** *P* **35** *L* **28** # **81**

Cobb, Terry Avaya

*Comment Type* **E** *Comment Status* **A** *E081*

MDNEXT is not a sum of the magnitudes.

*SuggestedRemedy*

Change to a power sum.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.2** *P* **35** *L* **37-38** # **494**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E494*

Lines 37-38 seem confusing, maybe there is some formatting problem. Same issue in section 54.8.5.2.1.

*SuggestedRemedy*

Fix formatting problem.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.2** *P* **35** *L* **37-38** # **506**
Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E506*

Lines 37-38 seem confusing, maybe there is some formatting problem. Same issue in section 54.8.5.2.1.

*SuggestedRemedy*

Fix formatting problem.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.2** *P* **35** *L* **51** # **508**
Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E508*

Missing colon after "at least".

*SuggestedRemedy*

Add colon.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.2** *P* **35** *L* **51** # **496**
Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E496*

Missing colon after "at least".

*SuggestedRemedy*

Add colon.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.4.2** *P* **36** *L* **3** # **353**
Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR297*

It is not clear which takes precedence, the equations or Figure 54-11. I assume the Figure is a plot of the function in equation 54.5, 54.6 and 54.7.

*SuggestedRemedy*

Clarify precedence and relationship of equation and figure or remove the figure.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will specify figures as informative, see comment #297

*Cl* **54** *SC* **8.5** *P* **38** *L* **2** # **354**
Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR297*

It is not clear which takes precedence, the equations or Figure 54-12. I assume the Figure is a plot of the function in equation 54.8, 54.9 and 54.10.

*SuggestedRemedy*

Clarify precedence and relationship of equation and figure or remove the figure.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will specify figures as informative, see comment #297

*Cl* **54** *SC* **8.5.1** *P* **36** *L* **30** # **438**
Dawe, Piers Agilent

*Comment Type* **T** *Comment Status* **R** *T438*

Would it be cleaner to specify Vpcn/(Vpds*loss of disturbING channel) ?

*SuggestedRemedy*

Per comment.

*Proposed Response* *Response Status* **C**

REJECT.

No, ELFEXT is an accepted parameter for cable assembly specifications.

*Cl* **54** *SC* **8.5.1** *P* **36** *L* **33** # **34**
Booth, Brad Intel

*Comment Type* **T** *Comment Status* **A** *T034*

Duplex channel as used does not match definition in 1.4.106 as communication is not duplex, it is dual-simplex.

*SuggestedRemedy*

Either remove the word ""duplex"" or create a new definition for that channel. Defining in Clause 54 that a channel is one transmit lane and one receive lane would help in the definition of a channel as per this clause.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will remove the word "duplex" from entire document.

*Cl* **54** *SC* **8.5.1** *P* **36** *L* **36** # **509**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E509*

Missing colon after "defined as".

*SuggestedRemedy*

Add colon

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.5.1** *P* **36** *L* **36** # **497**

Steve Dreyer Intel

*Comment Type* **E** *Comment Status* **A** *E497*

Missing colon after "defined as".

*SuggestedRemedy*

Add colon

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.5.1** *P* **36** *L* **48** # **19**

Daines, Kevin World Wide Packets

*Comment Type* **E** *Comment Status* **A** *E019*

This line, introducing an equation, ends with a colon. Most of the preceding lines introducing equations did not.

*SuggestedRemedy*

Choose one punctuation and harmonize clause.

*Proposed Response* *Response Status* **C**

ACCEPT.

Will end with ":"

*Cl* **54** *SC* **8.5.2** *P* **37** *L* **6** # **439**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E439*

If I've understood this right, this paragraph can be cleaned up.

*SuggestedRemedy*

Replace first two sentences with: ""Since four duplex channels are used to transfer data between PMDs, the FEXT that is coupled into a data carrying channel will be from the three other channels in the same direction.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use
"Since four channels are used to transfer data between PMDs, the FEXT that is coupled into a data carrying channel will be from the three other channels in the same direction"

*Cl* **54** *SC* **8.5.2.1** *P* **37** *L* **21** # **440**

Dawe, Piers Agilent

*Comment Type* **E** *Comment Status* **A** *E370*

Editorials

*SuggestedRemedy*

Delete the subclause heading: there is no 54.8.5.2.1 to keep it company. In equation, change PSELFEXT to MDELFEXT.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #370

*Cl* **54** *SC* **8.5.2.1** *P* **37** *L* **21** # **315**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E370*

According to the second paragraph in Clause 11 of the IEEE style manual: ""Clauses and subclauses shall be divided into further subclauses only when there is to be more than one subclause. In other words, clauses and subclauses should not be broken down into furthe subclauses if another subclause of the same level does not exist. For example, Clause 1 shall not have a subclause 1.1 unless there is also a subclause 1.2.

*SuggestedRemedy*

Remove the header for this subclause and combine with 54.8.5.2 Same comment applies to 54.9.1.1 & 54.10.1

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #370

*Cl* **54** *SC* **8.5.2.1** *P* **37** *L* **21** # **370**

Healey, Adam — Agere Systems

*Comment Type* **E** *Comment Status* **R** *E370*

PSELFEXT is not cited as a cable performance requirement. The intent of this section appears to be to show how MDELFEXT is to be computed. Also the note below equation 54.10 states that NL(f)i is the FEXT loss for pair combination i, but this should read ELFEXT loss (or the attenuation term needs to be factored into Equation 54.10).

*SuggestedRemedy*

Move contents of 54.8.5.2.1 to 54.8.5.2 and remove subsection. Change PSELFEXT to MDELFEXT and NL(f)i to EL(f)i in equation 54.10 and modify note to read that ""EL(f)i is the ELFEXT loss at frequency f for pair combination i""

*Proposed Response* *Response Status* **C**

REJECT.

Will make consistant with other 802.3 standards (e.g. 1000BASE-T).

*Cl* **54** *SC* **8.5.2.1** *P* **37** *L* **23** # **378**

Ewen, John — JDS Uniphase

*Comment Type* **T** *Comment Status* **A** *T378*

PSELFEXT is defined in this section but not referenced elsewhere in the draft. Is this intended to be MDELFEXT?

*SuggestedRemedy*

Clarify the relationship of PSELFEXT to MDELFEXT.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

"PSELFEXT" to be replaced with "MDELFEXT_Loss" so it matches syntax of MDNEXT.

*Cl* **54** *SC* **8.5.2.1** *P* **37** *L* **33** # **316**

Brown, Benjamin — Independent

*Comment Type* **E** *Comment Status* **A** *E316*

While I hardly can even follow this discussion, it seems to me that the definition of NL(f)i is wrong...

*SuggestedRemedy*

Replace ""FEXT"" with ""ELFEXT""

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.6** *P* **38** *L* **30** # **35**

Booth, Brad — Intel

*Comment Type* **E** *Comment Status* **A** *E035*

I believe that the ""class"" should be ""Class"".

*SuggestedRemedy*

Fix as per comment.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **8.6** *P* **38** *L* **30** # **299**

Frazier, Howard — SW

*Comment Type* **TR** *Comment Status* **A** *TR299*

I don't see a specification for shield transfer impedance within Clause 54. Is shield transfer impedance for an end to end link specified in the referenced documents?

*SuggestedRemedy*

Specify shield transfer impedance. If it is not adequately specified in the referenced documents for the cable and the connectors, consider adopting material like that found in 22.6.2, which describes Shielding effectiveness and transfer impedance for the MII.

*Proposed Response* *Response Status* **C**

ACCEPT.

Shield transfer impedance is specified in the referenced documents.

*Cl* **54** *SC* **8.6** *P* **38** *L* **30** # **441**

Dawe, Piers — Agilent

*Comment Type* **E** *Comment Status* **R** *E441*

What does this mean: ""The cable assembly shall provide class 2 or better shielding in accordance with IEC 61196-1.""?

*SuggestedRemedy*

Please give the reader a one-sentence summary so that he can decide if he needs to buy IEC 61196-1. Add IEC 61196-1 to list of references and give its title.

*Proposed Response* *Response Status* **C**

REJECT.

This is specified in the exact same manner as 1000BASE-CX is in Clause 39.4.2. IEC 61196-1 is already referenced in Clause 1.3

*Cl* **54** *SC* **9** *P* **39** *L* **1** # **442**

Dawe, Piers — Agilent

*Comment Type* **TR** *Comment Status* **A** *TR442*

Need to show how you number the pins. The reader can't be sure that you agree with SFF_8470's numbering, and you can be more informative in case he does not know that document.

*SuggestedRemedy*

Show pin numbering.

*Proposed Response* *Response Status* **C**

ACCEPT.

Figures 54-13, 54-14 will be redrawn in framemaker format and pin numbers willl be add to the new figures.

---

*Cl* **54** *SC* **9.1.1** *P* **38** *L* **46** # **36**

Booth, Brad — Intel

*Comment Type* **TR** *Comment Status* **A** *TR036*

Reference to SFF-8470. This TR is to track that this reference requirement is closed.

*SuggestedRemedy*

Provide reference to the connector.

*Proposed Response* *Response Status* **C**

ACCEPT.

Clause 54.9.1.1 Changed to:
"The connector for the cable assemblies shall be the latch type with the mechanical mating interface defined by IEC 61076-3-113, having pinouts matching those in Table 54-2, and the signal quality and electrical requirements of 54.7 and 54.8."

---

*Cl* **54** *SC* **9.1.1** *P* **38** *L* **46** # **459**

Thaler, Pat — Agilent Technologies

*Comment Type* **TR** *Comment Status* **A** *TR036*

What is the status of the connector in IEC? Do we know that the IEC spec will be ready prior to final approval. What do you mean ""final approval?"" If a standards reference is to be changed, it will have to be done before sponsor ballot is complete. As long as the SFF reference is in here, there should be reference information provided for it (see 1.3 references).

*SuggestedRemedy*

Provide reference information for SFF or update to an IEC connector spec.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #36

---

*Cl* **54** *SC* **9.1.1** *P* **38** *L* **49** # **100**

Dove, Daniel — hp ProCurve Networki

*Comment Type* **TR** *Comment Status* **A** *TR036*

IEC number needs to be included.

*SuggestedRemedy*

Include IEC number

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #36

---

*Cl* **54** *SC* **9.1.1** *P* **39** *L* **1** # **37**

Booth, Brad — Intel

*Comment Type* **TR** *Comment Status* **A** *TR037*

Page 39 was unable to print after multiple attempts on various printers.

*SuggestedRemedy*

Fix.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Figures 54-13 and 54-14 will be replaced with framemaker drawings that show the pin numbers. Hopefully this will fix the printing issue.

---

*Cl* **54** *SC* **9.1.1** *P* **39** *L* **6 (Figure** # **485**

Bill Quackenbush — Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **R** *E485*

I think the title of the figure should be "plug" not "connector".

*SuggestedRemedy*

Change "connector" to "plug" in the title of the figure.

*Proposed Response* *Response Status* **C**

REJECT.

*Cl* **54** *SC* **9.1.1** *P* **45** *L* **38** # **384**

Thompson, Geoff — Nortel

*Comment Type* **T** *Comment Status* **A** *TR036*

Definitive specification and access information for the SFF-8470 connector missing.

*SuggestedRemedy*

Provide definitive specification and access information for the SFF-8470 connector.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #36

---

*Cl* **54** *SC* **9.2** *P* **39** *L* **20** # **443**

Dawe, Piers — Agilent

*Comment Type* **T** *Comment Status* **A** *T443*

The crossover is a characteristic of the whole cable assembly, and would apply even with different connector type.

*SuggestedRemedy*

Move subclause to become 54.8.1.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Cross over to be moved right after the Cable assembly shielding section .

---

*Cl* **54** *SC* **9.2** *P* **39** *L* **27-35 (Fig** # **486**

Bill Quackenbush — Cisco Systems, Inc.

*Comment Type* **E** *Comment Status* **A** *E486*

Inconsistent designators "+", "-", "<P>" and "<N>" are used to designate the two signals that comprise a differential pair.

*SuggestedRemedy*

Make the designations consistent and consistent with the rest of the text.

*Proposed Response* *Response Status* **C**

ACCEPT.

<p> & <n> notation used throughout.

---

*Cl* **54** *SC* **9.2** *P* **39** *L* **33** # **389**

Beck, Michael — Alcatel Bell nv

*Comment Type* **E** *Comment Status* **A** *E389*

Figure 54-15: The signal names in the explanatory note are different from the signal names shown in the figure.

*SuggestedRemedy*

Make figure conform with notation in Table 54-2: Replace SLn+, SLn-, DLn+, DLn- with SLi<P>, SLi<N>, DLi<P> and DLi<N>, respectively. Explain meaning of DLi<P> and DLi<N>.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

<p> & <n> notation used throughout.

---

*Cl* **54** *SC* **9.2** *P* **39** *L* **33** # **355**

Grow, Robert — Intel

*Comment Type* **T** *Comment Status* **A** *T355*

The notation in the figure and the note are not consistent in either use of ""i"" and ""n"" for lane identification and ""<P>/<N>"" for ""+/-"". Table 54-2 uses a third convention with ""<p>/<n>"".

*SuggestedRemedy*

Fix in this location and search the document and establish consistent notation. I believe ""n+/n-"" is most often used.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change to use "<P>/<N>" notation throughout as used in Clause 47.

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*Cl* **54** *SC* **all** *P* **0** *L* **0** # **96**

Dove, Daniel — hp ProCurve Networki

*Comment Type* **E** *Comment Status* **A** *E096*

The term ""driver"" is used throughout the document to describe the term ""transmitter"". I believe this is not the correct term.

*SuggestedRemedy*

Do a document check and replace ""driver"" with ""transmitter"".

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **Figure 54-1** *P* **16** *L* **18** # **334**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E334*
Fill problem (probably a FrameMaker platform independence problem).

*SuggestedRemedy*
Change the background in the PMD and MDI box to diagonal lines (prints as shaded).

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

Is correct in framemaker files, printing / pdf translation problem.

*Cl* **54** *SC* **Figure 54–10—Cable a** *P* **34** *L* **18** # **106**
Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *E106*
Figure 54–10—Cable assembly return loss contains color.

*SuggestedRemedy*
See previous comments on this subject.

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

*Cl* **54** *SC* **Figure 54-11** *P* **36** *L* **26** # **383**
Thompson, Geoff Nortel

*Comment Type* **E** *Comment Status* **A** *E383*
Remove color information. (also 54-12) Final publication will be in black and white.

*SuggestedRemedy*

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

*Cl* **54** *SC* **Figure 54–11—Cable a** *P* **36** *L* **2** # **107**
Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *E107*
Figure 54–11—Cable assembly NEXT / MDNEXT loss contains color

*SuggestedRemedy*
See previous comments on this subject.

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

*Cl* **54** *SC* **Figure 54–12—Cable a** *P* **38** *L* **2** # **108**
Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *E108*
Figure 54–12—Cable assembly ELFEXT / MDELFEXT loss contains color.

*SuggestedRemedy*
Convert to grey-scale.

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

*Cl* **54** *SC* **Figure 54-13** *P* **39** *L* **1** # **317**
Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **R** *TR037*
This figure is not referenced in the text

*SuggestedRemedy*
Either add a reference to this figure or remove it. Same comment applies to Figure 54-14.

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

See comment #37. Figures will be labeld as informative.

*Cl* **54** *SC* **Figure 54-2** *P* **20** *L* **31** # **339**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E339*
SIGNAL_DETECT arrow should connect to the box above it.

*SuggestedRemedy*
Move the arrow

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

*Cl* **54** *SC* **Figure 54-5** *P* **26** *L* **24** # **102**
Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *TR297*
Table 54-5 Transmit differential output return loss contains color (dark blue) in the graph. IEEE 802 standards are printed in black-and-white only.

*SuggestedRemedy*
Change dark blue color in graph to black.

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

all graphs will be labeled informative and be black & white, see comment #297

*Cl* **54** *SC* **Figure 54-5** *P* **26** *L* **24** # **345**

Grow, Robert Intel

*Comment Type* **T** *Comment Status* **A** *TR297*

What is the purpose of the figure? There is no text describing its relevance or relationship to the return loss equations.

*SuggestedRemedy*

Add appropriate descriptive text.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #297

*Cl* **54** *SC* **Figure 54-5** *P* **26** *L* **24** # **297**

Frazier, Howard SW

*Comment Type* **TR** *Comment Status* **A** *TR297*

Gratuitous color in figures is a no-no.

*SuggestedRemedy*

Be BW printer friendly, and avoid using color unless it is ABSOLUTELY NECESSARY. This figure, as well as the others in this clause, can be redrawn without using color, and st convey the same information.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

All graphical figures will be labeled informative and be black & white.

*Cl* **54** *SC* **Figure 54-5** *P* **26** *L* **24** # **306**

Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **R** *E306*

Why does this figure have all the dashed lines in it? They don't appear to add anything to the figure.

*SuggestedRemedy*

Remove all the dashed lines from the figure. Same comment applies to Figure 54-7.

*Proposed Response* *Response Status* **C**

REJECT.

Gradicule lines make graphs easier to read.

*Cl* **54** *SC* **Figure 54-6** *P* **27** *L* **24** # **346**

Grow, Robert Intel

*Comment Type* **TR** *Comment Status* **A** *TR487*

The agreement of the Task Force was to review and adjust the transmit template with the results of simulations, yet that hasn't been done.

*SuggestedRemedy*

Replace Figure 54-6 and Table 54-7 with a template representative of simulation results. Steve Dreyer has submitted replacements that I believe accurately reflect simulation results.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #487

*Cl* **54** *SC* **Figure 54–6—Normaliz** *P* **27** *L* # **103**

Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *TR297*

Figure 54–6—Normalized transmit template as measured at MDI using Figure 54–3 contains color. IEEE 802 standards are in black and white.

*SuggestedRemedy*

Change colors to gray scale.

*Proposed Response* *Response Status* **C**

ACCEPT.

all graphical figures will be in black & white, see comment #297

*Cl* **54** *SC* **Figure 54–7—Receiver** *P* **31** *L* **2** # **104**

Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *E104*

Figure 54–7—Receiver differential input return loss is in color. IEEE 802 standards are black-and-white.

*SuggestedRemedy*

Replace dark blue coloor with black in the graph.

*Proposed Response* *Response Status* **C**

ACCEPT.

all graphic figures will be black & white

*Cl* **54** *SC* **Figure 54-8** *P* **32** *L* **1** # **310**
Brown, Benjamin Independent

*Comment Type* **E** *Comment Status* **A** *E310*

Figure title needs to stay with its figure

*SuggestedRemedy*

Move the figure title to the bottom of page 31 (or the figure to the top of page 32) so the figure and the title are together.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **Figure 54–9—Cable as** *P* **33** *L* **15** # **105**
Carlson, Steve HSD

*Comment Type* **E** *Comment Status* **A** *E105*

Figure 54–9—Cable assembly insertion loss contains color.

*SuggestedRemedy*

See previous comments on this subject.

*Proposed Response* *Response Status* **C**

ACCEPT.

All figures and tables will be B&W

*Cl* **54** *SC* **Table 54-10** *P* **32** *L* **28** # **18**
Daines, Kevin World Wide Packets

*Comment Type* **E** *Comment Status* **A** *E018*

Table borders for column #2 are messed up.

*SuggestedRemedy*

Fix borders.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **Table 54-10** *P* **32** *L* **31** # **350**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E350*

Bad formatting.

*SuggestedRemedy*

Correct the borders on the Table so that outside border and bottom border of Table header is the bold line and others are the fine line.

*Proposed Response* *Response Status* **C**

ACCEPT.

*Cl* **54** *SC* **Table 54-3** *P* **19** *L* **13** # **303**
Brown, Benjamin Independent

*Comment Type* **T** *Comment Status* **R** *TR287*

There is a loopback subclause (54.6.9) but the loopback bit isn't referenced in this table

*SuggestedRemedy*

Add 1.0.0 PMA Loopback to this table

*Proposed Response* *Response Status* **C**

REJECT.

See comment #335, Section was remmoved.

*Cl* **54** *SC* **Table 54-7** *P* **28** *L* **1** # **511**
Ze'ev Roth Mysticom

*Comment Type* **TR** *Comment Status* **A** *TR487*

Transmitter Template as defined does not sufficiently account for reflections.

*SuggestedRemedy*

Replace by modified template as attached. <<Template Modification for CX4_zeev4.xls>>
Note that figure 54-6 should be replaced too to match the table data.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #487

*Cl* **54** *SC* **Table 54-8** *P* **24** *L* **11** # **343**
Grow, Robert Intel

*Comment Type* **E** *Comment Status* **A** *E415*

Inconsistent table format with Table 54-8.

*SuggestedRemedy*

Either change both to Baud Rate and tolerance on a single line per Table 54-6 or change 54-6 to the two line format of Table 54-8.

*Proposed Response* *Response Status* **C**

ACCEPT.

See comment #415 and will use multi-line format in both

*Cl* **54** *SC* **Table 54-9** *P* **32** *L* **23** # **291**

Frazier, Howard SW

*Comment Type* **TR** *Comment Status* **A** *TR386*

in note b to Table 54-9: 5.08cm of FR4? Does the 0.08 cm make a difference? I can barely see 0.08 cm of PCB, let alone measure it.

*SuggestedRemedy*

Please round it off to 5 cm of FR4.

*Proposed Response* *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #386, Informative table has been removed

*Cl* **54** *SC* **Table 54-9** *P* **32** *L* **9** # **386**

Brown, Kevin Broadcom Corp

*Comment Type* **TR** *Comment Status* **A** *TR386*

Table 54-9 ""Informative 10GBASE-CX4 loss and jitter budget"" causes confussion because it is informative, the expected eye opening at TP4 is closed and the numbers in this table do bot refect this. This table does not make any sense with a closed eye at TP4.

*SuggestedRemedy*

Remove table

*Proposed Response* *Response Status* **C**

ACCEPT.