

P802.3ak Draft 4.0 Comments

CI 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.

CI 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."

CI 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

CI 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 developments 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

CI 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

CI 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

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CI 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.

CI 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 suggested 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:-

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.

CI 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

CI 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 occurrences.

Proposed Response Response Status C  
 ACCEPT IN PRINCIPLE.

See comment #1

CI 45 SC 2.1.7 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

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CI 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

CI 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)"

CI 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.

CI 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.

CI 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.

CI 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"

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CI 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

CI 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

CI 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.

CI 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

CI 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 incorrect used and should also be changed.  
 SuggestedRemedy  
 change all <0:3> to <3:0>  
 Proposed Response Response Status C  
 REJECT.  
 See comment #287

CI 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

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CI 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."

CI 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 U1pp jitter. However, this test proposes that a minimally compliant transmitter (0.35 U1pp 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 U1pp 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 U1pp DJ and at least 0.18 U1pp 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.

CI 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.

CI 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.

CI 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.

CI 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.

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CI 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.

CI 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

CI 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

CI 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.

CI 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

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CI 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 subclauses titled "PMD to MDI Electrical specifications for 10GBASE-CX4" and all XUAL 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"

CI 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.

CI 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 loooooong. 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".

CI 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.

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CI 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

CI 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)).

CI 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

CI 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

CI 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

CI 54 SC 6.1 P 20 L 14 # 376  
 Ewen, John JDS Uniphase  
 Comment Type T Comment Status A T294  
 The electrical receive 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



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CI 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.

CI 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.

CI 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.

CI 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

CI 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.

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CI 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.

CI 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 indefinite 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... pattern such as the high frequency pattern of 48A.???, but it will trigger during the IPG.

CI 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 ...."

CI 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 identified 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.

P802.3ak Draft 4.0 Comments

CI 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 associated PICS.

CI 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.

CI 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 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 ..."

CI 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.

CI 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.

P802.3ak Draft 4.0 Comments

CI 54 SC 7 P 23 L 11 # 388  
Brown, Kevin Broadcom Corp

Comment Type TR Comment Status A TR388

The complete link budget of: transmitter 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 tolerance (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 operation, for a BER of  $10^{-12}$ , with the given insertion loss, transmit level, transmit template and a reasonable simple receiver equalization (at the minimum could need next & fext cancellation).

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 equations 54.4a, 54.4b, 54.4c to:  
Return Loss(f)  $\geq 22.35 - 17.17 \times \log_{10}(f/100)$  for  $100\text{MHz} < f \leq 400\text{MHz}$   
Return Loss(f)  $\geq 12$  for  $400\text{MHz} < f \leq 2000\text{Mz}$
- 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 sentence: "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:  
 $\text{MDNext}(f) \geq 27 - 17 \times \log_{10}(f/2000)$
- 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

CI 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 sentence.

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)

CI 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

CI 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.

P802.3ak Draft 4.0 Comments

CI 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."

CI 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 not 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 addressed 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, relabel Z=50ohm to R=50ohm for R to Figure 54-3.

CI 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

CI 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

P802.3ak Draft 4.0 Comments

CI 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

CI 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

CI 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 comment #487

CI 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.

CI 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

CI 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

P802.3ak Draft 4.0 Comments

CI 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 in order to allow +/- 100ppm baud rate differences

SuggestedRemedy

normalize timescale to UI.

Proposed Response Response Status C

ACCEPT.

Update normalization instructions to use UI instead of ps.

CI 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.

CI 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.

CI 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.

CI 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

CI 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 accommodate 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.

P802.3ak Draft 4.0 Comments

CI 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

CI 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.

CI 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 trasiition 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 transitiions.

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."

CI 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



P802.3ak Draft 4.0 Comments

CI 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  $\pm 0.175$  UI peak from the mean and a maximum deterministic component of  $\pm 0.085$  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"

CI 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  $\pm 0.175$  UI peak from the mean and a maximum deterministic component of  $\pm 0.085$  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  $\pm 0.135$  UI peak"

CI 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  $\pm 0.175$  UI peak from the mean and a maximum deterministic component of  $\pm 0.085$  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

CI 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  $\pm 0.175$  UI peak from the mean and a maximum deterministic component of  $\pm 0.085$  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

P802.3ak Draft 4.0 Comments

CI 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

CI 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

CI 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.

CI 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 inadvertently left in. It will be removed.

CI 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

CI 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 XAUI budget may cause interoperability issues. I can't vote to Approve this draft with an Editor's note stating that the jitter budget will be reconsidered.

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

P802.3ak Draft 4.0 Comments

CI 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 asymmetrical 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.

CI 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."

CI 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.

CI 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.

CI 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."

P802.3ak Draft 4.0 Comments

CI 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."

CI 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.

CI 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

CI 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.

CI 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

P802.3ak Draft 4.0 Comments

CI 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.

CI 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.

CI 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:  $NEXT(f) \leq -30 + 17 \cdot \log(f/2000)$  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 MDLFFEXT entries in Table 54-10.

CI 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.

CI 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."

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CI 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

CI 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.

CI 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 of 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

CI 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

CI 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

P802.3ak Draft 4.0 Comments

CI 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.

CI 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.

CI 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 assumed 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).

CI 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

CI 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

CI 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.

P802.3ak Draft 4.0 Comments

CI 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.

CI 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 MDELFEFT?

SuggestedRemedy

Clarify the relationship of PSELFEXT to MDELFEFT.

Proposed Response Response Status C

ACCEPT IN PRINCIPLE.

"PSELFEXT" to be replaced with "MDELFEFT\_Loss" so it matches syntax of MDNEXT.

CI 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.

CI 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 will be added to the new figures.

CI 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."

CI 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



P802.3ak Draft 4.0 Comments

CI 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

CI 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.

CI 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

CI 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 .

CI 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 ";" 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.

CI 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

P802.3ak Draft 4.0 Comments

CI 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.

CI 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

CI 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.

CI 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

CI 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

CI 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 confusion because it is informative, the expected eye opening at TP4 is closed and the numbers in this table do bot relect this. This table does not make any sense with a closed eye at TP4.

SuggestedRemedy

Remove table

Proposed Response Response Status C  
 ACCEPT.