Cl **00** *SC* **General** *P* *L* # **151**

Grow, Robert Intel

Comment Type **TR** *Comment Status* **A** *TR151*

Subscripts are used inconsistently in the document. Sometimes ""pp"" is a subscript and sometimes just lower case characters. I do not believe mVpp is a proper unit. A pdf search only shows it used in Clause 40 (not usually a good precident for specication technique), and never labled as a unit. I believe mV is the unit and pp how it is measured.

SuggestedRemedy

First verify (IEEE Std 260 I think) if mVpp is a valid unit of measurement. If I am correct, each instance of Vpp will need to be inspected with text edited as necessary to include pp parameter.

Proposed Response *Response Status* **C**

ACCEPT.

All instances of mVpp and mVp-p with or without subscripts will be replaced with mV and peak-to-peak in the text.

Cl **01** *SC* **1.4** *P* **3** *L* **11** # **166**

Thompson, Geoff

Comment Type **T** *Comment Status* **A** *T165*

The text: 1.4.276 Twinaxial cable: A pair of insulated conductors surrounded by a conductive sheath should not have a specific number. "xxx" is the convention. AND the defining text is insufficient to distinguish twinax from shielded twisted pair.

SuggestedRemedy

Put in new appropriate def'n and number it 1.4.xxx

Proposed Response *Response Status* **C**

ACCEPT.

Will change text to:

1.4.xxx Twinaxial cable: A cable similar to coaxial cable in construction but containing two insulated inner conductors rather than one.

Cl **01** *SC* **1.4.276** *P* **3** *L* **11** # **169**

Thaler, Pat

Comment Type **TR** *Comment Status* **A** *TR169*

If one is defining twinax cable (which carries a single signal pair), then one should also define twinaxial cable assembly (which is the whole cable).

SuggestedRemedy

Add a definition for twinaxial cable assembly Perhaps "An assembly of the media for a single link for a PMD such as 10GBASE-CX4 containing multiple twin axial cables terminated in a connector at each end."

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will add definition:

1.4.xxx twinaxial cable assembly: An assembly containing multiple twinaxial cables terminated in a connector at each end, for use as a link segment between MDIs, such as that used in 10GBASE-CX4.

Cl **45** *SC* **45.2.1 Table 45-2** *P* **164** *L* # **31**

Baumer, Howard Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR31*

Refering to 802.3ae-2003 register 1-11 in Table 45-2 on page 164 is labeled as reserved but it is the ""10G PMA/PMD extended ability register"".

SuggestedRemedy

Add a change instruction to change table 45-2 to indicate register address 1-11 is the ""10G PMA/PMD extended ability register"".

Proposed Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.7.4** *P* **171** *L* # **233**

802.3ak Task Force

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

802.3ae 45.2.1.7.4 needs to be changed to include a reference for Transmit Fault to 10GBASE-CX4

SuggestedRemedy

Add editorial instruction to insert "The description of the transmit fault function for the 10GBASE-CX4 PMD is given in 54.4.10." after "The description of the transmit fault function for WWDM PMDs is given in 54.5.10."

Proposed Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.7.5** *P* **171** *L* # **234**

802.3ak Task Force

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

802.3ae 45.2.1.7.5 needs to be changed to include a reference for Receive Fault to 10GBASE-CX4

SuggestedRemedy

Add editorial instruction to insert "The description of the receive fault function for the 10GBASE-CX4 PMD is given in 54.4.11." after "The description of the receive fault function for WWDM PMDs is given in 54.5.11."

Proposed Response *Response Status* **C**

ACCEPT.

Cl **45** *SC* **45.2.1.8** *P* **11** *L* **18** # **81**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *T81*

Use of 'lane': 802.3ae has applied it to both optical and electrical signals. Phrase that seems to apply too widely.

SuggestedRemedy

line 18: Might change to 'multiple lane electrical PMDs': but anyway, this could be construed to define a XAUI tx disable. Assuming it doesn't, change to '10GBASE-CX4 PMDs'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use: "4-Lane electrical PMDs", Because this is used in 44.1.4.4, Table 44-1.

Cl **45** *SC* **45.2.1.8** *P* **173** *L* # **235**

802.3ak Task Force

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

802.3ae 45.2.1.8 needs to be changed to include a reference for the transmit disable function to 10GBASE-CX4

SuggestedRemedy

Add editorial instruction to insert "The transmit disable function for the 10GBASE-CX4 PMD is described in 54.5.6 and 54.5.7." after "The transmit disable function for wide wavelength division multiplexing (WWDM) PMDs is described in 53.4.7."

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.1** *P* **18** *L* **8** # **86**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *T86*

In EFM, the equivalent sentences to the following have been modified for two reasons: 1. The physical layer contains the RS while the PHY does not - as shown in e.g. Fig. 54-1, and; 2. The word ""integrated"" is troublesome. We think it was intended to mean connected with, but engineers will read it as meaning combined within the same physical unit - and that partitioning choice is an implementation choice and out of the scope of the standard. It was felt that the 'incorporated by reference' part had little value. Noting that EFM is likely to make clause 45 registers accessible through a clause 22 MDIO, we can pick up 54.5.8's neat phrase '45 or equivalent'. In the remedy below I also propose changing some words in the sentence to lower case. In order to form a complete PHY (physical layer device), a PMD is combined with the 100BASE-X PCS and PMA of Clause 24*ref*, and optionally combined with the management functions which may be accessible through the Management Interface defined in Clause 22*ref**.

SuggestedRemedy

Change: In order to form a complete PHY (physical layer device), the PMD shall be integrated with the appropriate physical sublayers (see Table 54-1) and with the management functions which are optionally accessible through the Management Interface defined in Clause 45, all of which are hereby incorporated by reference. to: In order to form a complete PHY (physical layer device), a PMD is combined with the appropriate sublayers (see Table 54-1), and with the management functions which are optionally accessible through the management interface defined in Clause 45, or equivalent. I think this means that PICS items XGE, XGXS and PCS can go. And I suppose the title to table 54-1 should be changed from '... physical layer clauses' to '... PHY (physical layer device) clauses'.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change second sentence to:
"In order to form a complete PHY (physical layer device), a PMD is combined with the appropriate sublayers (see Table 54-1), and with the management functions which are optionally accessible through the management interface defined in Clause 45, or equivalent."

Change table 54-1 title to:
'PHY (physical layer) clauses associated with the 10GBASE-CX4 PMD'

Change "PCS" pics status to "O".

Cl **54** *SC* **54.1** *P* **19** *L* **1** # **220**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T220*

This text states '.. shows the relationship of the PMD and MDI sublayers ..' but is the MDI really a sublayer.

SuggestedRemedy

Clarify if the MDI is a sublayer and if it is not update the text appropriately.

Proposed Response *Response Status* **C**

ACCEPT.

Will change text to read "... the PMD sublayers and MDI ..."

Cl **54** *SC* **54.12.4** *P* **40** *L* **26** # **46**

Baumer, Howard Broadcom Corp

Comment Type **T** *Comment Status* **A** *T46*

Duplicat pics. This is covered by CA14. Further more there is no shall statement in for this pics.

SuggestedRemedy

Remove the pics item ""LANE""

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4** *P* **40** *L* **36** # **48**

Baumer, Howard Broadcom Corp

Comment Type **T** *Comment Status* **A** *T48*

TP1 and TP4 pics have no textual reference.

SuggestedRemedy

Remove pics items TP1 & TP4.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will remove TP1 & TP4 pics. Comment is being corrected as 54.8 does reference TP1 & TP4.

Cl **54** *SC* **54.12.4.1** *P* **41** *L* **35** # **50**

Baumer, Howard Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR50*

PF11 has no shall statement behind it.

SuggestedRemedy

Remove PF11

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.1** *P* **41** *L* **47** # **53**

Baumer, Howard Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR53*

This pics item, PF16, is dependent on whether the MDIO is present or not and therefore should not be in this section with a status of ""M"".

SuggestedRemedy

Move pics item, PF16, to the mdio section, number accordingly, and set status to ""MD:M""

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **10** # **55**

Baumer, Howard Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR55*

MF2 PICS is incorectly specified, this function is not dependent upon the MDIO management being implemented. Per the text of sub-clause 54.5.6 this function is optional; however this PICS does not reflect that.

SuggestedRemedy

Move this to 54.12.4.1, number accordingly, and change status to ""O"" and Support to ""Yes [ ] / No [ ]"" Renumber MFn entries accordingly.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **13** # **56**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR56*

MF3 PICS is incorectly specified, this function is not dependent upon the MDIO management being implemented.

SuggestedRemedy

Move this to 54.12.4.1, number accordingly, and change status to M and Support to Yes [ ] Renumber MFn entries accordingly.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **16** # **57**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR57*

MF4 PICS is incorectly specified, this function is not dependent upon the MDIO management being implemented.

SuggestedRemedy

Move this to 54.12.4.1, number accordingly, and change status to M and Support to Yes [ ] Renumber MFn entries accordingly.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **19** # **58**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR58*

MF5 PICS is incorectly specified, this function is not dependent upon the MDIO management being implemented.

SuggestedRemedy

Move this to 54.12.4.1, number accordingly, and change status to ""O"" and Support to ""Yes [ ] / No [ ]"" Renumber MFn entries accordingly.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **24** # **60**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR60*

There is no pics item for optional loopback control through MDIO, see 54.5.8, page 22, line 45.

SuggestedRemedy

Create a pics item with status of MD:O for loopback control.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #145

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **29** # **73**

Bradshaw, Peter — BitBlitz Communicatio

Comment Type **T** *Comment Status* **R** *T73*

For all other PMD types, the PMD_Transmit_Fault and PMD_Receive_Fault functions are specificaly listed as 'optional' (see 45.2.1.7.4:5, 52.4.8:9, 53.4.10:11, 53.15.4.3: MR6:7), and the existence of bits 1.8.13:12 implies the same. I cannot find anything in Clause 54 saying that these functions are mandatory for a CX4 PMD type. The PICS entries however list them as mandatory, unlike the entries in 52.15.3.2 (MD4:5), 53.15.4.3 (MR6:7), where they are optional, and 45.5.5.3 (MM26,28) where 'Yes' & 'N/A' are allowed for 'zero ... if unable to detect', implying that some devices may be 'unable'.

SuggestedRemedy

Change the MF8 and MF9 'Status' to MD:O, and allow a 'No [ ]' Support value

Proposed Response *Response Status* **C**

REJECT.

The text at 54.5.10 and 54.5.11 specifically states ".. the PMD shall set the PMD_transmit_fault ..." and ".. the PMD shall set the PMD_receive_fault ...". The shalls force the Pics to have a status of MD:M.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **7** # **54**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR54*

MF1 PICS is incorectly specified, this function is not dependent upon the MDIO management being implemented. Per the text of sub-clause 54.5.6 this function is optional; however this PICS does not reflect that.

SuggestedRemedy

Move this to 54.12.4.1, number accordingly, and change status to ""O"" and Support to ""Yes [ ] / No [ ]"" Renumber MFn entries accordingly.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.2** *P* **42** *L* **9** # **70**

Bradshaw, Peter BitBlitz Communicatio

Comment Type **TR** *Comment Status* **A** *TR55*

PMD_Fault disable transmitter is optional (see 54.5.6, line 15, :- 'b) If a PMD_Fault is detected, then the PMD may turn off the electrical transmitter in all lanes'), but the PICS MF2 treats it as mandatory. I feel strongly that it should remain optional, since otherwise many systems might suffer the 'Johnny can't go in the water till he can swim' lockout.

SuggestedRemedy

Change the MF2 'Status' to MD:O, and allow a 'No [ ]' Support value

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #55

Cl **54** *SC* **54.12.4.3** *P* **43** *L* **17** # **62**

Baumer, Howard Broadcom Corp

Comment Type **T** *Comment Status* **A** *T62*

""Feature"" and ""Value / comment"" fields are inconsistent with the text.

SuggestedRemedy

Change: ""Minimum transmitter output amplitude"" to ""Minimum transmitter differential peak-to-peak output amplitude"" Change: ""... mVppd"" to ""... mVpp""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use suggested remedy except will change "... mVppd" to "mV", see comment #151

Cl **54** *SC* **54.12.4.3** *P* **43** *L* **19** # **63**

Baumer, Howard Broadcom Corp

Comment Type **T** *Comment Status* **A** *T63*

""Feature"" and ""Value / comment"" fields are inconsistent with the text.

SuggestedRemedy

Change: ""Maximum transmitter amplitude difference"" to ""Maximum transmitter differential peak-to-peak amplitude difference"" Change: ""... mVppd"" to ""... mVpp""

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will use suggested remedy except will change "... mVppd" to "mV", see comment #151

Cl **54** *SC* **54.12.4.3** *P* **43** *L* **32** # **64**

Baumer, Howard Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR64*

""Item"", ""Feature"" and ""Value / comment"" fields are inconsistent with the text.

SuggestedRemedy

Change: ""Transition time"" to ""Rising edge transition time"" Add pics item for ""Falling edge transition time"".

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.12.4.5** *P* **44** *L* **39** # **17**

Brown, Benjamin Independent

Comment Type **T** *Comment Status* **A** *T17*

There are 4 PICs items, CA10, CA11, CA12 & CA13, for a single shall

SuggestedRemedy

Each shall needs exactly 1 PICS item

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Task force has elevated this comment to "Technical". The resolution of this comment involves rewording 54.9.1 which will include appropriate directions to obtain the plug and connector specification.

Put into reference section
IEC 61076-3-113: tbd date [48B Secretariat 1327], etc.

Add foot note: Presently this is a committee draft

replace 54.9.1 paragraph with
"The connector for each end of the cable assembly shall be the latch type plug with the mechanical mating interface defined by IEC 61076-3-113. The connector for the MDI shall be the latch type recepticle with the mechanical mating interface defined by IEC 61076-3-113. These connectors have a pinout matching that in Table 54–7, and the signal quality and electrical requirements of 54.6 and 54.7"

change pics CA10, CA11, CA12 & CA13 to reflect "shall" changes.

Cl **54** *SC* **54.12.4.5** *P* **44** *L* **41** # **65**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR65*

CA11,CA12 do not have any ""shall"" statement in the text of the draft, specifically sub-clause 54.9.1.

SuggestedRemedy

Remove pics or insert ""shall"" statement.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Pics CA11 and Ca12 will be removed.

See comment #17.

Cl **54** *SC* **54.12.42.2** *P* **42** *L* **22** # **59**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR59*

MF6 PICS is incorectly specified, this function is not dependent upon the MDIO management being implemented.

SuggestedRemedy

Move this to 54.12.4.1, number accordingly, and change status to M and Support to Yes [ ] Renumber MFn entries accordingly.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.2** *P* **19** *L* **34** # **89**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **A** *T89*

This is only half true: 'The 10GBASE-CX4 PMD uses the same PMD interface as 10GBASE-LX4.'

SuggestedRemedy

Change 'PMD interface' to 'PMD service interface'

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #222

Cl **54** *SC* **54.3** *P* **19** *L* **42** # **90**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **A** *T90*

1. Sentence overlooks the RS. 2. Sentence can be misread as applying to a mixture of layers and people. The remedy below may need a little more wordsmithing to be correct about use of layer and sublayer.

SuggestedRemedy

Change to: This implies that implementers of MAC, MAC Control sublayer, and physical layers must ...

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change second sentence to:
"This implies that MAC, MAC Control sublayer, and PHY implementers must consider the delay maxima, and that network planners and administrators consider the delay constraints regarding the cable topology and concatenation of devices."

Cl **54** *SC* **54.5.1** *P* **20** *L* **9** # **223**

Law, David — 3Com

Comment Type **T** *Comment Status* **A** *T223*

The text states 'The PMD block diagram is shown in Figure 54-2 ..' however this figure doesn't seem to be a block diagram, there are no sub-functions shown and only half the PMD is included, and even the title of the figure doesn't state that it is a block diagram.

SuggestedRemedy

Change the text 'The PMD block diagram is shown in Figure 54-2.'. to 'A 10GBASE-CX4 link is shown in Figure 54-2.'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.5.2** *P* **20** *L* **48** # **227**

Law, David — 3Com

Comment Type **T** *Comment Status* **A** *T227*

The signals SLn<p> and SLn<n> are shown in figure 54-2 as being the internal PMD service interface yet here the implications is that these are the actually connector signals.

SuggestedRemedy

Please clarify if there are internal or externally observable signals and update the text and Figure 54-2 as required.

Proposed Response *Response Status* **C**

ACCEPT.

See comment #226 for interface naming. Will move SLn<p>, etc to TP1 and DLn<p>, etc to TP4.

Cl **54** *SC* **54.5.4** *P* **21** *L* **20** # **66**

Bradshaw, Peter BitBlitz Communicatio

Comment Type **TR** *Comment Status* **A** *TR66*

The SIGNAL_DETECT function is inherently a function of the input voltage. Line 20 refers to '..the absolute differential peak-to-peak output voltage on each of the four lanes at the MDI has exceeded 175 mV...' The reference should be to the 'input voltage' istead. Line 26 refers to the output voltage also, and should refer to the 'input voltage. I have marked it as a 'TR', though it is arguably merely a 'E'; however, it has remained uncorrected (unnoticed?) since the D4P01 WG version, and the D4P1 'public' version.

SuggestedRemedy

Replace 'output voltage' by 'input voltage' on lines 20 and 26

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.5.4** *P* **21** *L* **21** # **194**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T194*

The text 'The transition from SIGNAL_DETECT = FAIL to SIGNAL_DETECT = OK shall occur within 100µs after the condition for SIGNAL_DETECT = OK has been received.' seems to be a circular definition. It seems to say the transition to SIGNAL_DETECT = OK shall occur 100us after the transition to SIGNAL_DETECT = OK since the condition for SIGNAL_DETECT = OK includes the 100us delay.

SuggestedRemedy

Please clarify the text.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change the second sentence of the second paragraph of 54.5.4 to:

"The PMD receiver is not required to verify whether a compliant 10GBASE-CX4 signal is being received, however, it shall assert SIGNAL_DETECT = OK within 100us after the absolute differential peak-to-peak input voltage on each of the four lanes at the MDI has exceeded 175mV for at least 1 UI."

And delete the last sentence of the same paragraph.

Cl **54** *SC* **54.5.4** *P* **21** *L* **52** # **228**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T228*

The note that is to be added that will state 'Note: SIGNAL_DETECT may not activate with a continuous 1010… pattern such as the high frequency pattern of 48A.1, but it will trigger durning the IPG.' appears to be in conflict with the conformance requirement stated in subclause 54.5.4 that '.. it shall assert SIGNAL_DETECT = OK when the absolute differential peak-to-peak output voltage on each of the four lanes at the MDI has exceeded 175mVpp for at least 1 UI.'. I don't see how a continuous 1010… pattern cannot be required to assert SIGNAL_DETECT = OK when the shall statement states that it shall be asserted after the MDI has exceeded 175mVpp for at least 1 UI.

SuggestedRemedy

Please clarify which statement is correct and either reword the shall statement or the note.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #99.

If the high frequency test pattern of Annex 48A.1 is used to check the SIGNAL_DETECT function through a worst case channel the resultant amplitude and pulse width at the receiver will not necessarily meet the criteria.

Cl **54** *SC* **54.5.4** *P* **21** *L* **52** # **99**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *T99*

Comments on the proposed note. Note looks good in principle but needs wordsmithing, particularly the 'may not' which is ambiguous; is that an injunction or just a description of something?

SuggestedRemedy

Maybe this: SIGNAL_DETECT is not required to activate ...

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Note to be reworded as follows:
"Note: SIGNAL_DETECT may not be activated by a continuous 1010... pattern such as the high frequency pattern of 48A.1, but it will be activated by an IPG."

Cl **54** *SC* **54.5.4 Table 54-2** *P* **21** *L* **32** # **32**

Baumer, Howard — Broadcom Corp

Comment Type **T** *Comment Status* **A** *T32*

Table 54-2 is an informative table but it is not labled as one.

SuggestedRemedy

Add ""(Informative)"" to the table title.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.5.4 Table 54-2** *P* **21** *L* **32** # **173**

Bill Quackenbush — Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *TR173*

The table needs to be marked "Informative" to avoid dual specification.

SuggestedRemedy

See comment.

Proposed Response *Response Status* **U**

ACCEPT.

Cl **54** *SC* **54.5.5** *P* **22** *L* **3** # **198**

Law, David — 3Com

Comment Type **T** *Comment Status* **A** *T198*

Not sure what the text 'Various implementations of the Signal Detect function are permitted by this standard.' is hinting at, I thought we always permit various implementations of functions. Also while it is stated that various implementations of the Signal Detect function are permitted I don't seem to be able to find any definition of the Signal Detect function, only the Global PMD signal detect function in subclause 54.5.4.

SuggestedRemedy

Please clarify this text.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will remove first sentence "Various ...".

Cl **54** *SC* **54.5.7** *P* **22** *L* **24** # **35**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR35*

PMD_transmit_disable_n is incorrectly specifying to turn off all transmitters not just its associated one.

SuggestedRemedy

Change ""... variable such that each transmitter drives ..."" to ""... variable such that the corresponding transmitter drives ...""

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.5.7** *P* **22** *L* **29** # **36**

Baumer, Howard — Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR36*

There is no pics item for this shall: ""If the PMD_transmit_disable_n function is not implemented in MDIO, an alternative method shall be provided to independently disable each transmit lane.""

SuggestedRemedy

Create the appropriate pics item.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change the first paragraph of 54.5.7 to:
"The PMD_transmit_disable_n function is optional. It allows the electrical transmitters in each lane to be selectively disabled."

Delete paragraph above the "note"

Change pic MF4 status to "O".

From comment #170 the PMD_transmit_disable_n function is nolonger required to be mandatory, hence the change to optional.

Cl **54** *SC* **54.7.3** *P* **24** *L* **18** # **103**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *TR103*

Continued wordsmithing. We want the want the 'shall' s and the PICS to certify what the compliant product does, all the time, not to tie the hands of factory test departments. This suggested remedy is consistent with that accepted by EFM and seems both strong and clear. Also missing space in 'Table54-4'.

SuggestedRemedy

Change 'Transmitter characteristics shall be measured at TP2, unless otherwise noted, and are summarized in Table 54-4 and detailed in the following subclauses.' to: 'Transmitter shall meet specifications at TP2, unless otherwise noted. The specifications [or characteristics] are summarized in Table 54-4 and detailed in the following subclauses.'

Proposed Response *Response Status* **U**

ACCEPT.

Changed comment type from "TR" to "T" since commenter is not in the Sponsor Ballot Group.

Cl **54** *SC* **54.7.3.1** *P* **25** *L* **3** # **106**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *TR106*

Concern with 'functional equivalent' here: you want a test rig that presents the right impedances (an electrical rather than functional equivalent) or calibrates for its impedance (like a network analyser; you don't know what its actual return loss is but it's calibrated out for you) - not sure what sort of equivalent this is. As you have an 'or equivalent' in the figure, that may be enough. Also concern with the 'shall be used for measuring' as in another comment.

SuggestedRemedy

Change: The test fixture of Figure 54–3, or its functional equivalent, shall be used for measuring the transmitter specifications described in 54.7.3. to: The transmitter shall meet the specifications of 54.7.3 when connected to the test fixture of Figure 54–3.

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Change:
"The test fixture of Figure 54–3, or its functional equivalent, shall be used for measuring the transmitter specifications
described in 54.7.3."

to:
"The test fixture of Figure 54–3, or its functional equivalent, is required for measuring the transmitter specifications described in 54.7.3."

The corresponding pics, DS2, will be removed.

Changed comment type from "TR" to "T" since commentor is not in the sponsor Ballot Group.

Cl **54** *SC* **54.7.3.4** *P* **26** *L* **5** # **149**

Grow, Robert Intel

Comment Type **T** *Comment Status* **A** *TR151*

Inconsistent nomenclature

SuggestedRemedy

Change p-p to pp subscript. The ""pp"" in line 10 is not subscripted. Search document for p-p and replace as necessary.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment number 151.

Cl **54** *SC* **54.7.3.5** *P* **27** *L* **1** # **29**

Dove, Daniel HP ProCurve Networki

Comment Type **TR** *Comment Status* **X** *TR29*

I am concerned that our specification is too general in that ReturnLoss is specified for a cable assembly that goes from 0m to 15m and presentations have indicated that the minimum return loss is based upon interaction between near end connectors and far end connectors in a short cable. Thus we are allowing much sloppier long-cables than we should.

SuggestedRemedy

Redefine ReturnLoss as a function of frequency and some other parameter that is dependent on cable length. Either use the length explicitly, or InsertionLoss or some other factor.

Proposed Response *Response Status* **Z**

WITHDRAWN by commentor.

Cl **54** *SC* **54.7.3.5** *P* **27** *L* **12** # **207**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T207*

The text states that the return loss requirement is from 100MHz to 2000MHz, the text on line 12 states 54-1 is for 100MHz <= f therefore including 100MHz however line 20 states 54-2 is for f < 2000MHz therefore excluding 2000MHz. This doesn't seem consistent.

SuggestedRemedy

Change the text '625 MHz <- f < 2000 MHz' to read '625 MHz <- f <= 2000 MHz'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.7.3.5** *P* **27** *L* **4** # **206**

Law, David 3Com

Comment Type **T** *Comment Status* **R** *T206*

The text states that '.. the transmitter shall meet Equation 54–1 and Equation 54–2.' however wouldn't a transmitter that exceeds these requirements also be acceptable. If this is correct then Figure 54-5 should also be updated to show a template rather than just as plot of the function. In addition there is no reference to Figure 54-5 in the text which should be added.

SuggestedRemedy

Suggest the text '.. the transmitter shall meet Equation 54–1 and Equation 54–2.' should be changed to read '.. the transmitter shall meet or exceed Equation 54–1 and Equation 54–2.', Figure 54-4 should be updated to be either a template or a limit and the text 'The transmit differential output return loss limit is illustrated in Figure 54-4' should be added to subclause 54.7.3.5. Similar changes need to be done to 54.7.4.5 as this subclause also references 54-1 and 54-2.

Proposed Response *Response Status* **C**

REJECT.

Equations 54-1 and 54-2 are inequalities and therefore an "or exceeds" is not necessary. The figure is an informative figure and as such does not need a textual reference.

Cl **54** *SC* **54.7.3.5** *P* **27** *L* **4** # **209**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T209*

Is the use of a 100 Ohm reference impedance during the return loss measurement mandatory.

SuggestedRemedy

Is the use of a 100 Ohm reference impedance in mandatory a shall statement should be added here.

Proposed Response *Response Status* **C**

ACCEPT.

Will change text to read "... measurements shall be 100 ohms" and add the appropriate Pics item.

Cl **54** *SC* **54.7.3.5** *P* **27** *L* **4** # **208**

Law, David 3Com

Comment Type **T** *Comment Status* **R** *T208*

While the intent of the text '.. shall meet Equation 54–1 and Equation 54–2.' can be deduced it does seem odd to state with a shall statement that both equations apply even though in fact only one ever applies dependent on the frequency under consideration.

SuggestedRemedy

Suggest this text be reworded, in a similar case in XAUI (subclause 47.4.1) only one equation was stated avoiding the need to reference two.

Proposed Response *Response Status* **C**

REJECT.

The transmitter must satisfy both equations and hence the shall specifies both.

Cl **54** *SC* **54.7.3.6** *P* **28** *L* **11** # **117**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **R** *T117*

Steps 1 and 7 seem mutually redundant

SuggestedRemedy

Delete one?

Proposed Response *Response Status* **C**

REJECT.

Steps 1 and 7 are not mutually redundant. After normalization the waveform may not line up on the time axis (x-axis) in the optimal spot, therefore step 7 is provided to allow this alignment to take place.

Cl **54** *SC* **54.7.3.6** *P* **28** *L* **5** # **170**

Thaler, Pat

Comment Type **TR** *Comment Status* **A** *TR114*

I assume that the test states "with all other transmitters disabled" because there was a concern that crosstalk would interfer with the measurement. Unfortunately, a mesurement of the transmitter waveform with the other transmitters off may not accurately reflect the performance with in real operation. Someone might implement an inadequate power and grounding plan. The chip output in that case might look fine when just one transmitter was operating but when power was being sourced to all transmitters at the same time, the waveform might change substantially and not meet the template. Also, one might have excessive internal interaction between the transmitters. If one only tests a single transmitter at a time, one could find that the device was compliant but didn't work.

SuggestedRemedy

The standard should require testing transmitter waveform in a normal operating condition - all transmitters active.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #114 for text.

See comment #55 against D5.2

Cl **54** *SC* **54.7.3.6** *P* **28** *L* **6** # **114**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *TR114*

Continuing with the wordsmithing; see other comments for rationale and apologies for making such an issue of it.

SuggestedRemedy

Change: These measurements are to be made for each pair while observing the differential signal output at TP2 using the transmitter test fixture shown in Figure 54–3 and with all other transmitters disabled. to: The signals on each pair at TP2 shall meet specifications when connected to the transmitter test fixture shown in Figure 54–3, with all other transmitters disabled. Thanks!

Proposed Response *Response Status* **U**

ACCEPT IN PRINCIPLE.

Will use the following text:
"The signals on each pair at TP2 shall meet the transmit template specifications when connected to the transmitter test fixture shown in Figure 54-3, with all other transmitters active."

Changed end to "all other transmitters active" to address comment #170.

Changed comment type from "TR" to "T" since commentor is not in the sponsor Ballot Group.

Cl **54** *SC* **54.7.3.7** *P* **29** *L* # **231**

Taich, Dimitry

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

Initially transition times were defined based on the 20%-80% thresholds of the transition. The current definition of transition time measurement suffers from the fact that for different pre-emphasis values you get different transition times (while the transmitter remains the same). More over at low pre-emphasis values the measured transition time differs substantially from the 20%-80% measurement. Additionally you may have templates that fit the template limits but fail the transition time limits - which is contrary to the original intention.

SuggestedRemedy

Rephrase clause 54.7.3.7 as follows: The rising edge transition time shall be between 60 and 130 ps. The rising edge transition time will be measured by using the following procedure:
1. Measure the peak normalized template between 0.5UI and 2.5UI - called Vp
2. Compute the lower threshold of the positive transition
th_low_p= -0.69 + 0.2*(Vp + 0.69)
3. Compute the upper threshold of the positive transition
th_up_p = -0.69 + 0.8*(Vp + 0.69)
4. Measure the rising time of the normalized template transition from the lower to upper thresholds defined above.

The falling edge transition time shall be between 60 and 130 ps.
The falling edge transition time will be measured by using the following procedure:
1. Measure the peak of the absolute of the normalized template between 5.5UI and 7.5UI - called Vn
2. Compute the upper threshold of the negative transition
th_up_n= 0.69 - 0.2*(Vp + 0.69)
3. Compute the lower threshold of the negative transition
th_low_n= 0.69 - 0.8*(Vn + 0.69)
4. Measure the falling time of the normalized template transition from the upper to lower thresholds defined above.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Change "... -0.35 to the 0.66 normalized levels as specified in 54.6.3.6" in the 1st sentence of 54.7.3.7" to "... at the 20% and 80% levels of the peak-to-peak differential value of the waveform using the high frequency test pattern of 48A.1."

Change "... 0.35 to the -0.66 normalized levels as specified in 54.6.3.6" in the 2nd sentence of 54.7.3.7" to "... at the 80% and 20% levels of the peak-to-peak differential value of the waveform using the high frequency test pattern of 48A.1."

Motion to: "Accept in principal" this suggested remedy with appropriate word smithing.
Moved by: Peter Bradshaw
Second by: Dimitry Taich
All:

Y _____ N _____ A _____

Motion to table above:
Moved by: Peter Bradshaw
Second by: Tony Zortea
All:

Y __9___ N ___1__ A ___2__

Motion to: "Accept in principal" this suggested remedy with the modification to specify using 20% to 80% limits of the high frequency test pattern of 48A.1. And appropriate word smithing.

Moved by: Dimitry Taich
Second by: Peter Bradshaw
All:

Y ___9__ N ___2__ A ___2__

Passes.

Cl **54** *SC* **54.7.3.8** *P* **29** *L* **33** # **37**

Baumer, Howard Broadcom Corp

Comment Type **TR** *Comment Status* **A** *TR37*

The sentence: ""The transmitter shall satisfy the jitter requirements with ...."" does not specify or point to which ""jitter requirements"".

SuggestedRemedy

Change ""The transmitter shall satisfy the jitter requirements with ...."" to ""The transmitter shall satisfy the jitter requirements of 54.10.1 with ...""

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.7.4.1** *P* **30** *L* **29** # **125**

Dawe, Piers — Agilent

Comment Type **T** *Comment Status* **A** *T125*

NOTE is good advice but could do with wordsmithing. I would prefer some form of words like ""The BER limit is met with ..."" rather than ""BER should be tested with ..."". Also, return loss, NEXT and FEXT are ratios already; if reflected signal is higher for short cable, ""return loss"" would be lower not higher. Why would NEXT depend significantly on cable length? It's probably easier to delete some detail than address all these points.

SuggestedRemedy

Change: 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. to: NOTE -dash- The BER limit is met with a worst case insertion loss, long cable, as well as a low loss, short, cable. The low loss cable may be a more stringent requirement on the system due to higher [larger effects of] reflections and crosstalk than with long cables.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change to:
NOTE -dash- The BER limit should be met with a worst case insertion loss, long cable, as well as a low loss, short cable. The low loss cable may be a more stringent requirement on the system due to higher [larger effects of] reflections and crosstalk than with long cables.

Cl **54** *SC* **54.7.4.4** *P* **30** *L* **50** # **186**

Bill Quackenbush — Cisco Systems, Inc.

Comment Type **TR** *Comment Status* **A** *TR186*

The text requires that the receiver accept an unattenuated transmit signal, but does not state the acceptance criteria. Must the acceptance be without damage to the receiver, without receiver malfunction or what?

SuggestedRemedy

State acceptance requirement clearly.

Proposed Response *Response Status* **U**

ACCEPT.

Will add to the end of the first sentence: "... , and still meet the BER requirement specified in 54.7.4.1."

Cl **54** *SC* **54.8 Table 54-7** *P* **31** *L* **23** # **187**

Bill Quackenbush — Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A** *R187*

There is no indication whether the first and second items in the table are minimums or maximums.

SuggestedRemedy

Add "Minimum" or "Maximum" to items 1 and 2 in the table as appropriate.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.8.2** *P* **32** *L* **7** # **211**

Law, David — 3Com

Comment Type **T** *Comment Status* **R** *T211*

The text states that 'The insertion loss, in dB with f in MHz, of each pair of the 10GBASE-CX4 cable assembly shall be:' however wouldn't a cable that exceeds these requirements also be acceptable. If this is correct then Figure 54-7 should also be updated to show a template or a limit rather than just as plot of the function. In addition there is no reference to Figure 54-7 in the text which should be added.

SuggestedRemedy

Suggest the text 'The insertion loss, in dB with f in MHz, of each pair of the 10GBASE-CX4 cable assembly shall be:' should be changed to read 'The insertion loss, in dB with f in MHz, of each pair of the 10GBASE-CX4 cable assembly shall meet or exceed:', Figure 54-7 should be updated to be either a template or a limit and the text 'The cable assembly insertion loss is illustrated in Figure 54-7.' should be added to subclause 54.8.2. Similar changes need to be done to 54.8.3 & Figure 54-8, 54.8.4.2 & Figure 54-9 and 54.8.5.2 & Figure 54-10.

Proposed Response *Response Status* **C**

REJECT.

Equations 54-3 is an inequality and therefore an "or exceeds" is not necessary. The figure is an informative figure and as such does not need a textual reference.

Cl **54** *SC* **54.8.3** *P* **33** *L* **7** # **26**

Dove, Daniel — HP ProCurve Networki

Comment Type **TR** *Comment Status* **A** *TR26*

The ReturnLoss calculation as defined yields a discontinuity at 400MHz.

SuggestedRemedy

Replace ""17.17"" with ""17.19""

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.8.3** *P* **33** *L* **7** # **212**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T212*

The text states that the return loss requirement is from 100MHz to 2000MHz, the text on line 7 states 54-4 is for 100MHz <= f therefore including 100MHz however line 14 states 54-5 is for f < 2000MHz therefore excluding 2000MHz. This doesn't seem consistent.

SuggestedRemedy

Change the text '400 MHz <- f < 2000 MHz' to read '400 MHz <- f <= 2000 MHz'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **54.8.3** *P* **33** *L* **7** # **38**

Baumer, Howard Broadcom Corp

Comment Type **T** *Comment Status* **A** *TR26*

The slope for the cable assembly return loss of 17.17 creates a return loss = 12.01 at 400MHz. This s/b 12.

SuggestedRemedy

Change the the return loss slope to 17.19 to get the return loss at 400MHz = 12. This has a no affect on the link performance.

Proposed Response *Response Status* **C**

ACCEPT.

See comment #26

Cl **54** *SC* **54.8.4.2** *P* **34** *L* **30** # **188**

Bill Quackenbush Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A** *T188*

The "i" in the exponent of the summation of equation 54-8 should be a subscript.

SuggestedRemedy

Fix.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #158

Cl **54** *SC* **54.8.4.2** *P* **34** *L* **9** # **30**

Dove, Daniel HP ProCurve Networki

Comment Type **TR** *Comment Status* **X** *TR30*

I am concerned that our specification is too general in that MDNEXT is specified for a cable assembly that goes from 0m to 15m and presentations have indicated that the minimum MDNEXT loss is based upon interaction between near end connectors and far end connectors in a short cable. Thus we are allowing much sloppier long-cables than we should.

SuggestedRemedy

Redefine MDNEXT as a function of frequency and some other parameter that is dependent on cable length. Either use the length explicitly, or InsertionLoss or some other factor.

Proposed Response *Response Status* **Z**

WITHDRAWN by commentor.

Cl **54** *SC* **54.8.5.2** *P* **36** *L* **32** # **191**

Bill Quackenbush Cisco Systems, Inc.

Comment Type **T** *Comment Status* **A** *T191*

The "i" in the exponent of the summation of equation 54-11 should be a subscript.

SuggestedRemedy

Fix.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

See comment #158

Cl **54** *SC* **Figure 54-2** *P* **20** *L* **25** # **224**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T224*

Isn't the box marked 'CX4 receive connection including AC-coupling' actually more than just a 'connection' but actually a 10GBASE-CX4 PMD receive function. In addition isn't the box marked 'CX4 transmit connection' also more than just a connection but actually the transmit portion of the PMD.

SuggestedRemedy

Suggest the text in the box that reads 'CX4 receive connection including AC-coupling' be changed to read '10GBASE-CX4 PMD receive function' and the box marked 'CX4 transmit connection' be changed to read '10GBASE-CX4 PMD transmit function'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **Figure 54-2** *P* **20** *L* **26** # **226**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T226*

The interface on the left and right had sides of this figure is marked 'PMD Service interface' yet the signal shown are not from the definition of the PMD Service interface found in 53.1.1.

SuggestedRemedy

Update the interface to use the primitives from the PMD Service interface referenced.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **Figure 54-4** *P* **26** *L* **29** # **202**

Law, David 3Com

Comment Type **T** *Comment Status* **A** *T202*

The figure title doesn't seem correct as the are no voltage limits shown.

SuggestedRemedy

Suggets the title be changed to read 'Transmitter differential peak-to-peak output voltage definition'.

Proposed Response *Response Status* **C**

ACCEPT.

Cl **54** *SC* **Figure 54-6** *P* **28** *L* **50** # **118**

Dawe, Piers Agilent

Comment Type **T** *Comment Status* **A** *T118*

Per other comments, would prefer removal of 'as measured'

SuggestedRemedy

Please remove 'as measured' from figure caption.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Will change figure title to: "Normalized transmit template". The "as measure at TP2 using figure 54-3" has already been stated in the text.

Cl **54** *SC* **Table 54-4** *P* **24** *L* **47** # **147**

Grow, Robert Intel

Comment Type **T** *Comment Status* **A** *T147*

Incorrect Units?

SuggestedRemedy

Shouldn't unit simply be UI, not UIpp? If peak-to-peak is needed, it probably belongs in Parameter column.

Proposed Response *Response Status* **C**

ACCEPT IN PRINCIPLE.

Units will go to UI.
Peak-to-peak will be added to the parameter.